IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION

SITEPRO, INC.,	§	
	§	
***Plaintiff*,**	§	**Civil Action No. 6:24-CV-642**
	§	**Civil Action No. 6:24-CV-643**
v.	§	
	§	**JURY TRIAL DEMANDED**
TANKLOGIX, LLC.,	§	
	§	
***Defendant*.**	§	
	§	

DEFENDANT'S PRELIMINARY INVALIDITY CONTENTIONS

TABLE OF CONTENTS

I. INTRODUCTION 1

II. PERSON HAVING ORDINARY SKILL IN THE ART 1

III. PRIORITY DATE OF THE ASSERTED PATENTS AND CLAIMS 2

IV. OVERVIEW OF DEFENDANT'S INVALIDITY CONTENTIONS 2

A. INELLIGABILITY 5

B. ANTICIPATION 6

C. OBVIOUSNESS 7

D. INDEFINITNESS 13

V. '909 PATENT 14

A. INELIGIBILITY 14

1. Alice Step 1 – The claims are directed to the abstract idea of controlling fluid-handling devices 15

2. Alice Step 2 – The claims do not add substantially more than the abstract idea 19

B. PRIOR ART REFERENCES 27

C. INDEFINITE NESS 29

VI. '078 PATENT 37

A. INELIGIBILITY 37

1. Alice Step 1 – The claims are directed to the abstract idea of controlling fluid-handling devices 38

2. Alice Step 2 – The claims do not add substantially more than the abstract idea 41

B. PRIOR ART REFERENCES 49

C. INDEFINITENESS 51

VII. '014 PATENT 57

A. INELIGIBILITY 57

1. Alice Step 1 – The claims are directed to the abstract idea of monitoring and controlling geographically distributed facilities in oil and gas fields 58

2. Alice Step 2 – The claims do not add substantially more than the abstract idea 60

B. PRIOR ART REFERENCES 64

C. INDEFINITENESS 65

VIII. '871 PATENT 71

A. INELIGIBILITY 71

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

1. Alice Step 1 – The claims are directed to the abstract idea of controlling fluid-handling devices 72

2. Alice Step 2 – The claims do not add substantially more than the abstract idea 74

B. PRIOR ART REFERENCES 79

C. INDEFINITENESS 81

IX. '403 PATENT 93

A. INELIGIBILITY 93

1. Alice Step 1 – The claims are directed to the abstract idea of access control 94

2. Alice Step 2 – The claims do not add substantially more than the abstract idea 95

B. PRIOR ART REFERENCES 99

C. INDEFINITENESS 101

X. '504 PATENT 108

A. INELIGIBILITY 108

1. Alice Step 1 – The claims are directed to the abstract idea of access control 109

2. Alice Step 2 – The claims do not add substantially more than the abstract idea 110

B. PRIOR ART REFERENCES 113

C. INDEFINITENESS 115

XI. '680 PATENT 119

A. INELIGIBILITY 119

1. Alice Step 1 – The claims are directed to the abstract idea of monitoring and controlling geographically distributed facilities in oil and gas fields 119

2. Alice Step 2 – The claims do not add substantially more than the abstract idea 121

B. PRIOR ART REFERENCES 124

C. INDEFINITENESS 126

XII. '461 PATENT 132

A. INELIGIBILITY 132

1. Alice Step 1 – The claims are directed to the abstract idea of access control 132

2. Alice Step 2 – The claims do not add substantially more than the abstract idea 134

B. PRIOR ART REFERENCES 136

C. INDEFINITENESS 138

XIII. CONCLUSION 145

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

TABLE OF AUTHORITY

Cases

ACCO Brands Corp. v. Fellowes, Inc., 813 F.3d 1361, 1367 (Fed. Cir. 2016) 10

Alice Corp. Pty. Ltd. v. CLS Bank Int'l, 134 S. Ct. 2347, 2358 (2014) ..... passim

Apple Inc. v. Samsung Elecs. Co., 839 F.3d 1034, 1058 (Fed. Cir. 2016) 10

Arctic Cat Inc. v. Bombardier Recreational Prod. Inc., 876 F.3d 1350, 1359 (Fed. Cir. 2017) .. 11

Ariad Pharms., Inc. v. Eli Lilly & Co., 598 F.3d 1336, 1351-52 (Fed. Cir. 2010) 13

Bayer Pharma AG v. Watson Labs., Inc., 874 F.3d 1316, 1329 (Fed. Cir. 2017) 11

buySAFE, Inc. v. Google, Inc., 765 F.3d 1350 (Fed. Cir. 2014) ..... passim

ChargePoint, Inc. v. SemaConnect, Inc., 920 F.3d 759 (Fed. Cir. 2019) 38

ClearDoc, Inc. v. RiversideFM, Inc., 2022 WL 606698 (D. Del. 2022) 38

Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat. Ass'n, 776 F.3d 1343 (Fed. Cir. 2014) ..... passim

Contour IP Holding LLC v. GoPro, Inc., 113 F.4th 1373 (Fed. Cir. 2024) 5

Cyber- Source Corp. v. Retail Decisions, Inc., 654 F.3d 1366 (Fed. Cir. 2011) ..... passim

Dealertrack, Inc. v. Huber, 674 F.3d 1315 (Fed. Cir. 2012) 41

Elec. Power Grp., LLC v. Alstom S.A., 830 F.3d 1350 (Fed. Cir. 2016) ..... passim

Enfish, LLC v. Microsoft Corp., 822 F.3d 1327 (Fed. Cir. 2016) 5, 38

Ericsson Inc. v. TCL Commc'n Tech. Holdings Ltd., 955 F.3d 1317 (Fed. Cir. 2020) ..... passim

FairWarning IP, LLC v. Iatric Sys., 839 F.3d 1089 (Fed. Cir. 2016) ..... passim

In re Wands, 858 F.2d 731, 737 (Fed. Cir. 1988) 13

Intell. Ventures I LLC v. Cap. One Bank (USA), 792 F.3d 1363, 1370 (Fed. Cir. 2015) 91

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

Intell. Ventures I LLC v. Cap. One Fin. Corp., No. 8:14-cv-00111-PWG (D. Md. Sep. 2, 2015) *aff'd Intell. Ventures I LLC v. Cap. One Fin. Corp.*, 850 F.3d 1332 (Fed. Cir. 2017) 70

Intell. Ventures I LLC v. Erie Indem. Co., 850 F.3d 1315 (Fed. Cir. 2017) 41

Intercontinental Great Brands LLC v. Kellogg N. Am. Co., 869 F.3d 1336, 1344 (Fed. Cir. 2017) 10

Internet Pats. Corp. v. Active Network, Inc. 790 F.3d 1343 (Fed. Cir. 2015) 5

InTouch Techs., Inc. v. VGo Commc'ns, Inc., 751 F.3d 1327, 1347 (Fed. Cir. 2014) 11

KSR International Co. v. Teleflex Inc., 127 S. Ct. 1727 (2007) 8

McRO, Inc. v. Bandai Namco Games Am. Inc., 837 F.3d 1299 (Fed. Cir. 2016) 5

Messaging Gateway Solutions v. Amdocs, Inc., No. 14-732-RGA, 2015 WL 1744343 (D. Del. Apr. 15, 2015) 38

Novo Transforma Techs., LLC v. Sprint Spectrum L.P., 2015 WL 5156526 (D. Del. Sept. 2, 2015), *aff'd*, 669 F. App'x 555 (Fed. Cir. 2016) 39

*Parus Holdings, Inc. v. Sallie Mae Ban*k, 137 F. Supp. 3d 660 (D. Del. 2015), *aff'd,* 677 Fed. App'x 682 (Fed. Cir. 2017) 42

Recognicorp, LLC v. Nintendo Co. Ltd., 2015 WL 11217242 (W.D. Wash. 2015), *aff'd*, *Recognicorp, LLC v. Nintendo Co.,* 855 F.3d 1322, 1326-28 (Fed. Cir. 2017) 45

Sanofi-Aventis Deutschland GmbH v. Glenmark Pharms. Inc., USA, 748 F.3d 1354, 1360 (Fed. Cir. 2014) 11

TDE Petroleum Data Sol'ns, Inc. v. AKM Enterprise, Inc. 4:15-cv- 01821, 2015 WL 5311059 (S.D. Tex. Sept. 11, 2015), *aff'd,* 657 F. App'x 991 (Fed. Cir. 2016) 44

TLI Commc'ns LLC v. AV Auto., L.L.C. (In re TLI Commc'ns LLC Pat. Litig.), 823 F.3d 607 (Fed. Cir. 2016) 6

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

Two-Way Media Ltd. v. Comcast Cable Commc'ns, LLC, 874 F.3d 1329 (Fed. Cir. 2017) . passim

Ultramercial Inc. v. Hulu, LLC, 772 F.3d 709 (Fed. Cir. 2014)..... passim

Univ. of Fla. Rsch. Found., Inc. v. Gen. Elec. Co., 916 F.3d 1363 (Fed. Cir. 2019)..... 39

VoIP-Pal.com, Inc. v. Apple Inc., No. 18-CV-06217-LHK (N.D. Cal. Mar. 25, 2019) 42

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

I. INTRODUCTION

Pursuant to the Scheduling Order, Defendant TankLogix, LLC ("Defendant" or "TankLogix") provides these Preliminary Invalidity Contentions for the following claims Plaintiff SitePro, INC. ("Plaintiff" or "SitePro") asserted in its April 11, 2025, Preliminary Infringement Contentions.

a) Claims 1-21 of U.S. Patent No. 8,649,909 (the "'909 Patent")

b) Claims 1-9, 11-13, and 15-19 of U.S. Patent No. 9,342,078 (the "'078 Patent")

c) Claims 1-23 of U.S. Patent No. 9,898,014 (the "'014 Patent")

d) Claims 18-34 of U.S. Patent No. 10,488,871 (the "'871 Patent")

e) Claims 1-30 of U U.S. Patent No. 11,294,403 (the "'403 Patent")

f) Claims 1-20 of U.S. Patent No. 11,726,504 (the "'504 Patent")

g) Claims 1-20 of U.S. Patent No. 11,175,680 (the "'680 Patent")

h) Claims 1-17 of U.S. Patent No. 12,019,461 (the "'461 Patent")

II. PERSON HAVING ORDINARY SKILL IN THE ART

These Preliminary Invalidity Contentions use the acronym "POSITA" to refer to a person having ordinary skill in the art to which the claimed inventions pertain. A POSITA at the time of the alleged invention of the asserted patents would have had at least a bachelor's degree in engineering (electrical, chemical, or mechanical), computer science, or a related field and significant experience with remotely controlling fluid-handling devices, like SCADA systems. For individuals with different educational backgrounds, a person could still be of ordinary skill in the art provided that person's additional experience compensates for any differences in that person's education as stated above.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

III. PRIORITY DATE OF THE ASSERTED PATENTS AND CLAIMS

SitePro asserts the following priority dates in its April 11, 2025, Preliminary Infringement Contentions.

Patent No.	Issue Date	Priority Date
8,649,909	February 11, 2014	December 7, 2012
9,342,078	May 17, 2016	December 7, 2012
9,898,014	February 20, 2018	December 7, 2012
10,488,871	November 26, 2019	December 7, 2012
11,294,403	April 5, 2022	December 7, 2012
11,726,504	August 15, 2023	December 7, 2012
11,175,680	November 16, 2021	December 7, 2012
12,019,461	June 25, 2024	December 7, 2012

IV. OVERVIEW OF DEFENDANT'S INVALIDITY CONTENTIONS

The grounds for invalidity under 35 U.S.C. §§ 101, 102, 103, and 112, are set forth below in Sections V through XII.

With respect to the ineligibility grounds, Defendant has identified a representative independent claim that is illustrative of the subject matter and limitations common to the remaining claims. Defendant provides a detailed analysis demonstrating that the representative claim is

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

directed to an abstract idea and that the claim lacks any inventive concept sufficient to transform the ineligible subject matter into a patent-eligible application. The remaining claims, including all dependent claims, recite conventional variations or field-of-use limitations that do not meaningfully alter the eligibility analysis and are therefore equally invalid under § 101. To the extent the Court determines that any claim is not fairly represented by the identified independent claim, Defendant reserves the right to submit an individualized claim-by-claim analysis of patent ineligibility for each such claim.

Further, with respect to Defendant's 112 grounds for invalidity, Defendant has provided accompanying § 112 charts that identifies the claims that are indefinite. These include claims with functional limitations lacking corresponding structure under § 112(f), claims with vague or ambiguous terms that fail to inform a person of ordinary skill in the art ("POSITA") of the scope of the invention with reasonable certainty under § 112(b), and/or claims that recite subject matter not supported by adequate written description or enabling disclosure under § 112(a). To the extent the Court requires further elaboration beyond the current identification of indefinite claims and exemplary term analysis, Defendant reserves the right to submit a detailed element-by-element analysis of claim invalidity under § 112.

Additionally, with respect to prior art invalidating the Asserted Claims under 35 U.S.C. §§ 102 and 103, the attached charts disclosed in Exhibits A-1 through H-1 demonstrate, on a claim-by-claim basis how the prior art publications and/or systems disclose the limitations of the Asserted Claims. The references in Exhibits A through H may disclose elements of the Asserted Claims explicitly or inherently. The references in Exhibits A through H may also be relied upon to show the state of the art at the relevant time and/or that elements of the Asserted Claims, or any Asserted Claim as a whole, would have been obvious to a person having ordinary skill in the art

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

("POSITA") at the time of the alleged invention. The references in Exhibits A through H may disclose obviousness combinations.

Defendant is currently unaware of the extent, if any, to which SitePro will contend that limitations of the Asserted Claims are not disclosed in the art identified by Defendant as anticipatory. To the extent that an issue arises with respect to any such limitation, Defendant reserves the right to identify other references and combinations that may make obvious the addition of the allegedly missing limitation, including those references identified in Exhibits A through H as disclosing specific claim limitations.

In view of Defendant's uncertainty regarding how SitePro will contend the claims apply, the discussion of the different references in Exhibits A through H may reflect alternative applications of the prior art against the Asserted Claims. As such, the comments on one item of prior art in one of the charts in Exhibits A through H should not be construed as necessarily applying to any of the other charts or prior art discussed in Exhibits A through H. Defendant provides pinpoint citations to exemplary portions of the prior art for the purpose of fairly disclosing the manner in which the prior art references meet the claim limitations. Such citations, however, should not be construed to mean that other portions of the prior art references are not relevant to the invalidity of the claims. Defendant specifically reserves the right to rely on the entirety of any or all of the prior art references—whether charted or not charted—as a basis for asserting invalidity of the Asserted Claims and/or as necessary to supplement its Invalidity Contentions with additional citations and evidence.

Claim construction has not yet been completed in this action, and TankLogix, reserves the right to amend or adjust its invalidity analysis based upon any claim construction provided by the Court.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

A. INELIGIBILITY

Based on Defendant's understanding of SitePro's Infringement Contentions, at least one or more Asserted Claims are invalid under 35 U.S.C § 101 because the asserted claims are directed to abstract ideas implemented with generic computer technology, and thus invalid.

Implementing an abstract idea with basic computer components, even in a particular technology field, is not a patentable invention. *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2358 (2014). In *Alice*, the Supreme Court established a two-part test to determine patentability under 35 U.S.C. § 101 ("Section 101"). *Id*. at 2355.

First, the court determines whether the claims at issue are directed to a patent-ineligible concept such as an abstract idea. *Alice*, 134 S. Ct. at 2355. The Court determines whether the "focus" of the claims is "a specific means or method that improves the relevant technology" or rather is "directed to a result or effect that itself is the abstract idea." *Contour IP Holding LLC v. GoPro, Inc.,* 113 F.4th 1373, 1379 (Fed. Cir. 2024) (internal citation omitted) (citing *McRO, Inc. v. Bandai Namco Games Am. Inc.,* 837 F.3d 1299, 1314 (Fed. Cir. 2016)); *see Enfish, LLC v. Microsoft Corp.,* 822 F.3d 1327, 1335-36 (Fed. Cir. 2016). At this step, "the claims are considered in their entirety to ascertain whether their character as a whole is directed to excluded subject matter." *McRO,* 837 F.3d at 1312 (quoting *Internet Pats. Corp. v. Active Network, Inc.* 790 F.3d 1343, 1346 (Fed. Cir. 2015)). If the claims are not directed to, or focused on, a patent-ineligible concept, then the inquiry ends, and the claims are not ineligible under § 101. *Id.* If the claims are directed to a patent-ineligible concept, the Court proceeds to step two. *Id.*

At step two, the Court "scrutinize[s] the claim elements more microscopically[.]" *Elec. Power Grp., LLC v. Alstom S.A*., 830 F.3d 1350, 1354 (Fed. Cir. 2016). The Court looks to "the elements of [the] claim both individually and as an ordered combination" to see if there is an "inventive concept—i.e., an element or combination of elements that is sufficient to ensure that

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

the patent in practice amounts to significantly more than a patent upon the ineligible concept itself." *Alice*, 134 S. Ct. at 2355 (cleaned up). "A claim that recites an abstract idea must include additional features to ensure that the claim is more than a drafting effort designed to monopolize the abstract idea." *Id*. at 221 (cleaned up).

Further, "the prohibition against patenting abstract ideas cannot be circumvented by attempting to limit the use of [the idea] to a particular technological environment." *Id*. at 2357 (alteration in original) (quoting *Bilski*, 561 U.S. at 610). Thus, neither "the mere recitation of a generic computer" nor "vague, functional descriptions of server components" can render an abstract idea into a patentable invention. *Id*. at 2358; *TLI Commc'ns LLC v. AV Auto., L.L.C. (In re TLI Commc'ns LLC Pat. Litig.)*, 823 F.3d 607, 615 (Fed. Cir. 2016). Likewise, limiting the invention to a particular field does not suffice to confer patentability. *See Elec. Power Grp*., 830 F.3d at 1354 (finding that limiting claims to the "particular technological environment of power-grid monitoring" was insufficient alone to render abstract idea patentable).

B. ANTICIPATION

Based on Defendant's understanding of SitePro's Infringement Contentions, at least one or more Asserted Claims are invalid as anticipated under 35 U.S.C. § 102 in view of the prior art references identified and discussed in Exhibits A through H, as well as any methods or systems that embody the concepts disclosed in those references. Exhibits A through H are a series of charts, numbered A-1 through H-1, which identify specific examples of where each claim limitation of a patent of the Asserted Patents is found in a particular reference.

Defendant further intends to rely on inventor admissions concerning the scope of the prior art relevant to the Asserted Claims found in, among other things: the patent prosecution history for the asserted patents, related patents, and/or related patent applications; any deposition testimony of the named inventors. Moreover, discovery is ongoing. Defendant reserves the right to present

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

additional items of prior art under 35 U.S.C. §§ 102 and/or 103 located during the course of discovery or further investigation.

C. OBVIOUSNESS

To the extent that these Asserted Claims are not anticipated or are not rendered obvious by a single prior art reference in light of the general knowledge in the field and/or of a person having ordinary skill in the art, multiple prior art references can be combined to render the Asserted Claims obvious. Those prior art combinations are identified in the accompanying charts and/or below.

Each of the references charted in Exhibits A through H may be combined with any of the other references in those charts, or with any of the art. The claims are also rendered obvious by any of the references identified in these Preliminary Invalidity Contentions with any other such references, with the knowledge of a person having ordinary skill in the art, and/or with admitted prior art.

The identification of specific combinations should not be taken to mean that the combinations are necessarily required to prove invalidity. To the contrary, certain claims may be anticipated under one claim interpretation and obvious under another. Further, if any element should be found to be missing from a particular item of prior art, Defendant asserts that the item of prior art could be modified and/or combined with other items of prior art to disclose that element.

These combinations are not exclusive, and Defendant reserves the right to supplement the obviousness arguments listed below, using any references listed above and any references that may become known to Defendant during the course of discovery.

Prior art references that invalidate the Asserted Patents are outlined below and listed in Exhibits A through H. These prior art references evidence teachings, suggestions, motivations,

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

and/or other reasons to combine various ones thereof in ways that render obvious all of the Asserted Claims. In addition to the specific combinations of prior art disclosed using claim charts, Defendant reserves the right to rely on any combination of prior art references disclosed herein.

Based on Defendant's understanding of SitePro's Infringement Contentions, Defendant believes that the references discussed in Exhibits A through H each anticipate one or more of the Asserted Claims. However, if the finder of fact determines that some limitation of a given claim was not disclosed by the asserted reference, Defendant contends that the charted reference in combination with the knowledge and skill of a person of ordinary skill in the art at the time of the alleged invention and/or in combination with the disclosures of other prior art would have rendered all of the Asserted Claims obvious.

In *KSR International Co. v. Teleflex Inc*., 127 S. Ct. 1727 (2007), the Supreme Court clarified the standard for what types of inventions are patentable. In particular, the Supreme Court emphasized that inventions arising from ordinary innovation, ordinary skill, or common sense should not be patentable. *Id*. at 1732, 1738-39, 1742-43, 1746.

The rationales for proving obviousness are as follows:

> (a) combining prior art elements according to known methods to yield predictable results. When a patent simply arranges old elements with each performing the same function it had been known to perform and yields no more than one of ordinary skill in the art would reasonably expect from such an arrangement, the combination is obvious. A proper obviousness analysis focuses on what was known or obvious to a person of ordinary skill in the art, not just the patentee. Any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed;
>
> (b) simple substitution of one known element for another to obtain predictable results;
>
> (c) use of known techniques to improve similar devices (methods, or products) in the same way;

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

> (d) applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;
>
> (e) "obvious to try" — choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success. For example, when there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp because the result is likely the product not of innovation but of ordinary skill and common sense which led to a reasonable expectation of success;
>
> (f) known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations would have been predictable to one of ordinary skill in the art; and
>
> (g) some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention. In other words, even if one reference does not show the whole of the invention, if it would have been obvious to a person of ordinary skill in the art at the relevant time to add the missing pieces to the invention (for example as a matter of standard engineering practice or application of a well-known principle in the field), then a single reference can render a claim invalid even if it does not show the whole invention. Moreover, a combination of two or more references can render a claim invalid as obvious whether or not there is an explicit suggestion in one of the references to combine the two references, if as a matter of engineering skill or practice in the field it would be known to do so.

Because each of the Asserted Patents, and this is particularly true of the way the Asserted Patents have been interpreted and applied to the Accused Products, simply arranges old elements with each performing the same function it had been known to perform and yields no more than what one would expect from such an arrangement, each combination is obvious. *Id*. at 1742. The Asserted Claims are therefore invalid under 35 U.S.C. § 103, because they do nothing more than combine known techniques and apparatuses according to their known and ordinary uses to yield predictable results.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

No showing of a specific motivation to combine prior art is therefore required to combine the references disclosed in Exhibits A through H or otherwise discussed herein, as each combination of art would have yielded expected or predictable results and at most would simply represent a known alternative to one of skill in the art. *See id.* at 1739-40 (rejecting the Federal Circuit's "rigid" application of the teaching, suggestion, or motivation to combine test, and instead applying an "expansive and flexible" approach); *see also Apple Inc. v. Samsung Elecs. Co.*, 839 F.3d 1034, 1058 (Fed. Cir. 2016); *Intercontinental Great Brands LLC v. Kellogg N. Am. Co.*, 869 F.3d 1336, 1344 (Fed. Cir. 2017). Indeed, the Supreme Court held that a POSITA is "a person of ordinary creativity, not an automaton" and "in many cases a person of ordinary skill in the art will be able to fit the teachings of multiple patents together like pieces of a puzzle." KSR, 127 S. Ct. at 1742. Nevertheless, in addition to the information contained in the section immediately above and elsewhere in these contentions, Defendant hereby identifies additional motivations and reasons to combine.

One or more combinations of the prior art references identified above would have been obvious because these references would have been combined using: known methods to yield predictable results; known techniques in the same way; a simple substitution of one known, equivalent element for another to obtain predictable results; and/or a teaching, suggestion, or motivation in the prior art generally. *See Apple*, 839 F.3d at 1077; *Intercontinental Great Brands*, 869 F.3d at 1344. In addition, it would have been obvious to try combining the prior art references identified above because there were only a finite number of predictable solutions and/or because known work in one field of endeavor prompted variations based on predictable design incentives and/or market forces either in the same field or a different one. *See ACCO Brands Corp. v. Fellowes, Inc.*, 813 F.3d 1361, 1367 (Fed. Cir. 2016); *Sanofi-Aventis Deutschland GmbH v.*

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

Glenmark Pharms. Inc., USA, 748 F.3d 1354, 1360 (Fed. Cir. 2014); *Bayer Pharma AG v. Watson Labs., Inc.,* 874 F.3d 1316, 1329 (Fed. Cir. 2017); *KSR*, 127 S. Ct. at 1742. Further, the combinations of the prior art references identified above and in the claim charts would have been obvious because the combinations represent known potential options with a reasonable expectation of success. *See InTouch Techs., Inc. v. VGo Commc'ns, Inc.,* 751 F.3d 1327, 1347 (Fed. Cir. 2014).

Additional evidence that there would have been a motivation to combine the prior art references identified above includes the interrelated teachings of multiple prior art references; the effects of demands known to the design community or present in the marketplace; the existence of a known problem for which there was an obvious solution encompassed by the Asserted Claims; the existence of a known need or problem in the field of the endeavor at the time of the alleged inventions; and the background knowledge that would have been possessed by a POSITA. See *Arctic Cat Inc. v. Bombardier Recreational Prod. Inc.*, 876 F.3d 1350, 1359 (Fed. Cir. 2017); *Intercontinental Great Brands*, 869 F.3d at 1344; *Unwired Planet, LLC v. Google Inc.,* 841 F.3d 995, 1003 (Fed. Cir. 2016); *Norgren Inc. v. Int'l Trade Comm'n, 699* F.3d 1317, 1322-23 (Fed. Cir. 2012).

The motivation to combine the teachings of the prior art references disclosed herein is also found in the references themselves and in: (1) the nature of the problem being solved; (2) the express, implied and inherent teachings of the prior art; (3) the knowledge of POSITAs; (4) the predictable results obtained in combining the different elements of the prior art; (5) the predictable results obtained in simple substitution of one known element for another; (6) the use of a known technique to improve similar devices, methods, or products in the same way; (7) the predictable results obtained in applying a known technique to a known device, method, or product ready for improvement; (8) the finite number of identified predictable solutions that had a reasonable

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

expectation of success; and (9) known work in various technological fields that could be applied to the same or different technological fields based on design incentives or other market forces. See above legal background regarding obviousness combinations and M.P.E.P. § 2143.

Secondary Considerations of Non-Obviousness

Secondary considerations of non-obviousness, or objective indicia of non-obviousness, includes:

a) any long-felt and unmet need in the art that was satisfied by the invention of the patent

b) any failure of others to achieve the results of the invention;

c) any commercial success or lack thereof of the products and processes covered by the invention;

d) any deliberate copying of the invention by others in the field;

e) any taking of licenses under the patent by others;

f) whether the invention was contrary to the accepted wisdom of the prior art;

g) any expression of disbelief or skepticism by those skilled in the art upon learning of the invention;

h) any unexpected results achieved by the invention;

i) any praise of the invention by others skilled in the art; and

j) any lack of contemporaneous and independent invention by others.

Plaintiff has not established the existence of any objective indicia of non-obviousness or secondary considerations. Defendant reserves the right to supplement their contentions to respond to any such evidence or arguments regarding secondary considerations.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

D. INDEFINITNESS

Based on Defendant's understanding of the Asserted Claims, Defendant believes that one or more claims are invalid pursuant to 35 U.S.C. § 112.

Under § 112(a), the specification must "contain a written description of the invention, and of the manner and process of making and using it," sufficient to demonstrate that the inventors were in possession of the claimed subject matter and to enable a person of ordinary skill in the art ("POSITA") to make and use the full scope of the claimed invention without undue experimentation. See *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351-52 (Fed. Cir. 2010); *In re Wands*, 858 F.2d 731, 737 (Fed. Cir. 1988).

Under § 112(b), "[t]he specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention." *See* 35 U.S.C. § 112(b). The Supreme Court has explained "that a patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention." *Nautilus, Inc. v. Biosig Instruments*, Inc., 134 S. Ct. 2120, 2124 (2014).

In addition, courts have routinely held that functional claiming without corresponding structure renders a claim indefinite, particularly where means-plus-function limitations are invoked either expressly or implicitly. *See Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348–49 (Fed. Cir. 2015) (en banc). Further, even where the term "means" is not used, nonce words such as "module," "unit," or "element" can trigger § 112(f). *Id.* at 1350-52. Thus, functional claiming, even if it doesn't explicitly recite "means," can be held invalid if the specification does not disclose adequate corresponding structure. *Id*. at 1350–52.

Accordingly, as detailed in the sections below, one or more of the Asserted Claims are indefinite under § 112(a), (b), and/or § 112(f) for one or more of the following reasons:

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

- The claim recites functional language without adequate structural support in the specification;
- The claim relies on means-plus-function or nonce terms without corresponding structure;
- The claim contains language that is vague, subjective, or otherwise fails to provide clear boundaries as required by law; and/or
- The claim requires algorithmic implementation but fails to disclose a corresponding algorithm.

V. '909 PATENT

A. INELIGIBILITY

Claim 1 recites:

1. A system for remotely controlling a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station, the system comprising:
a command-center server having a data store storing multiple user accounts, each user account corresponding to a set of one or more oil wells, petro water disposal or re-injection facilities, or petroleum pumping stations, or a combination thereof, each set being operated by a different entity corresponding to the respective user account; and
a plurality of geographically distributed site master controllers, each site master controller corresponding to a respective one of the oil wells, petro water disposal or re-injection facilities, or petroleum pumping stations, each site master controller comprising:
a communication module operable to communicate with a plurality of fluid-handling devices;
a network interface;
memory; and
one or more processors communicatively coupled to the communication module, the network interface, and the memory, wherein the memory stores instructions that when executed by the processors cause the processors to effectuate steps comprising:
receiving, via the network interface, from the command-center server, a plurality of commands encoded in a first protocol to control the fluid-handling devices from a user corresponding to one of the user accounts, different commands among the plurality of commands being directed to different fluid handling devices among the plurality of fluid-handling devices;

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

for at least some of the plurality of commands, determining a plurality of different target states of a given one of the fluid-handling devices over time, wherein the respective site-master controller is operative to maintain control of the fluid handling devices in the absence of a network connection to the command-center server;

translating the plurality of commands into translated commands encoded in a plurality of protocols different from the first protocol, each translated command being translated into a protocol among the plurality of protocols suitable for a fluid-handling device to which the respective command is directed, the at least some of the translated command being operative to cause a local controller of the given fluid-handling device to drive the given fluid-handling device to the plurality of different target states, the local controller being responsive to the translated commands and feedback from the given fluid-handling device indicative of whether the given fluid-handling device is in a targeted state; and

sending the translated commands to respective local controllers of the respective fluid-handling devices to which the respective commands are directed.

FAC ¶ 48.

1. Alice Step 1 – The claims are directed to the abstract idea of controlling fluid-handling devices

At a high level, claim 1 recites a system for controlling fluid-handling devices. Accordingly, claim 1 is an apparatus claim directed to the abstract idea of controlling fluid-handling devices, e.g., valves or pumps. *See, e.g., Cyber- Source Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1372–73 (Fed. Cir. 2011) (holding that a claim whose "steps can be performed in the human mind, or by a human using a pen and paper" is directed to an "un-patentable mental process[]").

The background section of the '909 Patent explains that controlling fluid-handling devices in oil wells is a mental process. In particular, the '909 patent explains that "[w]hen monitoring or controlling such sites, it can be time-consuming and expensive for a technician to manually adjust or otherwise control fluid-handling devices, as the technician will incur costs and delays be travelling to the device to make adjustments or gather data in person. '909 Patent 1:23-27. The application also applies to petro-water disposal facilities, re-injection facilities, and petroleum

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

pumping stations. *Id.* at 1:19-21. The '909 patent explains that steps for carrying out the purported invention may be performed via generic computing hardware. *Id.* at 1:51-56 ("the system including: an input/output module operable to communicate with a fluid-handling device; a network interface; memory; and one or more processors communicatively coupled to the input/output module, the network interface, and the memory."). Further, the '909 Patent counsels against the need for specific computer system hardware, explaining that it "may include or be a combination of a cloud-computing system, a data center, a server rack, a server, a virtual server, a desktop computer, a laptop computer, a tablet computer, a server device, a client device, a mobile telephone, a personal digital assistant (PDA), a mobile audio or video player, a game console, a vehicle-mounted computer, or a Global Positioning System (GPS), or the like."). *Id.* at 14:30-36.

Requiring the use of a computer does not change the focus of the claim away from being directed towards an abstract idea. "[T]he inability for the human mind to perform each claim step does not alone confer patentability." *FairWarning IP, LLC v. Iatric Sys.*, 839 F.3d 1089, 1098 (Fed. Cir. 2016). Similarly, the claims do not recite any non-generic hardware or software mechanism. *Elec. Power Grp.*, 830 F.3d at 1355 ("The claims at issue do not require any nonconventional computer, network, or display components, or even a non-conventional and non-generic arrangement of known, conventional pieces, but merely call for performance of the claimed information, collection, analysis, and display functions on a set of generic computer components and display devices.") (citation and quotation marks omitted)). Instead, claim 1 identifies (1) a server, (2) multiple "site master controllers," each including (a) a network interface, (b) memory, (c) processors that process commands including (i) receiving commands, (ii) determining what is to be done ("target states"), (iii) translating the commands from the server, and (iv) sending the translated commands to the fluid-handling devices.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

The presence of generic hardware or software such as a server computer and a network interface does not make an otherwise abstract idea patent-eligible. *See, e.g., buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350, 1355 (Fed. Cir. 2014) ("That a computer receives and sends the information over a network – with no further specification – is not even arguably inventive.")

Similarly, the presence of a multiple "site master controllers" does not make an otherwise abstract idea patent-eligible. *ChargePoint, Inc. v. SemaConnect, Inc.*, 920 F.3d 759, 766 (Fed. Cir. 2019) (holding that a claim that recited an "apparatus" comprised of a control device, transceiver, and controller was directed toward an abstract concept). Further, nothing in claim 1 is a nonconventional and non-generic arrangement of known, conventional pieces. *BASCOM Global Internet Services, Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1350 (Fed. Cir. 2016).

The recited memory and the processors that process commands that are a part of the "site master controllers" is simply a generic computer and data storage unit, which "cannot transform a patent-ineligible abstract idea in to a patent-eligible invention." *Alice*, 134 S. Ct. at 2358; see also id. at 2360 ("[W]hat petitioner characterizes as specific hardware—a 'data processing system' with a 'communications controller' and 'data storage unit,' for example, . . . —is purely functional and generic. Nearly every computer will include a 'communications controller' and 'data storage unit' capable of performing the basic calculation, storage, and transmission functions required by the method claims. As a result, none of the hardware recited by the system claims offers a meaningful limitation beyond generally linking the use of the method to a particular technological environment, that is, implementation via computers." (internal quotation marks and citation omitted)).

The "remote" functions identified in the claim do not make the claim any less abstract. "[A] person can retrieve electronically-stored information from a remote location. For example, a

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

user can access data without the interface by traveling to the location at which the data is stored and retrieving it, or having someone else at that location retrieve and forward the data. Significantly, computer components cannot render an abstract idea patent-eligible when, as here, the computer performs a function that a person could do." *Intell. Ventures I LLC v. Cap. One Fin. Corp.*, No. 8:14-cv-00111-PWG (D. Md. Sep. 2, 2015) aff'd *Intell. Ventures I LLC v. Cap. One Fin. Corp.*, 850 F.3d 1332, 1338-44 (Fed. Cir. 2017).

Further, translation is a mental process, and also an abstract idea. *Messaging Gateway Solutions v. Amdocs, Inc.*, No. 14-732-RGA, 2015 WL 1744343 (D. Del. Apr. 15, 2015) (finding that a patent on a method for translating mobile phone language into Internet language was deemed directed to an abstract idea of "translation"); see also *Novo Transforma Techs., LLC v. Sprint Spectrum L.P.*, 2015 WL 5156526, at *2 (D. Del. Sept. 2, 2015), aff'd, 669 F. App'x 555 (Fed. Cir. 2016). In addition, the claims to not detail how the translation needs to be performed, and thus do not "sufficiently describe how to achieve th[o]se results in a non-abstract way." S*ee Two-Way Media Ltd. v. Comcast Cable Commc'ns, LLC*, 874 F.3d 1329, 1337 (Fed. Cir. 2017); *see also Univ. of Fla. Rsch. Found., Inc. v. Gen. Elec. Co.*, 916 F.3d 1363, 1368 (Fed. Cir. 2019) (claims directed to an abstract idea because they do not explain "how the drivers do the conversion that [the plaintiff] points to. . . . The mere function of converting is not a 'specific improvement to the way computers operate.'"); *Intell. Ventures I*, 850 F.3d at 1342. ("[T]he claim language here provides only a result-oriented solution, with insufficient detail for how a computer accomplishes it."). Finally, the application of the claim to a particular field of use, e.g., involving a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station, does not make the claim patent-eligible. *See Bilski*, 130 S. Ct. at 3231 ("limiting an abstract idea

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

to one field of use or adding token post-solution components d[oes] not make the concept patentable.").

2. Alice Step 2 – The claims do not add substantially more than the abstract idea

Step 2 of the Alice analysis determines whether patentability is saved because an "inventive concept" is provided in the claim. This is the search for "significantly more" than the abstract idea. *Alice*, 134 S. Ct. at 2357. The claim must have "additional features" to ensure that the claim is more than a drafting effort designed to monopolize the abstract idea. *Id*. In step two, the Court examines the claim limitations "both individually and as an ordered combination" to determine whether the claims disclose an "inventive concept sufficient to transform the claimed abstract idea into a patent eligible application." *Alice*, 134 S. Ct. at 2355 (cleaned up). If a claim is directed to an abstract idea at step one, to be patentable at step two the claim "must include additional features" that "must be more than well-understood, routine, conventional activity." *Ultramercial Inc. v. Hulu, LLC*, 772 F.3d 709, 715 (Fed. Cir. 2014).

The Claims Do Not Embody an Inventive Concept

Much of the analysis at step one carries over into step two. There is no "inventive concept" where, as here, the abstract idea is implemented with conventional components in a conventional manner. *Alice*, 134 S. Ct. at 2359. "[W]ell-understood, routine, conventional activities previously known in the industry" do not suffice to provide the inventive concept. *Id*. Where claims do not call for "any nonconventional computer, network, or display components, or even a 'non-conventional and non-generic arrangement of known, conventional pieces,' but merely call for performance of the claimed information collection, analysis, and display functions 'on a set of

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

generic computer components' and display devices," the claims fail the step two analysis. *Elec. Power Grp.*, 830 F.3d at 1355.

Remote Access is Not Inventive

That the claims are directed to remote control of fluid-handling valves does not save the claims, as remote access is not inventive. *See Intell. Ventures I LLC v. Erie Indem. Co.*, 850 F.3d 1315, 1330 (Fed. Cir. 2017) ("Remotely accessing and retrieving user-specified information is an age-old practice that existed well before the advent of computers and the Internet.").

Claim 1 does no more than take a basic idea from the public domain without disclosing any inventive steps. In addition, all of the components identified in the claim were known to the industry at the time of the patent. *See* '909 Patent col. 1, ll. 31-42. Further, the tasks referenced use only functional language such as "receiving," "determining", "translating," and "sending". *See Two-Way Media*, 874 F.3d at 1337-38 ("The claim requires the functional results of 'converting,' 'routing,' 'controlling,' 'monitoring,' and 'accumulating records,' but does not sufficiently describe how to achieve these results in a non-abstract way."). Claim 1 does not require an inventive way to perform this idea.

The Claims Do Not Describe How to Maintain a Reliable Network Connection, or How to Operate with an Unreliable Network Connection

One of the changes that appears in the FAC that was not in the original complaint was SitePro's addition, ostensibly to address TankLogix's first motion to dismiss, of paragraphs describing network issues that made administration of remote locations allegedly more difficult. FAC ¶¶ 26-33. Accepting as true for the purposes of this motion that SitePro's statements that such issues existed, the existence of such technical challenges does not change the patentability analysis because the claims do not describe any inventive method of overcoming such issues. In short, the

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

claims do not describe any particular way of addressing the problem. SitePro's citation to the specification do not aid SitePro. As explained by the Federal Circuit:

> The fact that certain algorithms are disclosed in the specification does not change the outcome. In considering patent eligibility under § 101, one must focus on the claims. This is because a claim may 'preempt' only that which the claims encompass, not what is disclosed but left unclaimed.

Dealertrack, Inc. v. Huber, 674 F.3d 1315, 1333-34 (Fed. Cir. 2012).

The Claims Do Not Describe How to Perform Protocol Translation

Another one of the changes that appears in the FAC that was not in the original complaint, which SitePro described as "[a] second, distinct invention offered by the Asserted Patents" was "protocol translation at the edge of the [SCADA] network." FAC ¶ 34. The patents simply describe that protocol languages may be different for different devices, and therefore the protocol translation may differ based on the destination device to which a command is to be routed. Id. Translation is a mental process. Determining one translation from a number of available translations is also a mental process. For example, a translator fluent in three languages will choose a translation based on the native language of the listener. Again, the claims do not describe any novel way of choosing a translation.

SitePro alleges that "unique hardware and software" is needed to exercise SitePro's alleged invention. FAC ¶ 35. This conclusion is not entitled to a presumption of truth. The patent specifications undermine SitePro's statement, as explained in § III.A.1.b)(5) below.

SitePro's bolstered FAC also makes much of a "protocol multiplexer." FAC ¶¶ 35-37. SitePro refers to "specific structures" in the device. FAC ¶ 37. The description in the specification reveals that it is a router that routes an incoming message to the appropriate device. FAC ¶ 36. This is also a mental process, and has several "pre-Internet" analogs that could be performed by humans, such as a personal assistant directing calls. *Parus Holdings, Inc. v. Sallie Mae Bank*, 137

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

F. Supp. 3d 660 (D. Del. 2015), aff'd, 677 Fed. App'x 682 (Fed. Cir. 2017). Other courts agree. "The Parus Holdings court is not alone in holding that such call routing patent claims could be performed by humans." *VoIP-Pal.com, Inc. v. Apple Inc.*, No. 18-CV-06217-LHK (N.D. Cal. Mar. 25, 2019) (collecting cases).

Moreover, the specification lacks any detail as to whether there is a specialized computer containing the "protocol multiplexer." Further, there are no consequential fact issues that need to be resolved. Even accepting as true for the purposes of this motion that SitePro's suggestions that the cited "protocol multiplexer" is a "special purpose computing device," it does not change the patentability analysis because the claims do not describe any inventive method of implementing or using such a device. See FAC ¶ 39. Indeed, the claims do not mention a "protocol multiplexer," much less "sufficiently describe how to achieve [the results attributable to the device] in a non-abstract way." *See Two-Way Media*, 874 F.3d at 1337-38.

The Claimed Functions Do Not Require Specialized Devices

The specifications explain that "processes and modules described herein may be executed by one or more processing systems similar to that of computing system 1000." '909 Patent 12:25-27. The specifications also explain that "computing system 1000" does not require a non-generic computer:

> Those skilled in the art will appreciate that computer system 1000 is merely illustrative and is not intended to limit the Scope of the techniques described herein. Computer system 1000 may include any combination of devices or software that may perform or otherwise provide for the performance of the techniques described herein. For example, computer system 1000 may include or be a combination of a cloud-computing system, a data center, a server rack, a server, a virtual server, a desktop computer, a laptop computer, a tablet computer, a server device, a client device, a mobile telephone, a personal digital assistant (PDA), a mobile audio or video player, a game console, a vehicle-mounted computer, or a Global Positioning System (GPS), or the like.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

’909 Patent 14:24-36. The specifications further explain that the processors, I/O device interfaces, network interfaces, memory, and computer programs referenced in the patents are merely conventional and could be implemented using previously-known, standard, conventional components. ’909 Patent 12:28-14:16.

All other claims are also ineligible

The Federal Circuit has held that a district court need not expressly address each asserted claim where the court concludes particular claims are representative because all the claims are “substantially similar and linked to the same abstract idea.” Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat. Ass’n, 776 F.3d 1343, 1348 (Fed. Cir. 2014). Here, claim 1 is representative of all asserted claims. Elec. Power Grp., 830 F.3d at 1352 (claim may be treated as representative where there is no “distinctive significance” of any limitation found in any other allegedly infringed claims). All claims recite the abstract idea of controlling fluid-handling devices, e.g., valves or pumps. Nevertheless, TankLogix addresses other asserted claims.

The other claims depending from claim 1 merely specify the type of data that is exchanged, or adds generic devices that were well-known at the time of the invention. No such claims detail an inventive way of carrying out a task. Similarly, the claims do not suggest that the claimed system for remotely controlling a fluid-handling device is improved in any way over conventional systems for remotely controlling a fluid-handling device. Nor do the claims explain that the fluid handling devices in the claimed system operate any differently than they would otherwise. Taken individually or in combination, the recited limitations neither improve the functions of the computer itself, nor provide specific programming, tailored software, or meaningful guidance for implementing the abstract concept. *Alice*, 134 S. Ct at 2359.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

Claim 2 depends from claim 1 and additionally requires receiving sensor data and sending it to a remote data store. The data store is conventional computer memory (whether local or remote), and cannot transform the claims into ones that are patent eligible. *Alice*, 573 U.S. at 226 (holding that a "data storage unit" is "purely functional and generic" and does not offer a "meaningful limitation beyond generally linking" the use of the method to "implementation via computers"). Claims 3 and 7 depend from claim 2 and additionally identify the functions of a conventional web-server, i.e., receiving a request, retrieving data, and returning information responsive to the request. Similar to the remote data store, the web-server is conventional. *See* '909 Patent 3:21-4:3. Again, nothing in the claims suggests that the claim elements are anything more than generic computer components. *See Intell. Ventures I LLC v. Cap. One Bank (USA)*, 792 F.3d 1363, 1370 (Fed. Cir. 2015) (finding that "interactive interface limitation is a generic computer element" because it "simply describes a generic web server with attendant software, tasked with providing web pages to and communicating with the user's computer"). Claims 4-6 depend from claim 3 and are also not patentable as they merely describe the request or the retrieved data. *See Accenture Global Services, GmbH v. Guidewire Software, Inc.*, 800 F. Supp. 2d 613, 621-22 (D. Del. May 31, 2011), aff'd, 728 F.3d 1336, 1342-46 (Fed. Cir. 2013) ("dependent claims [] which add limitations on the type of data being recorded and the keeping of those records, are also abstract because they constitute field of use restrictions and insignificant post-solution activity."). Claim 8 depends from claim 1 and specifies that the fluid-handling device is a pump, and the commands involve changing the speed of the pump. This claim does not describe a new device or improvement in any specific device that would convert the scope from abstract idea to patent-eligible innovation. The recitation of specific hardware elements such as a "pump" is insufficient to confer specificity. *Alice*, 134 S. Ct. at 2360 ("what petitioner characterizes as specific

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

hardware … is purely functional and generic. Nearly every computer will include … .”). Here, a pump is a generic fluid-handling device. *See* ’909 Patent 1:12-22. Claim 9 depends from claim 1 and additionally identifies the functions of a conventional remote terminal unit, i.e., receiving a request, identifying the intended destination of the request, and routing the command. The specification explains that these functions were conventional, and were supported by a protocol in use prior to the date of invention. *See* ’909 Patent 6:33-44. Claim 10 depends from claim 1 and additionally identifies the functions of a conventional digital-to-analog converter. The specification explains that this function was conventional, and was provided by a conventional printed circuit board available at the date of invention. *See* ’909 Patent 10:33-39. In addition, as the Federal Circuit explained, claims directed to format conversion that do not focus on any specific advance in coding or other techniques for implementing that idea, are unpatentable. *In Adaptive Streaming Inc. v Netflix, Inc.*, 836 F. App’x 900 (Fed. Cir. 2020). Claim 11 depends from claim 1 and additionally requires that a command is received on one network connection and then that the translated command is sent to its destination on a different network connection. This is not patentable as it merely describes the function of sending a command from one place to another. The claim does not sufficiently describe how to achieve [the results attributable to the device] in a non-abstract way.” *See Two-Way Media*, 874 F.3d at 1337-38 (holding that a claimed method for sending information between devices was abstract because it failed to describe how to achieve those steps). Claim 12 depends from claim 1 and adds the step of selecting the protocol that is to be used to send a command to the device. Even if this requires electronic hardware, the claimed function of selecting a protocol is a basic and routine operation for a router, and the specification does not describe any improvement in the technology underlying this abstract selection function. *See* ’909 Patent 8:64-9:4; *see also TDE Petroleum Data Sol’ns, Inc. v. AKM Enterprise, Inc.*, 657

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

F. App'x 991, 993 (Fed. Cir. 2016) ("selecting a representative system model based on the received formation response data and sequence of stimuli" are "ordinary of steps in data analysis" that merely involve "collecting information" and "analyzing it."). Claim 13 depends from claim 1 and additionally specifies that a fluid handling device may include a stuck valve, and also identifies a target state of oscillating the position of the valve. Again, the claim does not sufficiently describe how to achieve [the results attributable to the device] in a non-abstract way." *See Two-Way Media*, 874 F.3d at 1337-38. Claim 14 depends from claim 1 and specifies devices coupled to the fluid-handling device. As with the reference to a "pump" in claim 8 above, this claim does not describe a new device or improvement in any specific device that would convert the scope from abstract idea to patent-eligible innovation. Similar to claim 13 above, claim 15 depends from claim 1 and additionally identifies a separation unit, and also a command to change the level of the separation unit. Again, the claim does not sufficiently describe how to achieve [the results attributable to the device] in a non-abstract way." *See Two-Way Media*, 874 F.3d at 1337-38. Similar to claim 8 above, claim 16 depends from claim 15 and specifies that the separation unit includes a pump with a variable-frequency drive, and a command to adjust the frequency of the drive. This claim does not describe a new device or improvement in any specific device, nor does it sufficiently describe how to achieve [the results attributable to the device] in a non-abstract way. Claim 17 merely recites additional attributes involving user accounts. As explained for claims 4-6 above, "dependent claims [] which add limitations on the type of data being recorded" are also abstract. *Accenture*, 800 F. Supp. 2d at 621-22. Claim 18 depends from claim 1 and additionally specifies that the claimed system can determine a targeted state without or without the use of feedback from the fluid-handling device. Again, this claim does not describe a new device or improvement in any specific device, nor does it sufficiently describe how to achieve [the results attributable to the

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

device] in a non-abstract way. Claim 19 depends from claim 1 and additionally requires support for multiple account holders. As with claim 18, this claim does not describe a new device or improvement in any specific device, nor does it sufficiently describe how to achieve [the results attributable to the device] in a non-abstract way. Independent claim 20 claims media containing software that performs the "receiving," "determining," "translating," and "sending" steps recited in claim 1. Similarly, independent claim 21 claims the same method steps of "receiving," "determining," "translating," and "sending" as those recited in claim 1.

B. PRIOR ART REFERENCES

Defendant identifies the following prior art to anticipate or render obvious the '909 Asserted Claims under at least 35 U.S.C. §§ 102(a), (b), (e), and/or (g), and/or § 103, either expressly or inherently as understood by a POSITA.

The following patents and publications are prior art to the '909 Asserted Claims under at least 35 U.S.C. §§ 102(a), (b), (e), and/or (g). Invalidity claim charts for some of the following references are attached as Exhibit A-1 to A-6.

Reference	**Statute**
Kahn – U.S. Patent No. 7,424,399	102(a)
Almadi – U.S. Patent No. 8,667,091	102(a)
Gutierrez – U.S. Patent No. 9,709,995	102(a)
Abdallah – U.S. Published Application 2008/0316048	102(a)
Cardamone – U.S. Published Application 2015/0308244A1	102(e)
64utah-SCADA	102(a)
BoilerControl_2008	102(a)
Brochure-VTScada-FeaturesByVersion	102(a)

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

CampbellScientific_au_b_scada_01-10	102(a)
Case-Study-Turks-Caicos	102(a)
CR1000 Datalogger - Brochure	102(a)
DeltaV_EMERSON_2006	102(a)
en-606-mμ-connect-datasheet-2005	102(a)
Fundamental of Computing	102(a)
O'Reilly Java Threads (2nd Edition)	102(a)
Modbus_Application_Protocol_V1_1b3	102(a)
PMD_Test_Suite_v3.5	102(a)
NCSC Reference	102(a)
Profile-VTScada-TypicalInstallations-Wastewater	102(a)
SCADA 4th Ed	102(a)
SCADA System Upgrade _ Wastewater Digest	102(a)
scada_sys_wht_ppr-2a_new	102(a)
SCADA_system_for_oil_refinery_control	102(a)
The Many Faces of SCADA	102(a)
tm_5_601	102(a)
trenton_culinary_water_2011	102(a)
Whitepaper-CNRL-VTScadaEnterpriseArchitecture	102(a)

Defendant additionally identifies and relies on patent or publication references that describe or are otherwise related to the prior art systems identified below. Defendant's investigation into prior art patent and publication references remains ongoing, and Defendant

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

reserves the right to identify and rely on additional patent or publication references that are identified through further investigation or discovery (including materials that may be in Plaintiff's possession and have yet to be produced). Defendant reserves the right to supplement as further prior art is identified through investigation or discovery.

C. INDEFINITENESS

Defendant identifies below marked claims are indefinite under 35 U.S.C. §§ 112(a), (b), and/or (f) for failing to disclose sufficient corresponding structure in the specification. Specifically, the following limitations are written in means-plus-function format or use nonce terms that invoke § 112(f), but the specification does not disclose structure sufficient to perform the claimed function.

Patentee invokes mean-plus-function with the following nonce terms: "**a communication module,**" "**a web-server,**" "**a remote terminal unit,**" "**a first network socket,**" and "**a variable-frequency drive**". However, Patentee fails to recite sufficient structure within the specification of the '909 patent for a POSITA to understand the scope of these limitations. Thus, the claims that include these limitations should be found invalid due to being indefinite under § 112(f).

Further, patentee utilizes the following subjective terms within the '909 patent: "**suitable for,**" "**is operative to**," "**configured to,**" and "**being indicative of**". These subjective terms fail to particularly point out the invention within the '909 patent, as such these claims lack sufficient detail for a POSITA to understand the scope of these limitations. Thus, the claims that include these limitations should be found invalid due to being indefinite under § 112(b).

Lastly, Defendant's analysis of indefiniteness under §§ 112(a), (b), and/or (f) remains ongoing, particularly with respect to Plaintiff's yet-to-be-produced technical documents and source code, and Defendant reserves the right to supplement its contentions with additional arguments and claim terms upon further investigation and discovery.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

Asserted	Patent #	Claim with Bolded Indefinite Term
X	8649909	1. A system for remotely controlling a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station, the system comprising: [1a] a command-center server having a data store storing multiple user accounts, each user account corresponding to a set of one or more oil wells, petro water disposal or re-injection facilities, or petroleum pumping stations, or a combination thereof, each set being operated by a different entity corresponding to the respective user account; [1b] and a plurality of geographically distributed site master controllers, each site master controller corresponding to a respective one of the oil wells, petro water disposal or re-injection facilities, or petroleum pumping stations, each site master controller comprising: **a communication module operable to communicate with a plurality of fluid-handling devices**; a network interface; memory; and one or more processors communicatively coupled to the communication module, the network interface, and the memory, wherein the memory stores instructions that when executed by the processors cause the processors to effectuate steps comprising: [1c] receiving, via the network interface, from the command-center server, a plurality of commands encoded in a first protocol to control the fluid-handling devices from a user corresponding to one of the

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

		user accounts, different commands among the plurality of commands being directed to different fluid handling devices among the plurality of fluid-handling devices; [1d] for at least some of the plurality of commands, determining a plurality of different target states of a given one of the fluid-handling devices over time, wherein the respective site-master controller is operative to maintain control of the fluid handling devices in the absence of a network connection to the command-center server; [1e] translating the plurality of commands into translated commands encoded in a plurality of protocols different from the first protocol, each translated command being translated into **a protocol among the plurality of protocols suitable for a fluid-handling device** to which the respective command is directed, the at least some of the translated command being operative to cause a local controller of the given fluid-handling device to drive the given fluid-handling device to the plurality of different target states, the local controller being responsive to the translated commands and feedback from the given fluid-handling device indicative of whether the given fluid-handling device is in a targeted state; [1f] and sending the translated commands to respective local controllers of the respective fluid-handling devices to which the respective commands are directed.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

X	8649909	3. The system of claim 2, comprising the remote data store and **a web-server**, wherein **the web-server is operative to** perform steps comprising: receiving, from a user device, a password corresponding to a selected one of the user accounts; receiving, from the user device, a request for a data indicative of the operation of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station coupled to the fluid-handling device of the selected one of the user accounts; retrieving, from the data store, data responsive to the request from the user device; and sending, to the user device, the retrieved data for presentation to the user.
X	8649909	7. The system of claim 2, comprising the remote data store and **a web-server, wherein the web-server is operative to** perform steps comprising: receiving, from a user device, the command to change the state of the fluid-handling device; and determining a network address of the network interface of the respective site master controller; and sending the command to the network interface.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

X	8649909	9. The system of claim 1, comprising **a remote terminal unit** through which the one or more processes communicate with a fluid-handling device among the plurality of fluid-handling devices, wherein translating the received commands comprises: [9a] identifying an address on a serial bus corresponding to a component of the fluid-handling device responsive to the received command; [9b] identifying a command code operative to cause the component to execute the received command; [9c] and sending to the address on the serial bus the command code.
X	8649909	11. The system of claim 1, wherein receiving the commands comprises receiving the commands via **a first network socket**, and wherein sending the translated command comprises sending at least some of the translated commands via a second network socket.
X	8649909	15. The system of claim 1, wherein a fluid-handling device among the plurality of fluid handling devices comprises **a separation unit configured to separate oil from water**, and wherein the command comprises a command operative to change a level of the separation unit at which oil meets water.
X	8649909	16. The system of claim 15, wherein the separation unit comprises a pump having **a variable-frequency drive**, and wherein the local controller **is operative to** adjust a frequency of the variable

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

		frequency drive until the level of the separation unit reaches a target level corresponding to the target state.
	8649909	19. The system of claim 1, wherein t**he system is operative to provide web-based control** and monitoring of oil and gas wells to multiple account holders corresponding to the user accounts.
X	8649909	20. A tangible, non-transitory machine-readable medium storing instructions that when executed by a data processing apparatus cause the data processing apparatus to perform operations comprising: [20a] receiving, via a network interface, from a remote user device, a plurality of commands to control a plurality of different fluid-handling devices, each of the plurality of commands being directed to a different one of the plurality of fluid-handling devices, and the plurality of commands being encoded in a first protocol; [20b] determining a plurality of different target states of the fluid-handling devices over time such that control of the fluid handling devices is maintained in the absence of a network connection with the remote user device; [20c] translating the plurality of commands into **a plurality of translated commands operative to cause local controllers of the fluid-handling devices to drive the respective fluid-handling devices to different target states among the plurality of different target states**, the plurality of translated commands including translated commands encoded in a plurality of different protocols,

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

		and the local controllers being responsive to the translated commands and feedback from a corresponding fluid-handling device among the plurality of different fluid handling devices, t**he feedback being indicative of whether the corresponding fluid-handling device is in a targeted state**; [20d] and sending the translated commands to the local controllers.
X	8649909	21. A method, comprising: [21a] receiving, via a network interface, from a remote user device, a plurality of commands to control fluid-handling devices, the plurality of commands being encoded in a shared protocol; [21b] determining a plurality of different target states of the fluid-handling devices over time such that control of the fluid handling devices is maintained; [21c] translating the commands into translated commands encoded in a plurality of different protocols different from the shared protocol, each translated command being encoded in a protocol among the plurality of different **protocols suitable for a fluid-handling device to which the respective command is directed**, t**he translated commands being operative to cause local controllers of the fluid-handling devices to drive a respective fluid-handling device different target states among the plurality of different target states**, the local controllers being responsive to the translated

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

		commands directed to their respective fluid-handling device and feedback from the respective fluid-handling device indicative of whether the respective fluid-handling device is in a targeted state; [21d] and sending the translated commands to the local controllers.

VI. ’078 PATENT

A. INELIGIBILITY

Claim 1 recites:

1. A method, comprising:
receiving, via a network interface, a plurality of user-directed instructions to control fluid-handling devices that monitor or control one or more fluids at an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station, the plurality of instructions being received encoded in a shared protocol;
obtaining a target state of at least one of the fluid-handling devices based on at least some of the plurality of instructions, wherein obtaining a target state of at least one of the fluid-handling devices based on at least some of the plurality of instructions comprises:
after receiving the instructions, determining a plurality of different target states of the at least one of the fluid-handling devices, the plurality of different states each corresponding to different times;
for each of the plurality of instructions, selecting a respective protocol or protocols from among a plurality of protocols different from the shared protocol, wherein the respective fluid-handling device or devices to which the respective instruction is directed are responsive to the selected respective protocol or protocols, wherein at least some of the selected protocols are different from one another;
after determining the plurality of different target states, translating each received instructions into one or more translated instructions encoded in the selected respective protocol or protocols, the one or more translated instructions including the determined plurality of different target states; and
sending each translated instructions to at least the fluid-handling device to which the respective translated instruction is directed, wherein at least some of the

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

translated instructions are effective to cause the at least one of the fluid-handling devices to attempt to achieve the target state.

FAC ¶ 48.

1. Alice Step 1 – The claims are directed to the abstract idea of controlling fluid-handling devices

At a high level, claim 1 is a method claim directed to the abstract idea of controlling fluid-handling devices, e.g., valves or pumps. *See, e.g., Cyber-Source Corp. v. Retail Decisions, Inc*., 654 F.3d 1366, 1372–73 (Fed. Cir. 2011) (holding that a claim whose "steps can be performed in the human mind, or by a human using a pen and paper" is directed to an "un-patentable mental process[]").

The background section of the '078 patent explains that controlling fluid-handling devices in oil wells *is a mental process*.[1] In particular, the '078 patent explains that "[w]hen monitoring or controlling such sites, it can be time-consuming and expensive *for a technician to manually adjust or otherwise control fluid-handling devices*, as the technician will incur costs and delays be travelling to the device to make adjustments or gather data in person. '078 patent 1:31-35. The application also applies to petro-water disposal facilities, re-injection facilities, and petroleum pumping stations. *Id.* at 1:27-30. The '078 patent explains that steps for carrying out the purported invention may be performed via generic computing hardware. *Id*. at 1:60-64 ("the system including: an input/output module operable to communicate with a fluid-handling device; a network interface; memory; and one or more processors communicatively coupled to the input/output module, the network interface, and the memory."). Further, the '078 patent counsels against the need for specific computer system hardware, explaining that it "may include or be a

[1] All of the asserted patents share a common specification. Thus, the references to the specification cited for this patent apply equally to the other asserted patents.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

combination of a cloud-computing system, a data center, a server rack, a server, a virtual server, a desktop computer, a laptop computer, a tablet computer, a server device, a client device, a mobile telephone, a personal digital assistant (PDA), a mobile audio or video player, a game console, a vehicle-mounted computer, or a Global Positioning System (GPS), or the like."). *Id*. at 14:36-43.

Requiring the use of a computer does not change the focus of the claim away from being directed towards an abstract idea. "[T]he inability for the human mind to perform each claim step does not alone confer patentability." *FairWarning IP, LLC v. Iatric Sys*., 839 F.3d 1089, 1098 (Fed. Cir. 2016). Similarly, the claims do not recite any non-generic hardware or software mechanism. *Elec. Power Grp.,* 830 F.3d at 1355 ("The claims at issue do not require any nonconventional computer, network, or display components, or even a non-conventional and non-generic arrangement of known, conventional pieces, but merely call for performance of the claimed information, collection, analysis, and display functions on a set of generic computer components and display devices.") (citation and quotation marks omitted)). Instead, claim 1 identifies (1) a network interface, (2) a set of instructions, and (3) a fluid-handling device. All claimed components were in widespread use prior to the date of the alleged invention. Claim 1 also identifies the steps of (1) receiving, (2) obtaining, (3) determining, (4) selecting, (5) translating, and (6) sending – all generic steps. The claimed software purports to determine and achieve "target states," however, the claims use only functional language and do not describe in any detail how to achieve the results. *See Two-Way Media Ltd. v. Comcast Cable Commc'ns, LLC*, 874 F.3d 1329, 1337-38 (Fed. Cir. 2017). No inventive way to perform this idea is claimed.

The presence of generic hardware or software such as a computer and a network interface does not make an otherwise abstract idea patent-eligible. *See, e.g., buySAFE, Inc. v. Google, Inc*.,

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

765 F.3d 1350, 1355 (Fed. Cir. 2014) ("That a computer receives and sends the information over a network – with no further specification – is not even arguably inventive.")

Similarly, the presence of a multiple "site master controllers" does not make an otherwise abstract idea patent-eligible. *ChargePoint, Inc. v. SemaConnect, Inc*., 920 F.3d 759, 766 (Fed. Cir. 2019) (holding that a claim that recited an "apparatus" comprised of a control device, transceiver, and controller was directed toward an abstract concept).

The protocol selection steps do not transform the claim, and does not constitute an improvement to the way computers operate, or a specific improvement to a protocol. *ClearDoc, Inc. v. RiversideFM, Inc*., 2022 WL 606698, *4–*7 (D. Del. 2022) (finding on a motion to dismiss that claims directed to "directed to remotely controlling the recording, storing, delivering, and deleting of media content on a mobile device," were invalid under § 101, and finding that the claimed "technical improvements are not the sort of improvements contemplated by the *Enfish* line of cases" to sustain patentability as "the technology recited in the [] patent is all conventional" and "do not disclose a specific improvement to a communication protocol"); *see also Two-Way Media,* 874 F.3d at 1339 (finding that a claim referring to data "complying with the specifications of a network communication protocol" and routing data in response to certain signals, "without specifying the rules forming the communication protocol or … parameters for the user signals" lacked an inventive concept). The '078 patent discloses no improvement to any protocol.

Further, translation is a mental process, and also an abstract idea. *Messaging Gateway Solutions v. Amdocs, Inc*., No. 14-732-RGA, 2015 WL 1744343 (D. Del. Apr. 15, 2015) (finding that a patent on a method for translating mobile phone language into Internet language was deemed directed to an abstract idea of "translation"); *see also Novo Transforma Techs., LLC v. Sprint Spectrum L.P*., 2015 WL 5156526, at *2 (D. Del. Sept. 2, 2015), *aff'd*, 669 F. App'x 555 (Fed. Cir.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

2016). In addition, the claims to not detail *how* the translation needs to be performed, and thus do not "sufficiently describe how to achieve th[o]se results in a non-abstract way." *See Two-Way Media*, 874 F.3d at 1337; *see also Univ. of Fla. Rsch. Found., Inc. v. Gen. Elec. Co*., 916 F.3d 1363, 1368 (Fed. Cir. 2019) (claims directed to an abstract idea because they do not explain "how the drivers do the conversion that [the plaintiff] points to. . . . The mere function of converting is not a 'specific improvement to the way computers operate.'"); *Intell. Ventures I LLC v. Cap. One Fin. Corp*., 850 F.3d 1332, 1342 (Fed. Cir. 2017) ("[T]he claim language here provides only a result-oriented solution, with insufficient detail for how a computer accomplishes it."). Finally, the application of the claim to a particular field of use, e.g., involving a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station, does not make the claim patent-eligible. *See Bilski*, 130 S. Ct. at 3231 ("limiting an abstract idea to one field of use or adding token post-solution components d[oes] not make the concept patentable.").

2. Alice Step 2 – The claims do not add substantially more than the abstract idea

Step 2 of the *Alice* analysis determines whether patentability is saved because an "inventive concept" is provided in the claim. This is the search for "significantly more" than the abstract idea. *Alice,* 134 S. Ct. at 2357. The claim must have "additional features" to ensure that the claim is more than a drafting effort designed to monopolize the abstract idea. *Id*. In step two, the Court examines the claim limitations "both individually and as an ordered combination" to determine whether the claims disclose an "inventive concept sufficient to transform the claimed abstract idea into a patent eligible application." *Alice*, 134 S. Ct. at 2355 (cleaned up). If a claim is directed to an abstract idea at step one, to be patentable at step two the claim "must include additional features"

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

that "must be more than well-understood, routine, conventional activity." *Ultramercial Inc. v. Hulu, LLC*, 772 F.3d 709, 715 (Fed. Cir. 2014).

The Claims Do Not Embody an Inventive Concept

Much of the analysis at step one carries over into step two. There is no "inventive concept" where, as here, the abstract idea is implemented with conventional components in a conventional manner. *Alice*, 134 S. Ct. at 2359. "[W]ell-understood, routine, conventional activities previously known in the industry" do not suffice to provide the inventive concept. *Id*. Where claims do not call for "any nonconventional computer, network, or display components, or even a 'non-conventional and non-generic arrangement of known, conventional pieces,' but merely call for performance of the claimed information collection, analysis, and display functions 'on a set of generic computer components' and display devices," the claims fail the step two analysis. *Elec. Power Grp*., 830 F.3d at 1355.

Claim 1 does no more than take a basic idea from the public domain without disclosing any inventive steps. In addition, all of the components identified in the claim were known to the industry at the time of the patent. *See* '078 Patent 1:60-64. Further, the tasks referenced use only functional language such as "receiving," "providing," "obtaining," "determining," and "causing." *See Two-Way Media*, 874 F.3d at 1337-38 ("The claim requires the functional results of 'converting,' 'routing,' 'controlling,' 'monitoring,' and 'accumulating records,' but does not sufficiently describe how to achieve these results in a non-abstract way."). Claim 1 does not require an inventive way to perform this idea.

Remote Access is Not Inventive

That some claims are directed to *remote* control of fluid-handling valves does not save the claims, as remote access is not inventive. *See Intell. Ventures I LLC v. Erie Indem. Co*., 850 F.3d

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

1315, 1330 (Fed. Cir. 2017) ("Remotely accessing and retrieving user-specified information is an age-old practice that existed well before the advent of computers and the Internet.").

The *Claims* Do Not Describe How to Maintain a Reliable Network Connection, or How to Operate with an Unreliable Network Connection

One of the changes that appears in the FAC that was not in the original complaint was SitePro's addition, ostensibly to address TankLogix's first motion to dismiss, of paragraphs describing network issues that made administration of remote locations allegedly more difficult. FAC ¶¶ 26-33. Accepting as true for the purposes of this motion that SitePro's statements that such issues existed, the existence of such technical challenges does not change the patentability analysis because the *claims* do not describe any inventive method of overcoming such issues. In short, the *claims* do not describe any particular way of addressing the problem. SitePro's citation to the *specification* do not aid SitePro. As explained by the Federal Circuit:

> The fact that certain algorithms are disclosed in the specification does not change the outcome. In considering patent eligibility under § 101, one must focus on the claims. This is because a claim may 'preempt' only that which the claims encompass, not what is disclosed but left unclaimed.

Dealertrack, Inc. v. Huber, 674 F.3d 1315, 1333-34 (Fed. Cir. 2012).

The *Claims* Do Not Describe How to Perform Protocol Translation

Another one of the changes that appears in the FAC that was not in the original complaint, which SitePro described as "[a] second, distinct invention offered by the Asserted Patents" was "protocol translation at the edge of the [SCADA] network." FAC ¶ 34. The patents simply describe that protocol languages may be different for different devices, and therefore the protocol translation may differ based on the destination device to which a command is to be routed. *Id*. Translation is a mental process. Determining one translation from a number of available translations is also a mental process. For example, a translator fluent in three languages will choose

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

a translation based on the native language of the listener. Again, the *claims* do not describe any novel way of choosing a translation.

SitePro alleges that "unique hardware and software" is needed to exercise SitePro's alleged invention. FAC ¶ 35. This conclusion is not entitled to a presumption of truth. The patent specifications undermine SitePro's statement, as explained in § 0 below.

SitePro's bolstered FAC also makes much of a "protocol multiplexer." FAC ¶¶ 35-37. SitePro refers to "specific structures" in the device. FAC ¶ 37. The description in the specification reveals that it is a router that routes an incoming message to the appropriate device. FAC ¶ 36. This is also a mental process, and has several "pre-Internet" analogs that could be performed by humans, such as a personal assistant directing calls. *Parus Holdings, Inc. v. Sallie Mae Ban*k, 137 F. Supp. 3d 660 (D. Del. 2015), *aff'd,* 677 Fed. App'x 682 (Fed. Cir. 2017). Other courts agree. "The *Parus Holdings* court is not alone in holding that such call routing patent claims could be performed by humans." *VoIP-Pal.com, Inc. v. Apple Inc*., No. 18-CV-06217-LHK (N.D. Cal. Mar. 25, 2019) (collecting cases).

Moreover, the specification does not require a specialized computer containing the "protocol multiplexer." Further, there are no consequential fact issues that need to be resolved. Even accepting as true for the purposes of this motion that SitePro's suggestions that the cited "protocol multiplexer" is a "special purpose computing device," it does not change the patentability analysis because the *claims* do not describe any inventive method of implementing or using such a device. *See* FAC ¶ 39. Indeed, the claims do not mention a "protocol multiplexer," much less "sufficiently describe how to achieve [the results attributable to the device] in a non-abstract way." *See Two-Way Media*, 874 F.3d at 1337-38.

The Claimed Functions Do Not Require Specialized Devices

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

The specifications explain that "processes and modules described herein may be executed by one or more processing systems similar to that of computing system 1000." '078 Patent 12:33-35. The specifications also explain that "computing system 1000" does not require a non-generic computer:

> Those skilled in the art will appreciate that computer system 1000 is merely illustrative and is not intended to limit the Scope of the techniques described herein. Computer system 1000 may include any combination of devices or software that may perform or otherwise provide for the performance of the techniques described herein. For example, computer system 1000 may include or be a combination of a cloud-computing system, a data center, a server rack, a server, a virtual server, a desktop computer, a laptop computer, a tablet computer, a server device, a client device, a mobile telephone, a personal digital assistant (PDA), a mobile audio or video player, a game console, a vehicle-mounted computer, or a Global Positioning System (GPS), or the like.

'078 Patent 14:31-43. The specifications further explain that the processors, I/O device interfaces, network interfaces, memory, and computer programs referenced in the patents are merely conventional and could be implemented using previously-known, standard, conventional components. '078 Patent 12:36-14:23.

All other claims are also ineligible

The Federal Circuit has held that a district court need not expressly address each asserted claim where the court concludes particular claims are representative because all the claims are "substantially similar and linked to the same abstract idea." *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat. Ass'n*, 776 F.3d 1343, 1348 (Fed. Cir. 2014). Here, claim 1 is representative of all asserted claims. *Elec. Power Grp.,* 830 F.3d at 1352 (claim may be treated as representative where there is no "distinctive significance" of any limitation found in any other allegedly infringed claims). All claims recite the abstract idea of controlling fluid-handling devices, e.g., valves or pumps. Nevertheless, TankLogix addresses other asserted claims.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

The other claims depending from claim 1 merely specify the type of data that is exchanged, adds generic devices that were well-known at the time of the invention, or functionally describes the operation of various computer methods without specifying how the functional results are to be achieved. No such claims detail an inventive way of carrying out a task. Similarly, the claims do not suggest that the claimed system for controlling fluid-handling devices is improved in any way over conventional systems for controlling fluid-handling devices. Nor do the claims explain that the fluid-handling devices in the claimed system operate any differently than they would otherwise. Taken individually or in combination, the recited limitations neither improve the functions of the computer itself, nor provide specific programming, tailored software, or meaningful guidance for implementing the abstract concept. *Alice*, 134 S. Ct at 2359.

Claim 2 depends from claim 1 and adds the step of selecting the protocol that is to be used to send a command to the device. Even if this requires electronic hardware, the claimed function of selecting a protocol is a basic and routine operation for a router, and the specification does not describe any improvement in the technology underlying this abstract selection function. *See* '078 Patent 8:66-9:14; *see also TDE Petroleum Data Sol'ns, Inc. v. AKM Enterprise, Inc.,* 657 F. App'x 991, 993 (Fed. Cir. 2016) ("selecting a representative system model based on the received formation response data and sequence of stimuli" are "ordinary of steps in data analysis" that merely involve "collecting information" and "analyzing it."). Claim 3 depends from claim 2 and additionally requires sending an address of the destination device on the communications bus. This is not patentable as it merely describes the function of sending a command from one place to another. The claim does not sufficiently describe *how* to achieve [the results attributable to the device] in a non-abstract way." *See Two-Way Media*, 874 F.3d at 1337-38 (holding that a claimed method for sending information between devices was abstract because it failed to describe how to

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

achieve those steps). Claim 4 depends from claim 2 and additionally requires encoding the translated instructions. Encoding is an abstract idea. *Recognicorp, LLC v. Nintendo Co. Ltd*., 2015 WL 11217242, *4-*7 (W.D. Wash. 2015), *aff'd*, *Recognicorp, LLC v. Nintendo Co.,* 855 F.3d 1322, 1326-28 (Fed. Cir. 2017) (granting judgment on the pleadings that claims directed to A method for creating a composite image where invalid under § 101 because they were directed to an abstract idea of encoding). Claim 5 depends from claim 2 and additionally identifies the functions of a conventional digital-to-analog converter. The specification explains that this function was conventional, and was provided by a conventional printed circuit board available at the date of invention. *See* '078 Patent 10:44-49. In addition, as the Federal Circuit explained, claims directed to format conversion that do not focus on any specific advance in coding or other techniques for implementing that idea, are unpatentable. *In Adaptive Streaming Inc. v Netflix, Inc*., 836 F. App'x 900 (Fed. Cir. 2020). Claims 6, 10, and 15 depend from claim 1 and recite instructions to achieve a "target state." The claim uses only functional language and does not describe in any detail *how* to achieve the results. *See Two-Way Media*, 874 F.3d at 1337-38. The claim does not require an inventive way to perform this idea. Claim 7 depends from claim 6 and refers to what happens when a network connection is lost. As explained above, the claim uses only functional language and does not describe in any detail how to achieve the results. Claim 8 depends from claim 6 and recites changing the speed of a pump. This claim does not describe a new device or improvement in any specific device that would convert the scope from abstract idea to patent-eligible innovation. The recitation of specific hardware elements such as a "pump" is insufficient to confer specificity. *Alice*, 134 S. Ct. at 2360 ("what petitioner characterizes as specific hardware … is purely functional and generic. Nearly every computer will include … ."). Here, a pump is a generic fluid-handling device. *See* '078 Patent 1:20-30. Claim 9 depends from claim 6 and refers

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

to oscillating the position of a valve. Again, the claim does not sufficiently describe how to achieve [the results attributable to the device] in a non-abstract way." *See Two-Way Media*, 874 F.3d at 1337-38. Claim 11 depends from claim 1 and adds the selection an automatic mode of operation, which is an abstract idea requiring no specialized hardware. '078 Patent 9:53-63. Claim 12 depends from claim 1 and adds the abstract concept of remote control, which is not patentable as explained above. Claim 13 depends from claim 1 and adds the concept of checking a constraint value contained in memory before transmitting a command. The interrogation of conventional computer memory cannot transform the claims into ones that are patent eligible. *Alice*, 573 U.S. at 226. Claim 14 depends from claim 1 and adds the concept of sending an untranslated command. Just as sending a translated command is a mental process as explained above, so is sending an untranslated command. The claim does not describe how to achieve [the results attributable to the device] in a non-abstract way." *See Two-Way Media*, 874 F.3d at 1337-38. Claims 16 and 18 depend from claim 1 and add a number of tasks described using only functional language such as "receiving," "identifying," and "sending." *See Two-Way Media*, 874 F.3d at 1337-38. The claims do not require an inventive way to perform the ideas. Claim 17 adds conventional hardware, a smartphone with a smartphone application, which does not transform the claim into something patent eligible. *Alice*, 573 U.S. at 226. Claim 19 depends from claim 1 and adds a field of use. The application of the claim to a particular field of use, e.g., involving a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station, does not make the claim patent-eligible. *See Bilski*, 130 S. Ct. at 3231. Independent claim 20 claims a "system" that includes (1) processor, (2) a network interface, (3) network (link-layer) devices, and (4) memory that stores instructions. The claimed steps involving the encoding/translating instructions with the link-layer

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

device constitutes "complying with the specifications of a network communication protocol" and is not inventive. *Two-Way Media*, 874 F.3d at 1339.

B. PRIOR ART REFERENCES

Defendant identifies the following prior art to anticipate or render obvious the '078 Asserted Claims under at least 35 U.S.C. §§ 102(a), (b), (e), and/or (g), and/or § 103, either expressly or inherently as understood by a POSITA.

The following patents and publications are prior art to the '078 Asserted Claims under at least 35 U.S.C. §§ 102(a), (b), (e), and/or (g). Invalidity claim charts for some of the following references are attached as Exhibit B-1 to B-3.

Reference	**Statute**
Kahn – U.S. Patent No. 7,424,399	102(a)
Almadi – U.S. Patent No. 8,667,091	102(a)
Gutierrez – U.S. Patent No. 9,709,995	102(a)
Abdallah – U.S. Published Application 2008/0316048	102(a)
Cardamone – U.S. Published Application 2015/0308244A1	102(e)
64utah-SCADA	102(a)
BoilerControl_2008	102(a)
Brochure-VTScada-FeaturesByVersion	102(a)
CampbellScientific_au_b_scada_01-10	102(a)
Case-Study-Turks-Caicos	102(a)
CR1000 Datalogger - Brochure	102(a)
DeltaV_EMERSON_2006	102(a)
en-606-mμ-connect-datasheet-2005	102(a)

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

Fundamental of Computing	102(a)
O'Reilly Java Threads (2nd Edition)	102(a)
Modbus_Application_Protocol_V1_1b3	102(a)
PMD_Test_Suite_v3.5	102(a)
NCSC Reference	102(a)
Profile-VTScada-TypicalInstallations-Wastewater	102(a)
SCADA 4th Ed	102(a)
SCADA System Upgrade _ Wastewater Digest	102(a)
scada_sys_wht_ppr-2a_new	102(a)
SCADA_system_for_oil_refinery_control	102(a)
The Many Faces of SCADA	102(a)
tm_5_601	102(a)
trenton_culinary_water_2011	102(a)
Whitepaper-CNRL-VTScadaEnterpriseArchitecture	102(a)

Defendant additionally identifies and relies on patent or publication references that describe or are otherwise related to the prior art systems identified below. Defendant's investigation into prior art patent and publication references remains ongoing, and Defendant reserves the right to identify and rely on additional patent or publication references that are identified through further investigation or discovery (including materials that may be in Plaintiff's possession and have yet to be produced). Defendant reserves the right to supplement as further prior art is identified through investigation or discovery.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

C. INDEFINITENESS

Defendant identifies below marked claims are indefinite under 35 U.S.C. §§ 112(a), (b), and/or (f) for failing to disclose sufficient corresponding structure in the specification. Specifically, the following limitations are written in means-plus-function format or use nonce terms that invoke § 112(f), but the specification does not disclose structure sufficient to perform the claimed function.

Patentee invokes mean-plus-function with the following nonce terms: "**a link-layer device,**" "**a process recipe,**" "**a network interface,**" and "**link-layer devices.**" However, Patentee fails to recite sufficient structure within the specification of the '078 patent for a POSITA to understand the scope of these limitations. Thus, the claims that include these limitations should be found invalid due to being indefinite under § 112(f).

Further, patentee utilizes the following subjective terms within the '078 patent: "**effective to cause,**" "**attempt to achieve,**" and "**configured to**". These subjective terms fail to particularly point out the invention within the '078 patent, as such these claims lack sufficient detail for a POSITA to understand the scope of these limitations. Thus, the claims that include these limitations should be found invalid due to being indefinite under § 112(b).

Lastly, Defendant's analysis of indefiniteness under §§ 112(a), (b), and/or (f) remains ongoing, particularly with respect to Plaintiff's yet-to-be-produced technical documents and source code, and Defendant reserves the right to supplement its contentions with additional arguments and claim terms upon further investigation and discovery.

Asserted	Patent #	Claim with Bolded Indefinite Term

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

X	9342078	1. A method, comprising: [1a] receiving, via a network interface, a plurality of user-directed instructions to control fluid-handling devices that monitor or control one or more fluids at an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station, the plurality of instructions being received encoded in a shared protocol; [1b] obtaining a target state of at least one of the fluid-handling devices based on at least some of the plurality of instructions, wherein obtaining a target state of at least one of the fluid-handling devices based on at least some of the plurality of instructions comprises: [1c] after receiving the instructions, determining a plurality of different target states of the at least one of the fluid-handling devices, the plurality of different states each corresponding to different times; [1d] for each of the plurality of instructions, selecting a respective protocol or protocols from among a plurality of protocols different from the shared protocol, wherein the respective fluid-handling device or devices to which the respective instruction is directed are responsive to the selected respective protocol or protocols, wherein at least some of the selected protocols are different from one another; [1e] after determining the plurality of different target states, translating each received instructions into one or more translated instructions encoded in the selected respective protocol or protocols,

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

		the one or more translated instructions including the determined plurality of different target states; [1f] and sending each translated instructions to at least the fluid-handling device to which the respective translated instruction is directed, wherein at least some of **the translated instructions are effective to cause the at least one of the fluid-handling devices to attempt to achieve the target state**.
X	9342078	4. The method of claim 2, wherein sending each translated instructions to at least the fluid-handling device to which the respective instruction is directed comprises: providing at least some of the translated instructions to **a link-layer device** connected to the identified bus; and encoding the translated instructions with the link-layer device in accordance with the physical medium by which the identified bus is implemented.
X	9342078	6. The method of claim 1, wherein: the at least some of the translated instructions **are effective to cause** the at least one of the fluid-handling devices **to attempt to achieve** the plurality of different target state at the different times.
X	9342078	7. The method of claim 6, comprising: losing a network connection by which at least some of the plurality of user-directed instructions are received;

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

		and after losing the network connection, continuing to cause the at least one of the fluid-handling devices to **attempt to achieve** the plurality of different target state at the different times and continuing to execute instructions among the plurality of received instructions received prior to losing the network connection before entering an automatic mode.
	9342078	10. The method of claim 1, wherein at least some of the received instructions identify **a process recipe** in which a collection of target states are targeted for at least a plurality of the fluid-handling devices.
	9342078	20. A system, comprising: [20a] one or more processors; **a network interface** coupled to at least some of the processors; a plurality of **link-layer devices** coupled to at least some of the processors, each link-layer device **configured to** communicate with one or more fluid-handling devices via one or more busses; and memory storing instructions that when executed by at least some of the processors effectuate operations comprising: [20b] receiving, via the network interface, a plurality of user-directed instructions to control fluid-handling devices that monitor or control one or more fluids at an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station, the plurality of instructions being received encoded in a shared protocol;

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

		[20c] obtaining a target state of at least one of the fluid-handling devices based on at least some of the plurality of instructions, wherein obtaining a target state of at least one of the fluid-handling devices based on at least some of the plurality of instructions comprises: [20d] after receiving the instructions, determining a plurality of different target states of the at least one of the fluid-handling devices, the plurality of different states each corresponding to different times; [20e] for each of the plurality of instructions, selecting a respective protocol or protocols from among a plurality of protocols different from the shared protocol, wherein the respective fluid-handling device or devices to which the respective instruction is directed are responsive to the selected respective protocol or protocols, wherein at least some of the selected protocols are different from one another; [20f] after determining the plurality of different target states, translating each received instructions into one or more translated instructions encoded in the selected respective protocol or protocols, the one or more translated instructions including the determined plurality of different target states; [20g] and sending each translated instructions to at least the fluid-handling device to which the respective translated instruction is directed via one of the link-layer devices, wherein at least some of

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

		the translated instructions **are effective to cause** the at least one of the fluid-handling devices **to attempt to achieve the target state**.
	9342078	23. The system of claim 21, wherein sending each translated instructions to at least the fluid-handling device to which the respective instruction is directed comprises: providing at least some of the translated instructions to **a link-layer device** connected to the identified bus; and encoding the translated instructions with the link-layer device in accordance with the physical medium by which the identified bus is implemented.
	9342078	25. The system of claim 20, wherein: the at least some of the translated instructions are **effective to cause** the at least one of the fluid-handling devices to **attempt to achieve** the plurality of different target state at the different times.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

	9342078	26. The system of claim 25, the operations comprising: losing a network connection by which at least some of the plurality of user-directed instructions are received; and after losing the network connection, continuing to cause the at least one of the fluid-handling devices **to attempt to achieve** the plurality of different target state at the different times and continuing to execute instructions among the plurality of received instructions received prior to losing the network connection before entering an automatic mode.
	9342078	29. The system of claim 20, wherein at least some of the received instructions identify **a process recipe** in which a collection of target states are targeted for at least a plurality of the fluid-handling devices.
	9342078	39. The system of claim 20, comprising: a plurality of fluid-handling devices coupled to at least some of **the link-layer devices** via at least some of a plurality of busses.

VII. ’014 PATENT

A. INELIGIBILITY

Claim 1 recites:

1. A hosted, web-based, remote industrial monitoring and control system for geographically distributed facilities in oil and gas fields, the system comprising:
a computer-implemented datastore storing:
a plurality of accounts, each account corresponding to an entity operating one or more geographically distributed oil or gas facilities, the accounts associating different oil or gas facilities with different entities; and

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

network addresses by which industrial monitoring or control equipment at the facilities is accessible via cellular network connections, the monitoring or control equipment including sensors or actuators;

a computer-implemented facility-interface module or modules configured to obtain data from the sensors at the facilities and send commands to the actuators at the facilities via the cellular network connections; and

a computer-implemented web-interface module or modules configured to send instructions to present control interfaces in web browsers executing on user computing devices logged in to the accounts and to receive commands to control actuators from the user computing devices,

wherein the system is configured to receive, with the web-interface module or modules, a user command to actuate an actuator entered via a presented control interface, identify a network address in the datastore corresponding to a facility at which the actuator is located, and send instructions with the facility-interface module or modules to the facility to actuate the actuator, and

wherein:

the plurality of accounts include a first account, a second account, a third account, and a fourth account;

the first account corresponds to a first group of oil or gas facilities, users of the first account being authorized to send commands to remotely control fluid handling devices at the first group of oil or gas facilities;

the second account corresponds to a second group of oil or gas facilities, the first group being different from the second group, users of the second account being authorized to send commands to remotely control fluid handling devices at the second group of oil or gas facilities;

the third account corresponds to the first group of oil or gas facilities, users of the third account being authorized to view reports of data from fluid handling devices at the first group of oil or gas facilities; and

the fourth account corresponds to the second group of oil or gas facilities, users of the fourth account being authorized to view reports of data from fluid handling devices at the second group of oil or gas facilities.

FAC ¶ 72.

1. Alice Step 1 – The claims are directed to the abstract idea of monitoring and controlling geographically distributed facilities in oil and gas fields

At a high level, claim 1 recites a system for remotely monitoring and controlling geographically distributed facilities in oil fields. Accordingly, claim 1 is an apparatus claim directed to the abstract idea of monitoring and controlling geographically distributed facilities in oil and gas fields. *See, e.g., Cyber- Source*, 654 F.3d at 1372–73 (holding that a claim whose "steps

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

can be performed in the human mind, or by a human using a pen and paper" is directed to an "un-patentable mental process[]"). The claim does not recite any non-generic hardware or software mechanism to perform this task. *Elec. Power Grp.,* 830 F.3d at 1355.

Requiring the use of a computer does not change the focus of the claim away from being directed towards an abstract idea. "[T]he inability for the human mind to perform each claim step does not alone confer patentability." *FairWarning IP, LLC v. Iatric Sys*., 839 F.3d 1089, 1098 (Fed. Cir. 2016). Similarly, the claims do not recite any non-generic hardware or software mechanism. *Elec. Power Grp.,* 830 F.3d at 1355 ("The claims at issue do not require any nonconventional computer, network, or display components, or even a non-conventional and non-generic arrangement of known, conventional pieces, but merely call for performance of the claimed information, collection, analysis, and display functions on a set of generic computer components and display devices.") (citation and quotation marks omitted)). Instead, the claimed system includes (1) a datastore that stores accounts and network addresses, (2) a computer-implemented facility-interface module, and (3) a computer-implemented web-interface module. Claim 1 recites the use of a database to store the partitioning of users into groups (or "accounts"), and the partitioning of facilities into groups. The database stores a "network address" associated with each facility. The system stores an authorization indicating which users may access which facilities. The grouping of users into groups, and authorizing user access to certain facilities is essentially group-based access control, an abstract idea and mental process that has been in use for centuries, and may be accomplished using pencil and paper.

The presence of generic hardware or software such as a computer and a network interface does not make an otherwise abstract idea patent-eligible. *See, e.g., buySAFE, Inc. v. Google, Inc*.,

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

765 F.3d 1350, 1355 (Fed. Cir. 2014) ("That a computer receives and sends the information over a network – with no further specification – is not even arguably inventive.")

2. Alice Step 2 – The claims do not add substantially more than the abstract idea

Step 2 of the *Alice* analysis determines whether patentability is saved because an "inventive concept" is provided in the claim. This is the search for "significantly more" than the abstract idea. *Alice,* 134 S. Ct. at 2357. The claim must have "additional features" to ensure that the claim is more than a drafting effort designed to monopolize the abstract idea. *Id*. In step two, the Court examines the claim limitations "both individually and as an ordered combination" to determine whether the claims disclose an "inventive concept sufficient to transform the claimed abstract idea into a patent eligible application." *Alice*, 134 S. Ct. at 2355 (cleaned up). If a claim is directed to an abstract idea at step one, to be patentable at step two the claim "must include additional features" that "must be more than well-understood, routine, conventional activity." *Ultramercial Inc. v. Hulu, LLC*, 772 F.3d 709, 715 (Fed. Cir. 2014).

The Claims Do Not Embody an Inventive Concept

Much of the analysis at step one carries over into step two. There is no "inventive concept" where, as here, the abstract idea is implemented with conventional components in a conventional manner. *Alice*, 134 S. Ct. at 2359. "[W]ell-understood, routine, conventional activities previously known in the industry" do not suffice to provide the inventive concept. *Id*. Where claims do not call for "any nonconventional computer, network, or display components, or even a 'non-conventional and non-generic arrangement of known, conventional pieces,' but merely call for performance of the claimed information collection, analysis, and display functions 'on a set of

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

generic computer components' and display devices," the claims fail the step two analysis. *Elec. Power Grp*., 830 F.3d at 1355.

The addition of access control limitations does not render the claims eligible

In *Ericsson Inc. v. TCL Commc'n Tech. Holdings Ltd*., 955 F.3d 1317 (Fed. Cir. 2020), a patent holder sued for infringement of a patent that claimed "a method and system for limiting and controlling access to resources in a telecommunications system." The defendant's products "include[d] 'a security system that can grant apps access to a subset of services on the phone, with the end user controlling the permissions granted to each app.'" *Id.* at 1320. The Federal Circuit concluded that the method and system for receiving an access request and determining whether access should be granted were abstract ideas. *Id*. at 1326. The Federal Circuit reasoned that "[c]ontrolling access to resources is exactly the sort of process that 'can be performed in the human mind, or by a human using a pen and paper,' which we have repeatedly found unpatentable." *Id*. at 1327 (citation omitted).

The claim also recites that the "system is configured" to do a number of things, which are recited using only functional language such as "receive… a user command… to actuate an actuator, … identify a network address, … and send instructions … to the facility to actuate the actuator." *See Two-Way Media*, 874 F.3d at 1337-38. The claim does not require an inventive way to perform this idea. The claim takes a basic idea from the public domain without disclosing any inventive steps. The components identified in the claim were known to the industry at the time of the patent. *See* '014 Patent 1:42-53.

All other claims are also ineligible

The Federal Circuit has held that a district court need not expressly address each asserted claim where the court concludes particular claims are representative because all the claims are

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

"substantially similar and linked to the same abstract idea." *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat. Ass'n*, 776 F.3d 1343, 1348 (Fed. Cir. 2014). Here, claim 1 is representative of all asserted claims. *Elec. Power Grp.,* 830 F.3d at 1352 (claim may be treated as representative where there is no "distinctive significance" of any limitation found in any other allegedly infringed claims).

All claims recite the abstract idea of controlling fluid-handling devices, e.g., valves or pumps. Indeed, all claims depend, directly or indirectly from claim 1. The other claims merely recite additional attributes involving the conventional devices, e.g., types of sensors, web-interface modules, datastores; the conventional communications means, or specific software threads, which use only functional language without specifying *how* to carry out such functions. Taken individually or in combination, the claim elements neither improve the functions of the computer itself, nor provide specific programming, tailored software, or meaningful guidance for implementing the abstract concept. *Alice*, 134 S. Ct at 2359.

Claims 2-4 depend from claim 1 and specifies that the sensors include a tank level sensor (claims 2-3) or leak detector (claim 4), that the datastore includes a record linking a tank with a facility, and restricting access to the sensor data to certain users. First, the tank sensors are generic. '014 Patent 5:53-56 ("Fluid handling devices may include a variety of types of sensors, for instance, a … fluid level … sensor."). Second, the datastore is conventional computer memory and cannot transform the claims into ones that are patent eligible. *Alice*, 573 U.S. at 226; *see also* claim 2 of the '909 Patent above. Third, restricting access is a mental process as described above for claim 1. Claims 5-6 depend from claim 1 and describe a web server connected via a network to a user device. As explained for claims 3 and 7 of the '909 Patent above, the web-server and its connection with the user's computer is conventional and nothing in the claims suggests that the

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

claim elements are anything more than generic computer components. *See Cap. One Bank (USA)*, 792 F.3d at 1370. The claims also reference a "site server," but the specification does not require a specialized computer containing the "site server." Instead, the "site server" process may be executed on "computing system 1000" which does not require a non-generic computer. '909 Patent 12:25-27; 14:24-36. Claim 7 depends from claim 1 and describes subscription information stored on a data store. As explained above for claims 2-4, the datastore is conventional computer memory and cannot transform the claims into ones that are patent eligible. *Alice*, 573 U.S. at 226. Claims 8-9, and 11-12 depend from claim 1 and describe generic communication functions without reference to any non-generic or unconventional hardware. Claim 10 depends from claim 1 and places a floor on the number of user devices. Adding such a numeric qualifier does not change the patentability analysis. Even if the number of user devices would necessitate use of a computer, "merely requiring generic computer implementation fails to transform that abstract idea into a patent-eligible invention." *Alice*, 134 S. Ct. at 2352. Claims 13 and 14 depend from claim 12 and additionally specify the creation of enumerated processing threads. The claims do not describe a new device or improvement in any specific device, nor do they sufficiently describe how to achieve [the results attributable to the device] in a non-abstract way. The creation of processing threads to implement conventional processing functions does not confer patentability. *Capital One Bank*, 792 F.3d at 1370 ("Steps that do nothing more than spell out what it means to 'apply it on a computer' cannot confer patent-eligibility."). Claims 15-17 and 23 depend from claim 12 and describe generic communication functions without reference to any non-generic or unconventional hardware. *See* '014 Patent 7:49-53; 13:38-41. Claims 17-22 depend, directly or indirectly, from claim 12, and functionally describe abstract ideas without reference to any non-generic or unconventional hardware.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

B. PRIOR ART REFERENCES

Defendant identifies the following prior art to anticipate or render obvious the '014 Asserted Claims under at least 35 U.S.C. §§ 102(a), (b), (e), and/or (g), and/or § 103, either expressly or inherently as understood by a POSITA.

The following patents and publications are prior art to the '014 Asserted Claims under at least 35 U.S.C. §§ 102(a), (b), (e), and/or (g). Invalidity claim charts for some of the following references are attached as Exhibit C-1 to C-3.

Reference	**Statute**
Kahn – U.S. Patent No. 7,424,399	102(a)
Almadi – U.S. Patent No. 8,667,091	102(a)
Gutierrez – U.S. Patent No. 9,709,995	102(a)
Abdallah – U.S. Published Application 2008/0316048	102(a)
Cardamone – U.S. Published Application 2015/0308244A1	102(e)
64utah-SCADA	102(a)
BoilerControl_2008	102(a)
Brochure-VTScada-FeaturesByVersion	102(a)
CampbellScientific_au_b_scada_01-10	102(a)
Case-Study-Turks-Caicos	102(a)
CR1000 Datalogger - Brochure	102(a)
DeltaV_EMERSON_2006	102(a)
en-606-mμ-connect-datasheet-2005	102(a)
Fundamental of Computing	102(a)
O'Reilly Java Threads (2nd Edition)	102(a)

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

Modbus_Application_Protocol_V1_1b3	102(a)
PMD_Test_Suite_v3.5	102(a)
NCSC Reference	102(a)
Profile-VTScada-TypicalInstallations-Wastewater	102(a)
SCADA 4th Ed	102(a)
SCADA System Upgrade _ Wastewater Digest	102(a)
scada_sys_wht_ppr-2a_new	102(a)
SCADA_system_for_oil_refinery_control	102(a)
The Many Faces of SCADA	102(a)
tm_5_601	102(a)
trenton_culinary_water_2011	102(a)
Whitepaper-CNRL-VTScadaEnterpriseArchitecture	102(a)

Defendant additionally identifies and relies on patent or publication references that describe or are otherwise related to the prior art systems identified below. Defendant's investigation into prior art patent and publication references remains ongoing, and Defendant reserves the right to identify and rely on additional patent or publication references that are identified through further investigation or discovery (including materials that may be in Plaintiff's possession and have yet to be produced). Defendant reserves the right to supplement as further prior art is identified through investigation or discovery.

C. INDEFINITENESS

Defendant identifies below marked claims are indefinite under 35 U.S.C. §§ 112(a), (b), and/or (f) for failing to disclose sufficient corresponding structure in the specification. Specifically,

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

the following limitations are written in means-plus-function format or use nonce terms that invoke § 112(f), but the specification does not disclose structure sufficient to perform the claimed function.

Patentee expressly invokes mean-plus-function with the following limitations: "**means for** ensuring at least some data is not lost if network access ceases intermittently," "**means for** translating a command for an actuator from an input format to a format configured to effectuate changes in the actuator," "**means for** executing control routines implicated by translated commands on an individual actuator or sensor," "**means for** transmitting data to the facility-interface **module** or modules," and "**means for** checking validity of a command." However, Patentee fails to recite sufficient structure within the specification of the '014 patent for a POSITA to understand the scope of these limitations.

Further, Patentee invokes mean-plus-function with the following nonce terms: "**a computer-implemented datastore,**" "**a computer-implemented facility-interface module or modules,**" "**a computer-implemented web-interface module or modules,**" and "**a web server**". Similarly, Patentee fails to recite sufficient structure within the specification of the '014 patent for a POSITA to understand the scope of these limitations. Thus, the claims that include these limitations should be found invalid due to being indefinite under § 112(f).

Lastly, Defendant's analysis of indefiniteness under §§ 112(a), (b), and/or (f) remains ongoing, particularly with respect to Plaintiff's yet-to-be-produced technical documents and source code, and Defendant reserves the right to supplement its contentions with additional arguments and claim terms upon further investigation and discovery.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

Asserted	Patent #	Claim with Bolded Indefinite Term
X	9898014	1. A hosted, web-based, remote industrial monitoring and control system for geographically distributed facilities in oil and gas fields, the system comprising: [1a] **a computer-implemented datastore** storing: [1b] a plurality of accounts, each account corresponding to an entity operating one or more geographically distributed oil or gas facilities, the accounts associating different oil or gas facilities with different entities; [1c] and network addresses by which industrial monitoring or control equipment at the facilities is accessible via cellular network connections, the monitoring or control equipment including sensors or actuators; [1d] **a computer-implemented facility-interface module or modules** configured to obtain data from the sensors at the facilities and send commands to the actuators at the facilities via the cellular network connections; [1e] and **a computer-implemented web-interface module or modules** configured to send instructions to present control interfaces in web browsers executing on user computing devices logged in to the accounts and to receive commands to control actuators from the user computing devices, wherein the system is configured to receive,

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

		with **the web-interface module or modules**, a user command to actuate an actuator entered via a presented control interface, identify a network address in **the datastore** corresponding to a facility at which the actuator is located, and send instructions with **the facility-interface module or modules** to the facility to actuate the actuator, and wherein: [1f] the plurality of accounts include a first account, a second account, a third account, and a fourth account; the first account corresponds to a first group of oil or gas facilities, users of the first account being authorized to send commands to remotely control fluid handling devices at the first group of oil or gas facilities; the second account corresponds to a second group of oil or gas facilities, the first group being different from the second group, users of the second account being authorized to send commands to remotely control fluid handling devices at the second group of oil or gas facilities; the third account corresponds to the first group of oil or gas facilities, users of the third account being authorized to view reports of data from fluid handling devices at the first group of oil or gas facilities; and the fourth account corresponds to the second group of oil or gas facilities, users of the fourth account being authorized to view reports of data from fluid handling devices at the second group of oil or gas facilities.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

X	9898014	2. The system of claim 1, wherein the sensors include a tank level sensor of a tank at one of the facilities, and wherein **the datastore** includes a record associating the tank with the facility, data from the tank being unavailable to users without an account associated with the tank, and wherein the accounts: designate oil or gas facilities to which a given user is authorized to send the user command to actuate the actuator.
X	9898014	3. The system of claim 1, wherein the sensors include a level sensor of an oil/water separation tank at one of the facilities **a web server** indicate a level at which oil meets water, and wherein **the datastore** includes a record associating the tank with the facility.
X	9898014	4. The system of claim 1, wherein the sensors include a leak detector at one of the facilities, and wherein **the datastore** includes a record associating the leak detector with the facility.
X	9898014	5. The system of claim 1, wherein: **the web-interface module or modules comprises a web server**; and **the facility-interface module or modules** comprises a site server distinct from the web server.
X	9898014	6. The system of claim 5, wherein: **the web server** communicates with user devices via a first network port of a computing device executing the web server; and the site server communicates with facilities via a second network port of the computing device, the second network port being different from the first network port.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

X	9898014	8. The system of claim 1, wherein **the facility-interface module or modules** comprise: **means for** interfacing with a plurality of site controllers associated with the facilities.
X	9898014	9. The system of claim 1, wherein **the web-interface module or modules** comprise: **means for** sending instructions to present a control interface on the user devices.
X	9898014	10. The system of claim 1, wherein **the datastore** stores accounts for more than one hundred facilities, and **the web-interface module or modules** are configured interface with more than one hundred user devices.
X	9898014	11. The system of claim 1, wherein **the facility-interface module or modules** are configured to send pull requests to facilities to retrieve data buffered at the facilities.
X	9898014	17. The system of claim 12, wherein controller is configured to periodically push buffered data to **the facility-interface module or modules**.
X	9898014	18. The system of claim 12, comprising: **means for** ensuring at least some data is not lost if network access ceases intermittently.
X	9898014	19. The system of claim 12, comprising: **means for** translating a command for an actuator from an input format to a format configured to effectuate changes in the actuator.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

X	9898014	20. The system of claim 19, comprising: **means for** executing control routines implicated by translated commands on an individual actuator or sensor.
X	9898014	21. The system of claim 12, comprising: **means for** transmitting data to the facility-interface **module** or modules.
X	9898014	22. The system of claim 12, comprising: **means for** checking validity of a command.

VIII. ’871 PATENT

A. INELIGIBILITY

Claim 18 recites:

18. A method, comprising:
storing, with one or more processors, records comprising:
a plurality of accounts, each account corresponding to an entity operating one or more geographically distributed fluid-handling facilities, the accounts associating different fluid-handling facilities with different entities; and
addresses by which industrial monitoring or control equipment at the facilities is accessible via network connections, the monitoring or control equipment including sensors configured to measure fluid handled at respective fluid-handling facilities and actuators configured to manipulate fluid flow at respective fluid-handling facilities, at least some of the fluid-handling facilities including both a plurality of the sensors and a plurality of the actuators;
obtaining, with one or more processors implementing a facility-interface module or modules, data from the sensors at the facilities and send commands to the actuators at the facilities via the network connections; and
sending, with one or more processors implementing a user-interface module or modules, respective instructions to present respective control interfaces on respective user-computing devices logged in to respective ones of the accounts and to receive respective commands to control respective actuators from the respective user computing devices;
receiving, with the user-interface module or modules, a user command to actuate an actuator entered via a presented control interface;
identifying, with one or more processors, in response to the user command, an address in the datastore corresponding to a facility at which the actuator is located; and

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

sending, with one or more processors, instructions with the facility-interface module or modules to the facility to actuate the actuator, wherein:
the plurality of accounts include a first account, a second account, a third account, and a fourth account;
the first account corresponds to a first group of fluid-handling facilities, one or more users of the first account being authorized to send commands to remotely control fluid handling devices at the first group of fluid-handling facilities;
the second account corresponds to a second group of fluid-handling facilities, the first group being different from the second group, one or more users of the second account being authorized to send commands to remotely control fluid handling devices at the second group of fluid-handling facilities;
the third account corresponds to the first group of fluid-handling facilities, one or more users of the of the third account being authorized to view reports of data from fluid handling devices at the first group of fluid-handling facilities; and
the fourth account corresponds to the second group of fluid-handling facilities, one or more users of the of the fourth account being authorized to view reports of data from fluid handling devices at the second group of fluid-handling facilities.

FAC ¶ 68.

1. Alice Step 1 – The claims are directed to the abstract idea of controlling fluid-handling devices

At a high level, claim 18 recites a method for monitoring and controlling geographically distributed fluid-handling facilities. Accordingly, claim 1 is directed to an abstract idea. *See, e.g., Cyber- Source*, 654 F.3d at 1372–73 (holding that a claim whose "steps can be performed in the human mind, or by a human using a pen and paper" is directed to an "un-patentable mental process[]"). The claim does not recite any non-generic hardware or software mechanism to perform this task. *Elec. Power Grp.,* 830 F.3d at 1355.

Requiring the use of a computer does not change the focus of the claim away from being directed towards an abstract idea. "[T]he inability for the human mind to perform each claim step does not alone confer patentability." *FairWarning IP, LLC v. Iatric Sys*., 839 F.3d 1089, 1098 (Fed. Cir. 2016). Similarly, the claims do not recite any non-generic hardware or software mechanism. *Elec. Power Grp.,* 830 F.3d at 1355 ("The claims at issue do not require any

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

nonconventional computer, network, or display components, or even a non-conventional and non-generic arrangement of known, conventional pieces, but merely call for performance of the claimed information, collection, analysis, and display functions on a set of generic computer components and display devices.") (citation and quotation marks omitted)).

The claimed method includes the steps of (1) storing records that contain accounts, along with the facilities' addresses to which each account has access; (2) obtaining data from the sensors at the facilities; (3) receiving a user command to actuate an actuator at a facility; (4) identifying the address of the facility using a datastore; (5) sending the command to actuate the actuator at the facility; and (6) controlling access between the accounts, on the one hand, and the sensors and actuators at the facilities, on the other hand. Claim 18 recites the use of a database to store the partitioning of users into groups (or "accounts"), and the partitioning of facilities into groups. The database stores a "network address" associated with each facility. The system stores an authorization indicating which users may access which facilities. The grouping of users into groups, and authorizing user access to certain facilities is essentially group-based access control, an abstract idea and mental process that has been in use for centuries, and may be accomplished using pencil and paper.

The presence of generic hardware or software such as a computer and a network interface does not make an otherwise abstract idea patent-eligible. *See, e.g., buySAFE, Inc. v. Google, Inc*., 765 F.3d 1350, 1355 (Fed. Cir. 2014) ("That a computer receives and sends the information over a network – with no further specification – is not even arguably inventive.")

The "remote" functions identified in the claim do not make the claim any less abstract. "[A] person can retrieve electronically-stored information from a remote location. For example, a user can access data without the interface by traveling to the location at which the data is stored

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

and retrieving it, or having someone else at that location retrieve and forward the data. Significantly, computer components cannot render an abstract idea patent-eligible when, as here, the computer performs a function that a person could do." *Intell. Ventures I LLC v. Cap. One Fin. Corp*., No. 8:14-cv-00111-PWG (D. Md. Sep. 2, 2015) *aff'd Intell. Ventures I LLC v. Cap. One Fin. Corp*., 850 F.3d 1332, 1338-44 (Fed. Cir. 2017).

2. Alice Step 2 – The claims do not add substantially more than the abstract idea

Step 2 of the Alice analysis determines whether patentability is saved because an "inventive concept" is provided in the claim. This is the search for "significantly more" than the abstract idea. *Alice*, 134 S. Ct. at 2357. The claim must have "additional features" to ensure that the claim is more than a drafting effort designed to monopolize the abstract idea. *Id*. In step two, the Court examines the claim limitations "both individually and as an ordered combination" to determine whether the claims disclose an "inventive concept sufficient to transform the claimed abstract idea into a patent eligible application." *Alice*, 134 S. Ct. at 2355 (cleaned up). If a claim is directed to an abstract idea at step one, to be patentable at step two the claim "must include additional features" that "must be more than well-understood, routine, conventional activity." *Ultramercial Inc. v. Hulu, LLC*, 772 F.3d 709, 715 (Fed. Cir. 2014).

The Claims Do Not Embody an Inventive Concept

Much of the analysis at step one carries over into step two. There is no "inventive concept" where, as here, the abstract idea is implemented with conventional components in a conventional manner. *Alice*, 134 S. Ct. at 2359. "[W]ell-understood, routine, conventional activities previously known in the industry" do not suffice to provide the inventive concept. *Id*. Where claims do not call for "any nonconventional computer, network, or display components, or even a 'non-

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

conventional and non-generic arrangement of known, conventional pieces,' but merely call for performance of the claimed information collection, analysis, and display functions 'on a set of generic computer components' and display devices," the claims fail the step two analysis. *Elec. Power Grp*., 830 F.3d at 1355.

Claim 18 does no more than take a basic idea from the public domain without disclosing any inventive steps. In addition, all of the components identified in the claim were known to the industry at the time of the patent. *See* '871 Patent 1:60-64. Further, the tasks referenced use only functional language such as "receiving," "providing," "obtaining," "determining," and "causing." *See Two-Way Media*, 874 F.3d at 1337-38 ("The claim requires the functional results of 'converting,' 'routing,' 'controlling,' 'monitoring,' and 'accumulating records,' but does not sufficiently describe how to achieve these results in a non-abstract way."). Claim 18 does not require an inventive way to perform this idea.

The addition of access control limitations does not render the claims eligible

In *Ericsson Inc. v. TCL Commc'n Tech. Holdings Ltd*., 955 F.3d 1317 (Fed. Cir. 2020), a patent holder sued for infringement of a patent that claimed "a method and system for limiting and controlling access to resources in a telecommunications system." The defendant's products "include[d] 'a security system that can grant apps access to a subset of services on the phone, with the end user controlling the permissions granted to each app.'" *Id.* at 1320. The Federal Circuit concluded that the method and system for receiving an access request and determining whether access should be granted were abstract ideas. *Id*. at 1326. The Federal Circuit reasoned that "[c]ontrolling access to resources is exactly the sort of process that 'can be performed in the human mind, or by a human using a pen and paper,' which we have repeatedly found unpatentable." *Id*. at 1327 (citation omitted).

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

The recited elements using only functional language such as "receive… a user command… to actuate an actuator, … identify a network address, … and send instructions … to the facility to actuate the actuator." *See Two-Way Media*, 874 F.3d at 1337-38. The claim does not require an inventive way to perform this idea. The claim takes a basic idea from the public domain without disclosing any inventive steps. The components identified in the claim were known to the industry at the time of the patent. *See* '871 Patent 1:48-59.

All other claims are also ineligible

The Federal Circuit has held that a district court need not expressly address each asserted claim where the court concludes particular claims are representative because all the claims are "substantially similar and linked to the same abstract idea." *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat. Ass'n*, 776 F.3d 1343, 1348 (Fed. Cir. 2014). Here, claim 18 is representative of all asserted claims. *Elec. Power Grp.,* 830 F.3d at 1352 (claim may be treated as representative where there is no "distinctive significance" of any limitation found in any other allegedly infringed claims).

All claims recite the abstract idea of controlling access from users (accounts) to sensors and actuators in fluid-handling facilities. The other claims merely recite additional attributes involving the conventional devices, e.g., types of sensors, web-interface modules, datastore records; the conventional communications means, or specific software threads, which use only functional language without specifying *how* to carry out such functions. Taken individually or in combination, the claim elements neither improve the functions of the computer itself, nor provide specific programming, tailored software, or meaningful guidance for implementing the abstract concept. *Alice*, 134 S. Ct at 2359.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

Independent claim 1 is an apparatus claim that mirrors the method claim of claim 18 and recites the same abstract idea, and the same conventional computer components, and uses essentially the same functional language. Claim 2 depends from claim 1 and recites enumerated fields of use and a level sensor. The recited fields of use are analogous to claim 19 of the '078 Patent. The level sensors are generic. '871 Patent 5:62-65 ("Fluid handling devices may include a variety of types of sensors, for instance, a … fluid level … sensor."). The associated datastore is conventional computer memory and cannot transform the claim to be patent eligible. *Alice*, 573 U.S. at 226. Claim 3 depends from claim 1 and, like claim 2, recites enumerated fields of use and a level sensor. Claim 3 also specifies restricting access restricting access is a mental process as described above. Claim 4 depends from claim 1 and specifies that the sensors include a tank level sensor and leak detector. First, the tank sensors are generic. '871 Patent 5:62-65. Second, the associated datastore is conventional computer memory and cannot transform the claims into ones that are patent eligible. *Alice*, 573 U.S. at 226. Claim 5 depends from claim 1 and adds a number of functionally-described generic modules. Nothing in the claim suggests that the claim elements are anything more than generic computer components. *See Cap. One Bank (USA)*, 792 F.3d at 1370. Further, the specification explains that all of these processes may be executed on a generic computer. *See* above. Claim 6 depends from claim 1 and describes two generic software modules – a facility interface and a user-interface. As with claim 5 above, nothing in the claim suggests that the claim elements are anything more than generic computer components and the specification explains that all of these processes may be executed on a generic computer. Claim 7 depends from claim 1 and places a floor on the number of facilities and user devices. Adding such a numeric qualifier does not change the patentability analysis. Even if the number of facilities and user devices would necessitate use of a computer, "merely requiring generic computer implementation

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

fails to transform that abstract idea into a patent-eligible invention." *Alice*, 134 S. Ct. at 2352. Claim 8 depends from claim 1 and describes requesting buffered data from facilities. This is not patentable as it merely describes the function of requesting data, and the claim does not sufficiently describe how to achieve [the results attributable to the device] in a non-abstract way." *See Two-Way Media*, 874 F.3d at 1337-38. Claims 9-10 depend from claim 1 and additionally specify the creation of enumerated processing threads. The claims do not describe a new device or improvement in any specific device, nor do they sufficiently describe how to achieve [the results attributable to the device] in a non-abstract way. The creation of processing threads to implement conventional processing functions does not confer patentability. *Capital One Bank*, 792 F.3d at 1370 ("Steps that do nothing more than spell out what it means to 'apply it on a computer' cannot confer patent-eligibility."). Claim 11 depends from claim 1 and adds a controller coupled to an actuator or sensor. Again, nothing in the claim suggests that the claim elements require more than generic components and the specification explains that controller process may be executed on a generic computer. Claim 12 depends from claim 11 and describe generic communication functions without reference to any non-generic or unconventional hardware. *See* '871 Patent 7:58-8:1; 13:44-52. Claim 13 depends from claim 11 and describes sending buffered data to facilities. This is not patentable as it merely describes the function of sending data, and the claim does not sufficiently describe how to achieve [the results attributable to the device] in a non-abstract way." *See Two-Way Media*, 874 F.3d at 1337-38. Claims 14-17 depend from claim 11 and describe generic communication functions without reference to any non-generic or unconventional hardware. Independent claim 18 is a method claim that mirrors the system claim of claim 1 and recites the same abstract idea, and the same conventional computer components, and uses essentially the same functional language. Claims 19-20 depend from claim 18 and are analogous to claims 2-3 (field of

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

use, level sensor, datastore, access control). Claim 21 depends from claim 18 and is analogous to claim 4 (level sensor and leak detector). Claims 22-23 depend from claim 18 and are analogous to claims 5-6 (conventional software modules and method steps). Claim 24 depends from claim 18 and is analogous to claim 7 (number of facilities and user devices). Claim 25 depends from claim 18 and is analogous to claim 8 (collection of buffered data). Claims 26-27 depend from claim 18 and are analogous to claims 9-10 (enumerated processing threads). Claim 28 depends from claim 18 and is analogous to claim 11 (controller in communication with actuator or sensor). Claims 29-30 depend from claim 28 and are analogous to claims 12-13 (generic communication functions and the transmission of buffered data). Claims 31-34 depend from claim 28 and are analogous to claims 14-17 (generic communication functions).

B. PRIOR ART REFERENCES

Defendant identifies the following prior art to anticipate or render obvious the ’871 Asserted Claims under at least 35 U.S.C. §§ 102(a), (b), (e), and/or (g), and/or § 103, either expressly or inherently as understood by a POSITA.

The following patents and publications are prior art to the ’871 Asserted Claims under at least 35 U.S.C. §§ 102(a), (b), (e), and/or (g). Invalidity claim charts for some of the following references are attached as Exhibit D-1 to D-2.

Reference	**Statute**
Kahn – U.S. Patent No. 7,424,399	102(a)
Almadi – U.S. Patent No. 8,667,091	102(a)
Gutierrez – U.S. Patent No. 9,709,995	102(a)
Abdallah – U.S. Published Application 2008/0316048	102(a)
Cardamone – U.S. Published Application 2015/0308244A1	102(e)

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

64utah-SCADA	102(a)
BoilerControl_2008	102(a)
Brochure-VTScada-FeaturesByVersion	102(a)
CampbellScientific_au_b_scada_01-10	102(a)
Case-Study-Turks-Caicos	102(a)
CR1000 Datalogger - Brochure	102(a)
DeltaV_EMERSON_2006	102(a)
en-606-mμ-connect-datasheet-2005	102(a)
Fundamental of Computing	102(a)
O'Reilly Java Threads (2nd Edition)	102(a)
Modbus_Application_Protocol_V1_1b3	102(a)
PMD_Test_Suite_v3.5	102(a)
NCSC Reference	102(a)
Profile-VTScada-TypicalInstallations-Wastewater	102(a)
SCADA 4th Ed	102(a)
SCADA System Upgrade _ Wastewater Digest	102(a)
scada_sys_wht_ppr-2a_new	102(a)
SCADA_system_for_oil_refinery_control	102(a)
The Many Faces of SCADA	102(a)
tm_5_601	102(a)
trenton_culinary_water_2011	102(a)
Whitepaper-CNRL-VTScadaEnterpriseArchitecture	102(a)

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

Defendant additionally identifies and relies on patent or publication references that describe or are otherwise related to the prior art systems identified below. Defendant's investigation into prior art patent and publication references remains ongoing, and Defendant reserves the right to identify and rely on additional patent or publication references that are identified through further investigation or discovery (including materials that may be in Plaintiff's possession and have yet to be produced). Defendant reserves the right to supplement as further prior art is identified through investigation or discovery.

C. INDEFINITENESS

Defendant identifies below marked claims are indefinite under 35 U.S.C. §§ 112(a), (b), and/or (f) for failing to disclose sufficient corresponding structure in the specification. Specifically, the following limitations are written in means-plus-function format or use nonce terms that invoke § 112(f), but the specification does not disclose structure sufficient to perform the claimed function.

Patentee expressly invokes mean-plus-function with the following limitations: "**means for** ensuring at least some data is not lost if network access ceases intermittently," "**means for** translating a command for an actuator from an input format to a format configured to effectuate changes in the actuator," "**means for** executing control routines implicated by translated commands on an individual actuator or sensor," "**means for** transmitting data to the facility-interface **module** or modules," "**steps for** interfacing with a plurality of site controllers associated with the facilities," "**steps for** sending instructions to present a control interface on the user devices," "**steps for** transmitting data to **the facility-interface module or modules,**" "**steps for loosening a stuck valve,**" and "**steps for mitigating shocks to up-stream or down-stream fluid-handling devices**". However, Patentee fails to recite sufficient structure within the specification of the '871 patent for a POSITA to understand the scope of these limitations.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

Further, Patentee invokes mean-plus-function with the following nonce terms: "**a computer-implemented datastore,**" "**a computer-implemented facility-interface module or modules,**" and "**a computer-implemented user-interface module or modules**". Similarly, Patentee fails to recite sufficient structure within the specification of the '871 patent for a POSITA to understand the scope of these limitations. Thus, the claims that include these limitations should be found invalid due to being indefinite under § 112(f).

Additionally, patentee utilizes the following subjective terms within the '871 patent: "**configured to**" and "**configured to effectuate changes.**" These subjective terms fail to particularly point out the invention within the '871 patent, as such these claims lack sufficient detail for a POSITA to understand the scope of these limitations. Thus, the claims that include these limitations should be found invalid due to being indefinite under § 112(b).

Lastly, Defendant's analysis of indefiniteness under §§ 112(a), (b), and/or (f) remains ongoing, particularly with respect to Plaintiff's yet-to-be-produced technical documents and source code, and Defendant reserves the right to supplement its contentions with additional arguments and claim terms upon further investigation and discovery.

Asserted	Patent #	Claim with Bolded Indefinite Term

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

	10488871	1. A hosted, networked, remote industrial monitoring and control system for geographically distributed fluid-handling facilities, the system comprising: [1a] **a computer-implemented datastore** storing: [1b] a plurality of accounts, each account corresponding to an entity operating one or more geographically distributed fluid-handling facilities, the accounts associating different fluid-handling facilities with different entities; [1c] and addresses by which industrial monitoring or control equipment at the facilities is accessible via network connections, the monitoring or control equipment including sensors configured to measure fluid handled at respective fluid-handling facilities and actuators configured to manipulate fluid flow at respective fluid-handling facilities, at least some of the fluid-handling facilities including both a plurality of the sensors and a plurality of the actuators; [1d] **a computer-implemented facility-interface module or modules** configured to obtain data from the sensors at the facilities and send commands to the actuators at the facilities via the network connections; [1e] and **a computer-implemented user-interface module or modules** configured to send respective instructions to present respective control interfaces on respective user-computing devices

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

		logged in to respective ones of the accounts and to receive respective commands to control respective actuators from the respective user computing devices, [1f] wherein the system is configured to receive, with **the user-interface module or modules**, a user command to actuate an actuator entered via a presented control interface, identify an address in **the datastore** corresponding to a facility at which the actuator is located, and send instructions with **the facility-interface module or modules** to the facility to actuate the actuator, and wherein: the plurality of accounts include a first account, a second account, a third account, and a fourth account; the first account corresponds to a first group of fluid-handling facilities, one or more users of the first account being authorized to send commands to remotely control fluid handling devices at the first group of fluid-handling facilities; the second account corresponds to a second group of fluid-handling facilities, the first group being different from the second group, one or more users of the second account being authorized to send commands to remotely control fluid handling devices at the second group of fluid-handling facilities; the third account corresponds to the first group of fluid-handling facilities, one or more users of the third account being authorized to view reports of data from fluid handling devices at the first group of fluid-handling facilities; and the fourth account corresponds to the second group of fluid-handling

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

		facilities, one or more users of the of the fourth account being authorized to view reports of data from fluid handling devices at the second group of fluid-handling facilities.
	10488871	3. The system of claim 1, wherein: the sensors include a tank level sensor of a tank at one of the facilities; **the datastore** includes a record associating the tank with the facility, data from the tank being unavailable to users without an account associated with the tank; and the accounts designate a plurality of fluid-handling facilities to which a given user is authorized to send user commands to actuate actuators, wherein at least some users of the third account are not authorized by the third account to issue

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

		commands to fluid handling devices at the first group of fluid-handling facilities.
	10488871	4. The system of claim 1, wherein the sensors include: a level sensor of a tank at a given one of the facilities and wherein **the datastore** includes a record associating the tank with the given facility; and a leak detector at the given facility, and wherein **the datastore** includes a record associating the leak detector with the given facility.
	10488871	5. The system of claim 1, wherein: [5a] **the user-interface module or modules** comprises a web server; and **the facility-interface module or modules** comprises a site server distinct from the web server; [5b] the web server is configured to communicate with user devices via a first network port of a computing device executing the web server; the site server is configured to communicate with facilities via a second network port of the computing device, the second network port being different from the first network port; and the data store is configured to store subscription information associated with at least some of the accounts.
	10488871	6. The system of claim 1, wherein: **the facility-interface module or modules** comprise **means for** interfacing with a plurality of site controllers associated with the

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

		facilities; and **the user-interface module or modules** comprise **means for** sending instructions to present a control interface on the user devices.
	10488871	7. The system of claim 1, wherein **the datastore** stores accounts for more than one thousand facilities, and **the user-interface module or modules** are configured interface with more than one thousand user devices.
	10488871	8. The system of claim 1, wherein **the facility-interface module or modules** are configured to send pull requests to facilities to retrieve data buffered at the facilities.
	10488871	13. The system of claim 11, wherein controller is configured to push buffered data to **the facility-interface module or modules**.
	10488871	14. The system of claim 11, comprising: **means for** ensuring at least some data is not lost if network access ceases intermittently.
	10488871	15. The system of claim 11, comprising: **means for** translating a command for an actuator from an input format to a format configured to effectuate changes in the actuator.
	10488871	16. The system of claim 11, comprising: **means for** executing control routines implicated by translated commands on an individual actuator or sensor.
	10488871	17. The system of claim 11, comprising: **means for** transmitting data to the facility-interface **module** or modules.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

X	10488871	18. A method, comprising: [18a] storing, with one or more processors, records comprising: [18b] a plurality of accounts, each account corresponding to an entity operating one or more geographically distributed fluid-handling facilities, the accounts associating different fluid-handling facilities with different entities; [18c] and addresses by which industrial monitoring or control equipment at the facilities **is accessible** via network connections, the monitoring or control equipment including sensors configured to measure fluid handled at respective fluid-handling facilities and actuators configured to manipulate fluid flow at respective fluid-handling facilities, at least some of the fluid-handling facilities including both a plurality of the sensors and a plurality of the actuators; [18d] obtaining, with one or more processors implementing **a facility-interface module or modules**, data from the sensors at the facilities and send commands to the actuators at the facilities via the network connections; [18e] and sending, with one or more processors implementing **a user-interface module or modules**, respective instructions to present respective control interfaces on respective user-computing devices logged in to respective ones of the accounts and to receive respective commands to control respective actuators from the

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

		respective user computing devices; [18f] receiving, with **the user-interface module or modules**, a user command to actuate an actuator entered via a presented control interface; [18g] identifying, with one or more processors, in response to the user command, an address in **the datastore** corresponding to a facility at which the actuator is located; [18h] and sending, with one or more processors, instructions with **the facility-interface module or modules** to the facility to actuate the actuator, wherein: the plurality of accounts include a first account, a second account, a third account, and a fourth account; the first account corresponds to a first group of fluid-handling facilities, one or more users of the first account being authorized to send commands to remotely control fluid handling devices at the first group of fluid-handling facilities; the second account corresponds to a second group of fluid-handling facilities, the first group being different from the second group, one or more users of the second account being authorized to send commands to remotely control fluid handling devices at the second group of fluid-handling facilities; the third account corresponds to the first group of fluid-handling facilities, one or more users of the of the third account being authorized to view reports of data from fluid handling devices at the first group of fluid-handling facilities; and the fourth account

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

		corresponds to the second group of fluid-handling facilities, one or more users of the of the fourth account being authorized to view reports of data from fluid handling devices at the second group of fluid-handling facilities.
X	10488871	19. The method of claim 18, wherein: at least some of the fluid-handling facilities are oil-or-gas related fluid-handling facilities and include petro-water disposal facilities or re-injection facilities; and the sensors include a level sensor of an oil/water separation tank at one of the facilities configured to indicate a level at which oil meets water, and wherein **the datastore** includes a record associating the tank with the facility.
X	10488871	20. The method of claim 18, wherein: the sensors include a tank level sensor of a tank at one of the facilities; **the datastore** includes a

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

		record associating the tank with the facility, data from the tank being unavailable to users without an account associated with the tank; and the accounts designate a plurality of fluid-handling facilities to which a given user is authorized to send user commands to actuate actuators.
X	10488871	21. The method of claim 18, wherein the sensors include: a level sensor of a tank at a given one of the facilities and wherein **the datastore** includes a record associating the tank with the given facility; and a leak detector at the given facility, and wherein **the datastore** includes a record associating the leak detector with the given facility.
X	10488871	22. The method of claim 18, wherein: [22a] **the user-interface module or modules** comprises a web server; and **the facility-interface module or modules** comprises a site server distinct from the web server; [22b] the web server is configured to communicate with user devices via a first network port of a computing device executing the web server; the site server is configured to communicate with facilities via a second network port of the computing device, the second network port being different from the first network port; and the data store is configured to store subscription information associated with at least some of the accounts.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

X	10488871	23. The method of claim 18, comprising: **steps for** interfacing with a plurality of site controllers associated with the facilities; and **steps for** sending instructions to present a control interface on the user devices.
X	10488871	24. The method of claim 18, wherein **the datastore** stores accounts for more than one thousand facilities, and **the user-interface module or modules** are configured interface with more than one thousand user devices.
X	10488871	25. The method of claim 18, wherein **the facility-interface module or modules** are configured to send pull requests to facilities to retrieve data buffered at the facilities.
X	10488871	30. The method of claim 28, comprising buffering data from sensors with the controller and pushing, with the controller, buffered data to **the facility-interface module or modules**.
X	10488871	31. The method of claim 28, comprising: **steps for** ensuring at least some data is not lost if network access ceases intermittently.
X	10488871	32. The method of claim 28, comprising: **steps for** translating a command for an actuator from an input format to a format **configured to effectuate changes** in the actuator; **steps for** executing control routines implicated by translated commands on an individual actuator or sensor; and **steps for** transmitting data to **the facility-interface module or modules**.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

X	10488871	33. The method of claim 28, comprising: **steps for loosening a stuck valve**.
X	10488871	34. The method of claim 28, comprising: **steps for mitigating shocks to up-stream or down-stream fluid-handling devices**.

IX. ’403 PATENT

A. INELIGIBILITY

Claim 1 recites:

1. A system, comprising:
a first computer system disposed at a first fluid handling site, the first fluid handling site comprising a first pump, a first valve, and a first tank that handle a first fluid, the first tank having a first fluid-level sensor with which the first computer system is configured to communicate to obtain a level of the first fluid in the first tank, and the first computer system being configured to provide remote control of the first pump or the first valve; and
a server system remote from the fluid handling site, wherein the server system has memory storing instructions that, when executed, effectuate operations comprising:
receiving, with the server system, from the first computer, via a network, a first fluid level sensed by the fluid-level sensor;
obtaining, with the server system, credentials from a first client computing device;
determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site, wherein the server system hosts data about other fluid handling sites the user is not authorized to interact;
after the determination, providing, with the server system, via the network, information by which a first client computing device presents a user interface indicating the first fluid level, the first client computing device being remote from the server system and the first computer system;
receiving, with the server system, from the first client computing device, a first command to change a state of the first pump; and
causing, with the server system, the first computer system disposed at the first fluid handling site to effectuate the command by changing the state of the first pump to a sequence of different target states that change over time.

FAC ¶ 96.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

1. Alice Step 1 – The claims are directed to the abstract idea of access control

At a high level, claim 1 recites an access control system that uses credentials stored on a server to determine whether a user is authorized to interact with a fluid handling site and, if it is, then the user is permitted to change the state of a pump through a user interface.

Accordingly, claim 1 is an apparatus claim directed to the abstract idea of access control. *See, e.g., Cyber- Source*, 654 F.3d at 1372–73 (holding that a claim whose "steps can be performed in the human mind, or by a human using a pen and paper" is directed to an "un-patentable mental process[]"). The claim does not recite any non-generic hardware or software mechanism to perform this task. *Elec. Power Grp.,* 830 F.3d at 1355. The claim uses only functional language and does not describe in any detail how to achieve the results. *See Two-Way Media*, 874 F.3d at 1337-38. The claim does not require an inventive way to perform this idea.

Requiring the use of a computer does not change the focus of the claim away from being directed towards an abstract idea. "[T]he inability for the human mind to perform each claim step does not alone confer patentability." *FairWarning IP, LLC v. Iatric Sys*., 839 F.3d 1089, 1098 (Fed. Cir. 2016). Similarly, the claims do not recite any non-generic hardware or software mechanism. *Elec. Power Grp.,* 830 F.3d at 1355 ("The claims at issue do not require any nonconventional computer, network, or display components, or even a non-conventional and non-generic arrangement of known, conventional pieces, but merely call for performance of the claimed information, collection, analysis, and display functions on a set of generic computer components and display devices.") (citation and quotation marks omitted)). Instead, claim 1 identifies (1) a network interface, (2) a set of instructions, and (3) a fluid-handling device. All claimed components were in widespread use prior to the date of the alleged invention. Claim 1

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

also identifies the steps of (1) receiving, (2) obtaining, (3) determining, (4) selecting, (5) translating, and (6) sending – all generic steps. The claimed software purports to determine and achieve "target states," however, the claims use only functional language and do not describe in any detail how to achieve the results. *See Two-Way Media Ltd. v. Comcast Cable Commc'ns, LLC*, 874 F.3d 1329, 1337-38 (Fed. Cir. 2017). No inventive way to perform this idea is claimed.

The "remote" functions identified in the claim do not make the claim any less abstract. "[A] person can retrieve electronically-stored information from a remote location. For example, a user can access data without the interface by traveling to the location at which the data is stored and retrieving it, or having someone else at that location retrieve and forward the data. Significantly, computer components cannot render an abstract idea patent-eligible when, as here, the computer performs a function that a person could do." *Intell. Ventures I LLC v. Cap. One Fin. Corp.*, No. 8:14-cv-00111-PWG (D. Md. Sep. 2, 2015) aff'd *Intell. Ventures I LLC v. Cap. One Fin. Corp.*, 850 F.3d 1332, 1338-44 (Fed. Cir. 2017).

The presence of generic hardware or software such as a computer and a network interface does not make an otherwise abstract idea patent-eligible. *See, e.g., buySAFE, Inc. v. Google, Inc*., 765 F.3d 1350, 1355 (Fed. Cir. 2014) ("That a computer receives and sends the information over a network – with no further specification – is not even arguably inventive.")

2. Alice Step 2 – The claims do not add substantially more than the abstract idea

Step 2 of the *Alice* analysis determines whether patentability is saved because an "inventive concept" is provided in the claim. This is the search for "significantly more" than the abstract idea. *Alice,* 134 S. Ct. at 2357. The claim must have "additional features" to ensure that the claim is more than a drafting effort designed to monopolize the abstract idea. *Id*. In step two, the Court

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

examines the claim limitations "both individually and as an ordered combination" to determine whether the claims disclose an "inventive concept sufficient to transform the claimed abstract idea into a patent eligible application." *Alice*, 134 S. Ct. at 2355 (cleaned up). If a claim is directed to an abstract idea at step one, to be patentable at step two the claim "must include additional features" that "must be more than well-understood, routine, conventional activity." *Ultramercial Inc. v. Hulu, LLC*, 772 F.3d 709, 715 (Fed. Cir. 2014).

The Claims Do Not Embody an Inventive Concept

Much of the analysis at step one carries over into step two. There is no "inventive concept" where, as here, the abstract idea is implemented with conventional components in a conventional manner. *Alice*, 134 S. Ct. at 2359. "[W]ell-understood, routine, conventional activities previously known in the industry" do not suffice to provide the inventive concept. *Id*. Where claims do not call for "any nonconventional computer, network, or display components, or even a 'non-conventional and non-generic arrangement of known, conventional pieces,' but merely call for performance of the claimed information collection, analysis, and display functions 'on a set of generic computer components' and display devices," the claims fail the step two analysis. *Elec. Power Grp*., 830 F.3d at 1355.

The claim does no more than take a basic idea from the public domain without disclosing any inventive steps. The claim identifies only generic components, i.e., a server, a control interface, a record stored on a datastore, a controller, and a sensor. The components identified were known to the industry at the time of the patent. *See* '403 Patent 1:55-62.

All claims recite the abstract idea of providing access control between a user and fluid-handling devices at fluid-handling sites. The other claims merely recite additional attributes involving the conventional devices, e.g., controller or measurement attributes, and use only

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

functional language without specifying *how* to carry out such functions. Taken individually or in combination, the claim elements neither improve the functions of the computer itself, nor provide specific programming, tailored software, or meaningful guidance for implementing the abstract concept. *Alice*, 134 S. Ct at 2359.

All other claims are also ineligible

The Federal Circuit has held that a district court need not expressly address each asserted claim where the court concludes particular claims are representative because all the claims are "substantially similar and linked to the same abstract idea." *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat. Ass'n*, 776 F.3d 1343, 1348 (Fed. Cir. 2014). Here, claim 1 is representative of all asserted claims. *Elec. Power Grp.,* 830 F.3d at 1352 (claim may be treated as representative where there is no "distinctive significance" of any limitation found in any other allegedly infringed claims). All claims recite the abstract idea of controlling fluid-handling devices, e.g., valves or pumps. Nevertheless, TankLogix addresses other asserted claims.

Claims 2-3 depend from claim 1 and recite the use of additional pumps and tanks, generic fluid-handling devices. '403 Patent 1:37-47. Claims 4-6 and 12 depend directly or indirectly from claim 1 and are analogous to claims 6, 10, and 15 of the '078 Patent above in that they use functional language to recite instructions to achieve a "target state" without describing in any detail how to achieve the results. Claims 7-10 depend directly or indirectly from claim 1 and additionally identify the functions of a conventional web-based interface, i.e., receiving a request, retrieving data, and returning information responsive to the request. Similar to the remote data store, the web-server is conventional. *See* '403 Patent 3:46-60. Again, nothing in the claims suggests that the claim elements are anything more than generic computer components. *See Intell. Ventures I LLC v. Cap. One Bank (USA)*, 792 F.3d 1363, 1370 (Fed. Cir. 2015) (finding that "interactive interface

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

limitation is a generic computer element" because it "simply describes a generic web server with attendant software, tasked with providing web pages to and communicating with the user's computer"). Claim 8 depends adds the use of a wireless network connection, which is provided by a generic component. '403 Patent 8:29-36. Claims 9-10 add the abstract idea of translation, a mental process as explained above, The claims do not describe how to achieve [the results attributable to the device] in a non-abstract way." *See Two-Way Media*, 874 F.3d at 1337-38. Claims 11 and 14-16 depend from claim 9 and add protocol selection, an abstract idea as explained above for the '078 Patent. Claims 14-16 also describe conversion into different formats. As explained for claim 4 of the '078 Patent above, such encoding is an abstract idea. Claim 13 depends from claim 9 and is analogous to claim 3 of the '078 Patent above (communication over a bus). Claims 17-18 depend directly or indirectly from claim 9 and are analogous to claim 11 of the '078 Patent above (automatic/manual modes of operation). Claim 19 depends from claim 9 and is analogous to claim 2 of the '078 Patent above (identification/selection of protocols). Claim 20 depends from claim 1 and adds a "protocol multiplexer" which is unpatentable as described above. Claim 21 depends from claim 1 and is analogous to claim 5 of the '871 Patent (generic modules). Claim 22 depends from claim 1 and is analogous to claim 7 of the '078 Patent (network connection lost). Claim 23 depends from claim 1 and adds a "determination" step using only functional language without describing in any detail how to achieve the results. Claim 24 depends from claim 1 and is analogous to claim 9 of the '078 Patent (oscillating a stuck valve). Claims 25-29 depend from claim 1 and specify additional generic devices. Again, the claims do not describe a new device or improvement in any specific device that would convert the scope from abstract idea to patent-eligible innovation. The only other independent claim, claim 30, mirrors claim 1, adding only a translation function similar to that recited in claim 9, and identifies the same functions, i.e.,

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

receiving, obtaining, determining, providing, receiving, and causing. As explained above, translation is a mental process. All other claims depend, directly or indirectly from claim 1.

B. PRIOR ART REFERENCES

Defendant identifies the following prior art to anticipate or render obvious the '403 Asserted Claims under at least 35 U.S.C. §§ 102(a), (b), (e), and/or (g), and/or § 103, either expressly or inherently as understood by a POSITA.

The following patents and publications are prior art to the '403 Asserted Claims under at least 35 U.S.C. §§ 102(a), (b), (e), and/or (g). Invalidity claim charts for some of the following references are attached as Exhibit E-1 to E-3.

Reference	**Statute**
Kahn – U.S. Patent No. 7,424,399	102(a)
Almadi – U.S. Patent No. 8,667,091	102(a)
Gutierrez – U.S. Patent No. 9,709,995	102(a)
Abdallah – U.S. Published Application 2008/0316048	102(a)
Cardamone – U.S. Published Application 2015/0308244A1	102(e)
64utah-SCADA	102(a)
BoilerControl_2008	102(a)
Brochure-VTScada-FeaturesByVersion	102(a)
CampbellScientific_au_b_scada_01-10	102(a)
Case-Study-Turks-Caicos	102(a)
CR1000 Datalogger - Brochure	102(a)
DeltaV_EMERSON_2006	102(a)
en-606-mμ-connect-datasheet-2005	102(a)

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

Fundamental of Computing	102(a)
O'Reilly Java Threads (2nd Edition)	102(a)
Modbus_Application_Protocol_V1_1b3	102(a)
PMD_Test_Suite_v3.5	102(a)
NCSC Reference	102(a)
Profile-VTScada-TypicalInstallations-Wastewater	102(a)
SCADA 4th Ed	102(a)
SCADA System Upgrade _ Wastewater Digest	102(a)
scada_sys_wht_ppr-2a_new	102(a)
SCADA_system_for_oil_refinery_control	102(a)
The Many Faces of SCADA	102(a)
tm_5_601	102(a)
trenton_culinary_water_2011	102(a)
Whitepaper-CNRL-VTScadaEnterpriseArchitecture	102(a)

Defendant additionally identifies and relies on patent or publication references that describe or are otherwise related to the prior art systems identified below. Defendant's investigation into prior art patent and publication references remains ongoing, and Defendant reserves the right to identify and rely on additional patent or publication references that are identified through further investigation or discovery (including materials that may be in Plaintiff's possession and have yet to be produced). Defendant reserves the right to supplement as further prior art is identified through investigation or discovery.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

C. INDEFINITENESS

Defendant identifies below marked claims are indefinite under 35 U.S.C. §§ 112(a), (b), and/or (f) for failing to disclose sufficient corresponding structure in the specification. Specifically, the following limitations are written in means-plus-function format or use nonce terms that invoke § 112(f), but the specification does not disclose structure sufficient to perform the claimed function.

Patentee expressly invokes mean-plus-function with the following limitations: "**steps for** mitigating shocks to up-stream or down-stream fluid-handling devices relative to the first pump," "**steps for translating commands,**" "**means for** controlling which fluid handling devices are permitted to transmit signals on the bus at a given point in time," "**steps for** identifying protocols and control busses," and "**means for** implementing remotely issued commands, such that once remotely issued commands are issued and received, the remotely issued commands are executed to completion even if Internet access is lost before the commands are fully executed". However, Patentee fails to recite sufficient structure within the specification of the '403 patent for a POSITA to understand the scope of these limitations.

Further, Patentee invokes mean-plus-function with the following nonce terms: "**a site-management module implemented with multiple threads,**" "**a site master controller,**" and "**a special-purpose application**". Similarly, Patentee fails to recite sufficient structure within the specification of the '403 patent for a POSITA to understand the scope of these limitations. Thus, the claims that include these limitations should be found invalid due to being indefinite under § 112(f).

Additionally, patentee utilizes the following subjective terms within the '403 patent: "**being configured to**" and "**configured to exercise feedback control**". These subjective terms fail to particularly point out the invention within the '403 patent, as such these claims lack

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

sufficient detail for a POSITA to understand the scope of these limitations. Thus, the claims that include these limitations should be found invalid due to being indefinite under § 112(b).

Lastly, Defendant's analysis of indefiniteness under §§ 112(a), (b), and/or (f) remains ongoing, particularly with respect to Plaintiff's yet-to-be-produced technical documents and source code, and Defendant reserves the right to supplement its contentions with additional arguments and claim terms upon further investigation and discovery.

Asserted	**Patent #**	**Claim with Bolded Indefinite Term**
X	11294403	1. A system, comprising: [1a] a first computer system disposed at a first fluid handling site, the first fluid handling site comprising a first pump, a first valve, and a first tank that handle a first fluid, the first tank having a first fluid-level sensor with which the first computer system **is configured to** communicate to obtain a level of the first fluid in the first tank, and the first computer system **being configured to** provide remote control of the first pump or the first valve; [1b] and a server system remote from the fluid handling site, wherein the server system has memory storing instructions that, when executed, effectuate operations comprising: [1c] receiving, with the server system, from the first computer, via a network, a first fluid level sensed by the fluid-level sensor; [1d] obtaining, with the server system, credentials from a first client computing device;

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

		[1e] determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site, wherein the server system hosts data about other fluid handling sites the user is not authorized to interact; [1f] after the determination, providing, with the server system, via the network, information by which a first client computing device presents a user interface indicating the first fluid level, the first client computing device being remote from the server system and the first computer system; [1g] receiving, with the server system, from the first client computing device, a first command to change a state of the first pump; [1h] and causing, with the server system, the first computer system disposed at the first fluid handling site to effectuate the command by changing the state of the first pump to a sequence of different target states that change over time.
X	11294403	4. The system of claim 1, wherein: the sequence of different target states that change over time **are configured to** ramp up or down a speed of the first pump.
X	11294403	5. The system of claim 1, wherein: the sequence of different target states that change over time are determined with **steps for** mitigating

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

		shocks to up-stream or down-stream fluid-handling devices relative to the first pump.
X	11294403	7. The system of claim 1, wherein: the server system **is configured to** interface with both a web browser on the client computing device and **a special-purpose application** executing on the client computing device to present the user interface indicating the first fluid level.
X	11294403	10. The system of claim 9, wherein translating the plurality of commands comprises **steps for translating commands**.
X	11294403	12. The system of claim 9, wherein at least some of the plurality of different fluid-handling devices comprise proportional-integral-derivative controllers **configured to** drive respective fluid-handing devices to different target setpoints determined by the first computer system responsive to corresponding commands from the server system.
X	11294403	13. The system of claim 9, wherein: the first computer system is coupled to at least some of the plurality of different fluid handing devices via a bus; and the first computer system comprises **means for** controlling which fluid handling devices are permitted to transmit signals on the bus at a given point in time.
X	11294403	19. The system of claim 9, wherein translating the plurality of commands comprises **steps for** identifying protocols and control busses.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

X	11294403	21. The system of claim 1, wherein the first computer system comprises **a site-management module implemented with multiple threads**.
X	11294403	22. The system of claim 1, wherein the first computer system comprises **means for** implementing remotely issued commands, such that once remotely issued commands are issued and received, the remotely issued commands are executed to completion even if Internet access is lost before the commands are fully executed.
X	11294403	23. The system of claim 1, wherein the first computer system **is configured to** receive another command, determine the another command will cause the first fluid handing site to violate a constraint, and determine not execute the another command.
X	11294403	25. The system of claim 1, comprising: a second computer system disposed at a second fluid handling site that is remote from the first fluid handling site, the first fluid handling site being an oil or gas well and the second fluid handling site being a saltwater disposal facility, the second computer system **being configured to** control a second pump or a second valve at the second facility responsive to commands from the server system.
X	11294403	28. The system of claim 1, comprising: a controller by which the first computer system is coupled to an actuator of the first pump or valve, wherein the controller **is configured to exercise feedback control** of

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

		the actuator according to setpoints corresponding to respective target states of the sequence of different target states.
X	11294403	29. The system of claim 1, wherein: the first computer system comprises **a site master controller**; the server system comprises a command-center server **configured to** provide user interfaces by which a plurality of users monitor and control a plurality of different site master controllers, including the site master controller of the first computer system, associated with a plurality of different accounts.
X	11294403	30. A system, comprising: [30a] a first computer system disposed at a first fluid handling site, the first fluid handling site comprising a first pump, a first valve, and a first tank that handle a first fluid, the first tank having a first fluid-level sensor with which the first computer system **is configured to** communicate to obtain a level of the first fluid in the first tank, and the first computer system **being configured to** provide remote control of the first pump or the first valve; [30b] and a server system remote from the fluid handling site, wherein the server system has memory storing instructions that, when executed, effectuate operations comprising: [30c] receiving, with the server system, from the first computer, via a network, a first fluid level sensed by the fluid-level sensor; [30d] obtaining, with the server system, credentials from a first client computing device;

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

		[30e] determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site, wherein the server system hosts data about other fluid handling sites the user is not authorized to interact; [30f] after the determination, providing, with the server system, via the network, information by which a first client computing device presents a user interface indicating the first fluid level, the first client computing device being remote from the server system and the first computer system; [30g] receiving, with the server system, from the first client computing device, a first command to change a state of the first pump; [30h] and causing, with the server system, the first computer system disposed at the first fluid handling site to effectuate the command by changing the state of the first pump to a sequence of different target states that change over time, wherein: [30i] the a first fluid handling site comprises a second pump and a second tank that handle a second fluid, the second tank having a second fluid-level sensor with which the first computer system is configured to communicate to obtain a level of the second fluid in the second tank, and the first computer system **being configured to** provide remote control of the second pump;

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

		[30j] the first tank, the first pump, the first valve, the second tank, and the second pump, wherein the first fluid is water and the second fluid is oil, wherein the first tank or the second tank is an oil/water separation tank; [30k] and the first computer system **is configured to** translate a plurality of commands from the server system, including the command, from an input format to a plurality of different formats and protocols configured to effectuate changes in states of a plurality of different fluid-handling devices at the first fluid handling site, the different fluid-handling devices including the first pump.

X. ’504 PATENT

A. INELIGIBILITY

Claim 1 recites:

1. A fluid processing system, comprising:
a first computer system disposed at a first fluid handling site, wherein the first computer system is configured to:
receive information comprising one or more properties of a first fluid from one or more sensors disposed at a first fluid tank itself disposed at the first fluid-handling site, the fluid-handling site comprising one or more fluid-handling devices, the one or more fluid-handling devices comprising one or more of a first pump, a first filter, and a first valve; and
provide remote control of a first fluid-handling device of the one or more fluid-handling devices; and
a server system wherein the server system has memory storing instructions that, when executed, effectuate operations comprising:

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

receiving, with the server system, from the first computer system, via a network, a first fluid property of the one or more properties associated with the first fluid sensed by a first sensor of the one or more sensors;
obtaining, with the server system, credentials from a first client computing device;
determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site, wherein the server system hosts data about other fluid handling sites the user is not authorized to interact;
after the determination, providing, with the server system, via the network, information by which the[2] first client computing device presents a user interface indicating the first fluid property, the first client computing device being remote from the server system and the first computer system;
receiving, with the server system, from the first client computing device, a first command to change a state of the first fluid-handling device; and
causing, with the server system, the first computer system disposed at the first fluid handling site to effectuate the command by changing the state of the first fluid-handling device to a sequence of different target states that change over time.

FAC ¶ 120.

1. Alice Step 1 – The claims are directed to the abstract idea of access control

At a high level, claim 1 recites an access control system on a server that controls access from a remote client computer to computer at a fluid handling site. Accordingly, claim 1 is an apparatus claim directed to the abstract idea of controlling access from a client computer to a remote computer for fluid handling at a fluid handling site. As explained above for the ’014 Patent, controlling access to resources is an abstract idea performable by the human mind, and is unpatentable. *Ericsson*, 955 F.3d at 1327. The claim does not recite any non-generic hardware or software mechanism to perform this task. *Elec. Power Grp.,* 830 F.3d at 1355.

Requiring the use of a computer does not change the focus of the claim away from being directed towards an abstract idea. “[T]he inability for the human mind to perform each claim step

[2] “a first” was changed to “the first” by Certificate of Correction dated Feb. 27, 2024.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

does not alone confer patentability." *FairWarning IP, LLC v. Iatric Sys*., 839 F.3d 1089, 1098 (Fed. Cir. 2016). Similarly, the claims do not recite any non-generic hardware or software mechanism. *Elec. Power Grp.,* 830 F.3d at 1355 ("The claims at issue do not require any nonconventional computer, network, or display components, or even a non-conventional and non-generic arrangement of known, conventional pieces, but merely call for performance of the claimed information, collection, analysis, and display functions on a set of generic computer components and display devices.") (citation and quotation marks omitted)).

The presence of generic hardware or software such as a computer and a network interface does not make an otherwise abstract idea patent-eligible. *See, e.g., buySAFE, Inc. v. Google, Inc*., 765 F.3d 1350, 1355 (Fed. Cir. 2014) ("That a computer receives and sends the information over a network – with no further specification – is not even arguably inventive.")

The claimed system includes a computer system that controls a fluid-handling device at a fluid handling site and a server system that performs the steps of (1) receiving from the computer system a "fluid property" obtained from a sensor at the fluid handling site, (2) obtaining credentials from a client computer, (3) determining whether the user at the client computer is authorized to issue commands to the computer system, (4) providing the "fluid property" for display on a user interface of the client computer, (5) receiving a command from the client computer to change the state of the "fluid-handling device," and (6) causing the state of the "fluid-handling device" to change.

2. Alice Step 2 – The claims do not add substantially more than the abstract idea

Step 2 of the *Alice* analysis determines whether patentability is saved because an "inventive concept" is provided in the claim. This is the search for "significantly more" than the abstract idea.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

Alice, 134 S. Ct. at 2357. The claim must have "additional features" to ensure that the claim is more than a drafting effort designed to monopolize the abstract idea. *Id*. In step two, the Court examines the claim limitations "both individually and as an ordered combination" to determine whether the claims disclose an "inventive concept sufficient to transform the claimed abstract idea into a patent eligible application." *Alice*, 134 S. Ct. at 2355 (cleaned up). If a claim is directed to an abstract idea at step one, to be patentable at step two the claim "must include additional features" that "must be more than well-understood, routine, conventional activity." *Ultramercial Inc. v. Hulu, LLC*, 772 F.3d 709, 715 (Fed. Cir. 2014).

The Claims Do Not Embody an Inventive Concept

Much of the analysis at step one carries over into step two. There is no "inventive concept" where, as here, the abstract idea is implemented with conventional components in a conventional manner. *Alice*, 134 S. Ct. at 2359. "[W]ell-understood, routine, conventional activities previously known in the industry" do not suffice to provide the inventive concept. *Id*. Where claims do not call for "any nonconventional computer, network, or display components, or even a 'non-conventional and non-generic arrangement of known, conventional pieces,' but merely call for performance of the claimed information collection, analysis, and display functions 'on a set of generic computer components' and display devices," the claims fail the step two analysis. *Elec. Power Grp*., 830 F.3d at 1355.

The claim uses only functional language and does not describe in any detail how to achieve the results. *See Two-Way Media*, 874 F.3d at 1337-38. The claim does not require an inventive way to perform this idea. The claim does no more than take a basic idea from the public domain without disclosing any inventive steps. The claim identifies only generic components, i.e., a computer system, a server containing memory, a client computer, a sensor, and a user interface. In

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

addition, all of the components identified were known to the industry at the time of the patent. *See* '504 Patent 1:58-61. As explained above for the '014 Patent, controlling access to resources is an abstract idea performable by the human mind, and is unpatentable. *Ericsson*, 955 F.3d at 1327.

All other claims are also ineligible

The Federal Circuit has held that a district court need not expressly address each asserted claim where the court concludes particular claims are representative because all the claims are "substantially similar and linked to the same abstract idea." *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat. Ass'n*, 776 F.3d 1343, 1348 (Fed. Cir. 2014). Here, claim 1 is representative of all asserted claims. *Elec. Power Grp.,* 830 F.3d at 1352 (claim may be treated as representative where there is no "distinctive significance" of any limitation found in any other allegedly infringed claims). All claims recite the abstract idea of controlling fluid-handling devices, e.g., valves or pumps. Nevertheless, TankLogix addresses other asserted claims.

All other claims depend, directly or indirectly from claim 1. All claims recite the abstract idea of controlling access from a client computer to a remote computer for fluid handling at a fluid handling site. The other claims merely recite additional attributes involving the conventional devices, e.g., fluid-handling device "states"; user control options, communication attributes; and use functional language without specifying *how* to carry out functions.[3] Taken individually or in combination, the claim elements neither improve the functions of the computer itself, nor provide specific programming, tailored software, or meaningful guidance for implementing the abstract concept. *Alice*, 134 S. Ct at 2359.

[3] Claims 2-16 of the '504 Patent are very similar to claims 2-16 of the '461 Patent discussed in TankLogix's Motion to Dismiss in the related -643 Case.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

Claims 2-4 depend from claim 1 and refer to a "sequence of different target states," but do not describe how to achieve [the results attributable to the device] in a non-abstract way." *See Two-Way Media*, 874 F.3d at 1337-38. Claim 5 depends from claim 1 and is analogous to claims 3 and 7 of the '909 Patent (web-based user interface). Claim 6 depends from claim 1 and adds the use of a wireless network connection, which is provided by a generic component. '504 Patent 8:33-50. Claims 7-8 depend directly or indirectly from claim 1, and add translation, an abstract idea as explained above for the '909 Patent. Claims 9, 13, and 15 depend from claim 7 and add protocol selection, an abstract idea as explained above for the '909 Patent. Claim 10 depends from claim 7 and adds the setting of a device to a target value, an abstract idea as explained above for the '680 Patent. Claim 11 depends from claim 7 and is analogous to claims 8-9 and 11-12 of the '014 Patent (communication). Claim 12 depends from claim 7 and is analogous to claim 10 of the '014 Patent (numeric qualifier). Claim 14 depends from claim 7 and adds the selection of manual or automatic modes of operation, which is an abstract idea requiring no specialized hardware. '504 Patent 10:17-28. Claim 16 depends from claim 1 and is analogous to claim 9 of the '909 Patent (user interface through RTU). Claims 17-19 depend from claim 1 and specify additional generic devices. As with claim 14 of the '909 Patent, the claims do not describe a new device or improvement in any specific device that would convert the scope from abstract idea to patent-eligible innovation. Independent claim 20 mirrors claim 1, identifying the same functions, i.e., measuring, receiving, obtaining, determining, and providing.

B. PRIOR ART REFERENCES

Defendant identifies the following prior art to anticipate or render obvious the '504 Asserted Claims under at least 35 U.S.C. §§ 102(a), (b), (e), and/or (g), and/or § 103, either expressly or inherently as understood by a POSITA.

The following patents and publications are prior art to the '504 Asserted Claims under at

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

least 35 U.S.C. §§ 102(a), (b), (e), and/or (g). Invalidity claim charts for some of the following references are attached as Exhibit F-1 to F-4.

Reference	**Statute**
Kahn – U.S. Patent No. 7,424,399	102(a)
Almadi – U.S. Patent No. 8,667,091	102(a)
Gutierrez – U.S. Patent No. 9,709,995	102(a)
Abdallah – U.S. Published Application 2008/0316048	102(a)
Cardamone – U.S. Published Application 2015/0308244A1	102(e)
64utah-SCADA	102(a)
BoilerControl_2008	102(a)
Brochure-VTScada-FeaturesByVersion	102(a)
CampbellScientific_au_b_scada_01-10	102(a)
Case-Study-Turks-Caicos	102(a)
CR1000 Datalogger - Brochure	102(a)
DeltaV_EMERSON_2006	102(a)
en-606-mμ-connect-datasheet-2005	102(a)
Fundamental of Computing	102(a)
O'Reilly Java Threads (2nd Edition)	102(a)
Modbus_Application_Protocol_V1_1b3	102(a)
PMD_Test_Suite_v3.5	102(a)
NCSC Reference	102(a)
Profile-VTScada-TypicalInstallations-Wastewater	102(a)
SCADA 4th Ed	102(a)

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

SCADA System Upgrade _ Wastewater Digest	102(a)
scada_sys_wht_ppr-2a_new	102(a)
SCADA_system_for_oil_refinery_control	102(a)
The Many Faces of SCADA	102(a)
tm_5_601	102(a)
trenton_culinary_water_2011	102(a)
Whitepaper-CNRL-VTScadaEnterpriseArchitecture	102(a)

Defendant additionally identifies and relies on patent or publication references that describe or are otherwise related to the prior art systems identified below. Defendant's investigation into prior art patent and publication references remains ongoing, and Defendant reserves the right to identify and rely on additional patent or publication references that are identified through further investigation or discovery (including materials that may be in Plaintiff's possession and have yet to be produced). Defendant reserves the right to supplement as further prior art is identified through investigation or discovery.

C. INDEFINITENESS

Defendant identifies below marked claims are indefinite under 35 U.S.C. §§ 112(a), (b), and/or (f) for failing to disclose sufficient corresponding structure in the specification. Specifically, the following limitations are written in means-plus-function format or use nonce terms that invoke § 112(f), but the specification does not disclose structure sufficient to perform the claimed function.

Patentee expressly invokes mean-plus-function with the following limitations: "**steps for** mitigating shocks to up-stream or down-stream fluid-handling devices relative to the first fluid-

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

handling device," "**steps for** translating commands," "**means for** controlling which fluid handling devices are permitted to transmit signals on the bus at a given point in time," and "**steps for** identifying protocols and control busses". However, Patentee fails to recite sufficient structure within the specification of the '504 patent for a POSITA to understand the scope of these limitations.

Additionally, patentee utilizes the following subjective terms within the '504 patent: "**are configured to**" and "**configurable to**". These subjective terms fail to particularly point out the invention within the '504 patent, as such these claims lack sufficient detail for a POSITA to understand the scope of these limitations. Thus, the claims that include these limitations should be found invalid due to being indefinite under § 112(b).

Lastly, Defendant's analysis of indefiniteness under §§ 112(a), (b), and/or (f) remains ongoing, particularly with respect to Plaintiff's yet-to-be-produced technical documents and source code, and Defendant reserves the right to supplement its contentions with additional arguments and claim terms upon further investigation and discovery.

Asserted	Patent #	Claim with Bolded Indefinite Term
X	11726504	2. The system of claim 1, wherein: the sequence of different target states that change over time **are configured to** ramp up or down a speed of the first fluid-handling device.
X	11726504	3. The system of claim 1, wherein: the sequence of different target states that change over time **are determined with steps for** mitigating shocks to up-stream or down-stream fluid-handling devices relative to the first fluid-handling device.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

X	11726504	5. The system of claim 1, wherein: the server system is **configured to** interface with both a web browser on the client computing device and a special-purpose application executing on the client computing device to present the user interface indicating the first fluid property, wherein the first fluid property corresponds to a first fluid level.
X	11726504	6. The system of claim 1, wherein: the first computer system **is configured to** communicate with the server system via a cellular wireless connection.
X	11726504	7. The system of claim 1, wherein the first computer system **is configured to** translate a plurality of commands from the server system, including the command, from an input format to a plurality of different formats and protocols configured to effectuate changes in states of a plurality of different fluid-handling devices at the first fluid handling site.
X	11726504	8. The system of claim 7, wherein translating the plurality of commands comprises **steps for** translating commands.
X	11726504	10. The system of claim 7, wherein at least some of the plurality of different fluid-handling devices comprise proportional-integral-derivative controllers **configured to** drive respective fluid-handing devices to different target setpoints determined by the first computer system responsive to corresponding commands from the server system.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

X	11726504	11. The system of claim 7, wherein: the first computer system is coupled to at least some of the plurality of different fluid-handling devices via a bus; and the first computer system comprises **means for** controlling which fluid handling devices are permitted to transmit signals on the bus at a given point in time.
X	11726504	14. The system of claim 7, wherein the first computer system **is configurable to** operate in an automatic mode, a mixed automatic mode, and a manual mode.
X	11726504	15. The system of claim 7, wherein translating the plurality of commands comprises **steps for** identifying protocols and control busses.
X	11726504	16. The system of claim 1 wherein the first computing system **is configured to** receive and transmit data and commands via a remote terminal unit protocol wherein the data and commands comprise redundant bits.
X	11726504	19. The system of claim 18, wherein: the plurality of fluids further comprising a third fluid; the plurality of computer systems further comprises a third computer system; and the plurality of fluid-handling devices further comprises a third fluid-handling device comprising a process filter, wherein the third fluid-handling device is disposed down-stream of a fourth fluid-handling device and up-stream of a fifth fluid handling device,

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

		receives from the fourth fluid-handling device the third-fluid, and **is configurable to** provide a fourth fluid to the fifth fluid-handling device.

XI. ’680 PATENT

A. INELIGIBILITY

Claim 1 recites:

1. A non-transitory, machine-readable medium comprising instructions to effectuate operations, the operations comprising:
receiving, with a server, a command comprising a target value of a fluid-handling device from a computing device via a control interface, wherein the command is received in association with a record stored on a datastore;
determining, with the server, a network address of a network based on the record, wherein the network address identifies a controller of the fluid-handling device, and wherein the controller accesses a sensor to measure a fluid being handled by the fluid-handling device and an actuator of the fluid-handling device;
sending, with the server, the target value to the network address via the network;
receiving, with the controller, a measurement of the fluid by the sensor;
determining, with the controller, whether the measurement satisfies the target value;
in response to a determination that the measurement does not satisfy the target value, obtaining, with the controller, a set point based on the command; and
controlling, with the controller, the actuator based on the set point.

FAC ¶ 97-98.

1. Alice Step 1 – The claims are directed to the abstract idea of monitoring and controlling geographically distributed facilities in oil and gas fields

At a high level, claim 1 recites software containing instructions to set a fluid-handling device to a target value. Accordingly, claim 1 is an apparatus claim directed to the abstract idea of monitoring and controlling geographically distributed facilities in oil and gas fields. *See, e.g., Cyber- Source*, 654 F.3d at 1372–73 (holding that a claim whose “steps can be performed in the human mind, or by a human using a pen and paper” is directed to an “un-patentable mental

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

process[]"). The claim does not recite any non-generic hardware or software mechanism to perform this task. *Elec. Power Grp.,* 830 F.3d at 1355.

Requiring the use of a computer does not change the focus of the claim away from being directed towards an abstract idea. "[T]he inability for the human mind to perform each claim step does not alone confer patentability." *FairWarning IP, LLC v. Iatric Sys*., 839 F.3d 1089, 1098 (Fed. Cir. 2016). Similarly, the claims do not recite any non-generic hardware or software mechanism. *Elec. Power Grp.,* 830 F.3d at 1355 ("The claims at issue do not require any nonconventional computer, network, or display components, or even a non-conventional and non-generic arrangement of known, conventional pieces, but merely call for performance of the claimed information, collection, analysis, and display functions on a set of generic computer components and display devices.") (citation and quotation marks omitted)). Claim 1 identifies the steps of (1) receiving, (2) obtaining, (3) determining, (4) controlling, and (5) sending – all generic steps. The claimed software purports to determine and satisfy "target states," however, the claims use only functional language and do not describe in any detail how to achieve the results. *See Two-Way Media Ltd. v. Comcast Cable Commc'ns, LLC*, 874 F.3d 1329, 1337-38 (Fed. Cir. 2017). No inventive way to perform this idea is claimed.

The presence of generic hardware or software such as a computer and a network interface does not make an otherwise abstract idea patent-eligible. *See, e.g., buySAFE, Inc. v. Google, Inc*., 765 F.3d 1350, 1355 (Fed. Cir. 2014) ("That a computer receives and sends the information over a network – with no further specification – is not even arguably inventive.").

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

2. Alice Step 2 – The claims do not add substantially more than the abstract idea

Step 2 of the *Alice* analysis determines whether patentability is saved because an "inventive concept" is provided in the claim. This is the search for "significantly more" than the abstract idea. *Alice,* 134 S. Ct. at 2357. The claim must have "additional features" to ensure that the claim is more than a drafting effort designed to monopolize the abstract idea. *Id*. In step two, the Court examines the claim limitations "both individually and as an ordered combination" to determine whether the claims disclose an "inventive concept sufficient to transform the claimed abstract idea into a patent eligible application." *Alice*, 134 S. Ct. at 2355 (cleaned up). If a claim is directed to an abstract idea at step one, to be patentable at step two the claim "must include additional features" that "must be more than well-understood, routine, conventional activity." *Ultramercial Inc. v. Hulu, LLC*, 772 F.3d 709, 715 (Fed. Cir. 2014).

The Claims Do Not Embody an Inventive Concept

Much of the analysis at step one carries over into step two. There is no "inventive concept" where, as here, the abstract idea is implemented with conventional components in a conventional manner. *Alice*, 134 S. Ct. at 2359. "[W]ell-understood, routine, conventional activities previously known in the industry" do not suffice to provide the inventive concept. *Id*. Where claims do not call for "any nonconventional computer, network, or display components, or even a 'non-conventional and non-generic arrangement of known, conventional pieces,' but merely call for performance of the claimed information collection, analysis, and display functions 'on a set of generic computer components' and display devices," the claims fail the step two analysis. *Elec. Power Grp*., 830 F.3d at 1355.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

The claimed software receives a "target value of a fluid-handling device," determines the network address of the controller for the device, sending and receiving the target value, setting the fluid-handling device to the target value. The claim uses only functional language and does not describe in any detail how to achieve the results. *See Two-Way Media*, 874 F.3d at 1337-38. The claim does not require an inventive way to perform this idea.

The claim does no more than take a basic idea from the public domain without disclosing any inventive steps. The claim identifies only generic components, i.e., a server, a control interface, a record stored on a datastore, a controller, and a sensor. The components identified were known to the industry at the time of the patent. *See* '680 Patent 1:50-61. All other claims depend, directly or indirectly from claim 1. All claims recite the abstract idea of monitoring and controlling geographically distributed facilities in oil and gas fields. The other claims merely recite additional attributes involving the conventional devices, e.g., controller or measurement attributes, and use only functional language without specifying *how* to carry out such functions. Taken individually or in combination, the claim elements neither improve the functions of the computer itself, nor provide specific programming, tailored software, or meaningful guidance for implementing the abstract concept. *Alice*, 134 S. Ct at 2359.

All other claims are also ineligible

The Federal Circuit has held that a district court need not expressly address each asserted claim where the court concludes particular claims are representative because all the claims are "substantially similar and linked to the same abstract idea." *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat. Ass'n*, 776 F.3d 1343, 1348 (Fed. Cir. 2014). Here, claim 1 is representative of all asserted claims. *Elec. Power Grp.,* 830 F.3d at 1352 (claim may be treated as representative where there is no "distinctive significance" of any limitation found in any other

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

allegedly infringed claims). All claims recite the abstract idea of controlling fluid-handling devices, e.g., valves or pumps. Nevertheless, TankLogix addresses other asserted claims.

Claims 2-4 and 17 contain no inventive concept, but instead describe generic computer components used in conventional ways, e.g., master-controllers that control local controllers; local controllers that control actuators. The specifications confirm the generic nature of these elements, explaining that "processes and modules described herein may be executed by one or more processing systems similar to that of computing system 1000." '680 Patent 12:55-58; 14:55-15:1. Claim 5 is analogous to claim 12 of the '909 Patent (selection of a protocol). Claim 6 depends from claim 1 and recites receiving sensor measurements and controlling actuators based on a commanded set point. However, the claim does not provide specific programming, tailored software, or meaningful guidance for implementing the abstract concept. *Alice*, 134 S. Ct at 2359. Claim 7 is analogous to claims 2-4 of the '909 Patent (record / sensor data / user). Claim 8 depends from claim 1 and is analogous to claim 13 of the '909 Patent in that it identifies a target state of oscillating the position of a valve. Again, the claim does not sufficiently describe how to achieve [the results attributable to the device] in a non-abstract way." *See Two-Way Media*, 874 F.3d at 1337-38. Claims 9 and 14 are analogous to claim 15 of the '909 Patent (level sensor of a separation tank). Claim 10 depends from claim 1 and recites the additional steps of polling the controller and sending data from the controller to the server. The specifications confirm the generic nature of these elements, explaining that "processes and modules described herein may be executed by one or more processing systems similar to that of computing system 1000." '680 Patent 12:55-58; 14:55-15:1. Claims 11 and 13 depend from claim 1 and recite the conventional use of generic hardware. Claim 12 depends from claim 1 and recites the step of determining whether a measurement satisfies a target value. The claim does not describe how to achieve [the results

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

attributable to the device] in a non-abstract way." *See Two-Way Media*, 874 F.3d at 1337-38. Claim 15 is analogous to claims 5-6 of the '909 Patent (web server and site server). Claim 16 is analogous to claim 11 of the '909 Patent (command received on one network connection; translated command is sent to its destination on a different network connection). Claim 17 is analogous to claim 19 of the '014 Patent (actuator control). Claim 18 simply allows commands to be received through a conventional web interface, and is analogous to claim 6 of the '014 Patent. Claim 19 is analogous to claim 16 of the '014 Patent (CSMA/CD protocol). Independent claim 20 mirrors claim 1, and identifies the same functions, i.e., receiving, determining, sending, receiving, and controlling.

B. PRIOR ART REFERENCES

Defendant identifies the following prior art to anticipate or render obvious the '680 Asserted Claims under at least 35 U.S.C. §§ 102(a), (b), (e), and/or (g), and/or § 103, either expressly or inherently as understood by a POSITA.

The following patents and publications are prior art to the '680 Asserted Claims under at least 35 U.S.C. §§ 102(a), (b), (e), and/or (g). Invalidity claim charts for some of the following references are attached as Exhibit G-1 to G-4.

Reference	**Statute**
Kahn – U.S. Patent No. 7,424,399	102(a)
Almadi – U.S. Patent No. 8,667,091	102(a)
Gutierrez – U.S. Patent No. 9,709,995	102(a)
Abdallah – U.S. Published Application 2008/0316048	102(a)
Cardamone – U.S. Published Application 2015/0308244A1	102(e)
64utah-SCADA	102(a)
BoilerControl_2008	102(a)

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

Brochure-VTScada-FeaturesByVersion	102(a)
CampbellScientific_au_b_scada_01-10	102(a)
Case-Study-Turks-Caicos	102(a)
CR1000 Datalogger - Brochure	102(a)
DeltaV_EMERSON_2006	102(a)
en-606-mμ-connect-datasheet-2005	102(a)
Fundamental of Computing	102(a)
O'Reilly Java Threads (2nd Edition)	102(a)
Modbus_Application_Protocol_V1_1b3	102(a)
PMD_Test_Suite_v3.5	102(a)
NCSC Reference	102(a)
Profile-VTScada-TypicalInstallations-Wastewater	102(a)
SCADA 4th Ed	102(a)
SCADA System Upgrade _ Wastewater Digest	102(a)
scada_sys_wht_ppr-2a_new	102(a)
SCADA_system_for_oil_refinery_control	102(a)
The Many Faces of SCADA	102(a)
tm_5_601	102(a)
trenton_culinary_water_2011	102(a)
Whitepaper-CNRL-VTScadaEnterpriseArchitecture	102(a)

Defendant additionally identifies and relies on patent or publication references that describe or are otherwise related to the prior art systems identified below. Defendant's

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

investigation into prior art patent and publication references remains ongoing, and Defendant reserves the right to identify and rely on additional patent or publication references that are identified through further investigation or discovery (including materials that may be in Plaintiff's possession and have yet to be produced). Defendant reserves the right to supplement as further prior art is identified through investigation or discovery.

C. INDEFINITENESS

Defendant identifies below marked claims are indefinite under 35 U.S.C. §§ 112(a), (b), and/or (f) for failing to disclose sufficient corresponding structure in the specification. Specifically, the following limitations are written in means-plus-function format or use nonce terms that invoke § 112(f), but the specification does not disclose structure sufficient to perform the claimed function.

Patentee expressly invokes mean-plus-function with the following limitations: "**steps for controlling the actuator**". However, Patentee fails to recite sufficient structure within the specification of the '680 patent for a POSITA to understand the scope of these limitations.

Further, Patentee invokes mean-plus-function with the following nonce terms: "**a control interface,**" "**a datastore,**" and "**a site master-controller**". Similarly, Patentee fails to recite sufficient structure within the specification of the '680 patent for a POSITA to understand the scope of these limitations. Thus, the claims that include these limitations should be found invalid due to being indefinite under § 112(f).

Additionally, patentee utilizes the following subjective terms within the '680 patent: "**satisfies a criterion,**" "the first set point **is satisfied,**" "**being configured to,**" and "**satisfies the pattern of values**". These subjective terms fail to particularly point out the invention within the '680 patent, as such these claims lack sufficient detail for a POSITA to understand the scope

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

of these limitations. Thus, the claims that include these limitations should be found invalid due to being indefinite under § 112(b).

Lastly, Defendant's analysis of indefiniteness under §§ 112(a), (b), and/or (f) remains ongoing, particularly with respect to Plaintiff's yet-to-be-produced technical documents and source code, and Defendant reserves the right to supplement its contentions with additional arguments and claim terms upon further investigation and discovery.

Asserted	**Patent #**	**Claim with Bolded Indefinite Term**
X	11175680	1. A non-transitory, machine-readable medium comprising instructions to effectuate operations, the operations comprising: [1a] receiving, with a server, a command comprising a target value of a fluid-handling device from a computing device via **a control interface**, wherein the command is received in association with a record stored on **a datastore**; [1b] determining, with the server, a network address of a network based on the record, wherein the network address identifies a controller of the fluid-handling device, and wherein the controller accesses a sensor to measure a fluid being handled by the fluid-handling device and an actuator of the fluid-handling device; [1c] sending, with the server, the target value to the network address via the network; [1d] receiving, with the controller, a measurement of the fluid by the sensor; [1e] determining, with the controller, whether the measurement

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

		satisfies the target value; [1f] in response to a determination that the measurement does not satisfy the target value, obtaining, with the controller, a set point based on the command; [1g] and controlling, with the controller, the actuator based on the set point.
X	11175680	2. The medium of claim 1, wherein: the controller is **a site master-controller**; the site master-controller controls a plurality of local controllers, the plurality of local controllers comprising a first local controller in communication with the actuator; controlling the actuator with the controller based on the set point comprises: sending the set point from the site master-controller to the first local controller; and actuating, with the first local controller, the actuator based on the set point.
X	11175680	6. The medium of claim 1, wherein: the set point is a first set point; the command comprises the first set point and a second set point; obtaining the first set point comprises obtaining the first set point and the second set point from the command;

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

		the measurement is a first measurement; the operations further comprises: receiving, with the controller, a second sensor measurement after controlling the actuator based on the first set point; determining, with the controller, whether the second sensor measurement **satisfies a criterion** based on the first set point; and in response to a determination that the first set point **is satisfied**, controlling the actuator based on the second set point.
X	11175680	12. The medium of claim 1, wherein: the measurement is a first measurement of a plurality of measurements of the sensor; wherein the target value is a value of a pattern of values; and determining whether the measurement **satisfies the target value** comprises determining whether the plurality of measurements **satisfies the pattern of values**.
X	11175680	17. The medium of claim 1, wherein controlling the actuator based on the set point comprise **steps for controlling the actuator**.
X	11175680	20. A method comprising: [20a] receiving, with a server, a command comprising a target value of a fluid-handling device from a computing device via **a control interface**, wherein the command is received in association with a record stored on **a datastore**; [20b] determining, with the server, a network address of a network based on the record, wherein the network address identifies a

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

		controller of the fluid-handling device, and wherein the controller accesses a sensor to measure a fluid being handled by the fluid-handling device and an actuator of the fluid-handling device; [20c] sending, with the server, the target value to the network address via the network; [20d] receiving, with the controller, a measurement of the fluid by the sensor; [20e] determining, with the controller, whether the measurement satisfies the target value; [20f] in response to a determination that the measurement does not satisfy the target value, obtaining, with the controller, a set point based on the command; [20g] and controlling the actuator based on the set point.
X	11294403	1. A system, comprising: [1a] a first computer system disposed at a first fluid handling site, the first fluid handling site comprising a first pump, a first valve, and a first tank that handle a first fluid, the first tank having a first fluid-level sensor with which the first computer system **is configured to** communicate to obtain a level of the first fluid in the first tank, and the first computer system **being configured to** provide remote control of the first pump or the first valve; [1b] and a server system remote from the fluid handling site, wherein the server system has memory storing instructions that, when

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

		executed, effectuate operations comprising: [1c] receiving, with the server system, from the first computer, via a network, a first fluid level sensed by the fluid-level sensor; [1d] obtaining, with the server system, credentials from a first client computing device; [1e] determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site, wherein the server system hosts data about other fluid handling sites the user is not authorized to interact; [1f] after the determination, providing, with the server system, via the network, information by which a first client computing device presents a user interface indicating the first fluid level, the first client computing device being remote from the server system and the first computer system; [1g] receiving, with the server system, from the first client computing device, a first command to change a state of the first pump; [1h] and causing, with the server system, the first computer system disposed at the first fluid handling site to effectuate the command by changing the state of the first pump to a sequence of different target states that change over time.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

XII. ’461 PATENT

A. INELIGIBILITY

Claim 1 recites:

> 1. A fluid processing method, comprising:
> receiving, with a first computer system disposed at a first fluid-handling site, information comprising one or more properties of a first fluid from one or more sensors disposed at a first fluid tank itself disposed at the first fluid-handling site, the fluid-handling site comprising one or more fluid-handling devices, the one or more fluid-handling devices comprising one or more of a first pump, a first filter, and a first valve;
> providing, with the first computer system disposed at a first fluid handling site, remote control of a first fluid-handling device of the one or more fluid-handling devices;
> receiving, with a server system, from the first computer system, via a network, a first fluid property of the one or more properties associated with the first fluid sensed by a first sensor of the one or more sensors;
> obtaining, with the server system, credentials from a first client computing device;
> determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site, wherein the server system hosts data about other fluid handling sites the user is not authorized to interact;
> after the determination, providing, with the server system, via the network, information by which the first client computing device presents a user interface indicating the first fluid property, the first client computing device being remote from the server system and the first computer system;
> receiving, with the server system, from the first client computing device, a first command to change a state of the first fluid-handling device; and
> causing, with the server system, the first computer system disposed at the first fluid handling site to effectuate the command by changing the state of the first fluid-handling device to a sequence of different target states that change over time.

FAC ¶ 118.

1. Alice Step 1 – The claims are directed to the abstract idea of access control

At a high level, claim 1 recites an access control method that controls access from a remote client computer to a computer at a fluid-handling site. Accordingly, claim 1 is an apparatus claim directed to the abstract idea of access control. *See, e.g., Cyber- Source*, 654 F.3d at 1372–73. The

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

claim does not recite any non-generic hardware or software mechanism to perform this task. *Elec. Power Grp.,* 830 F.3d at 1355.

Requiring the use of a computer does not change the focus of the claim away from being directed towards an abstract idea. "[T]he inability for the human mind to perform each claim step does not alone confer patentability." *FairWarning IP, LLC v. Iatric Sys*., 839 F.3d 1089, 1098 (Fed. Cir. 2016). Similarly, the claims do not recite any non-generic hardware or software mechanism. *Elec. Power Grp.,* 830 F.3d at 1355 ("The claims at issue do not require any nonconventional computer, network, or display components, or even a non-conventional and non-generic arrangement of known, conventional pieces, but merely call for performance of the claimed information, collection, analysis, and display functions on a set of generic computer components and display devices.") (citation and quotation marks omitted)).

The claimed method recites the use of (1) a computer system that controls a fluid-handling device at a fluid-handling site, (2) a fluid-handling device, (3) sensors at a fluid-handling site, (4) a server system, and (5) a client computing device. The claimed method performs the steps of (1) receiving, using a computer system, a "fluid property" obtained from a sensor at the fluid-handling site, (2) obtaining, with the server system, credentials from the client computing device, (3) determining whether the user at the client computing device is authorized to interact with the fluid-handling site (4) providing the "fluid property" for display on a user interface of the client computing device, (5) receiving a command from the client computing device to change the state of the "fluid-handling device," and (6) causing the state of the "fluid-handling device" to change. This is analogous to the '504 patent explained above.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

2. Alice Step 2 – The claims do not add substantially more than the abstract idea

Step 2 of the *Alice* analysis determines whether patentability is saved because an "inventive concept" is provided in the claim. This is the search for "significantly more" than the abstract idea. *Alice,* 134 S. Ct. at 2357. The claim must have "additional features" to ensure that the claim is more than a drafting effort designed to monopolize the abstract idea. *Id*. In step two, the Court examines the claim limitations "both individually and as an ordered combination" to determine whether the claims disclose an "inventive concept sufficient to transform the claimed abstract idea into a patent eligible application." *Alice*, 134 S. Ct. at 2355 (cleaned up). If a claim is directed to an abstract idea at step one, to be patentable at step two the claim "must include additional features" that "must be more than well-understood, routine, conventional activity." *Ultramercial Inc. v. Hulu, LLC*, 772 F.3d 709, 715 (Fed. Cir. 2014).

The Claims Do Not Embody an Inventive Concept

Much of the analysis at step one carries over into step two. There is no "inventive concept" where, as here, the abstract idea is implemented with conventional components in a conventional manner. *Alice*, 134 S. Ct. at 2359. "[W]ell-understood, routine, conventional activities previously known in the industry" do not suffice to provide the inventive concept. *Id*. Where claims do not call for "any nonconventional computer, network, or display components, or even a 'non-conventional and non-generic arrangement of known, conventional pieces,' but merely call for performance of the claimed information collection, analysis, and display functions 'on a set of generic computer components' and display devices," the claims fail the step two analysis. *Elec. Power Grp*., 830 F.3d at 1355.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

The claim uses only functional language and does not describe in any detail how to achieve the results. *See Two-Way Media*, 874 F.3d at 1337-38. The claim requires no inventive way to perform this idea. The claim does no more than take a basic idea from the public domain without disclosing any inventive steps. The claim identifies only generic components, i.e., a computer system, a server, a client computing device, a sensor, and a user interface. In addition, all of the components identified were known to the industry at the time of the patent. *See* '461 Patent 1:63-65. As explained above for the '871 Patent, controlling access to resources is an abstract idea performable by the human mind, and is unpatentable. *Ericsson*, 955 F.3d at 1327.

All claims recite the abstract idea of controlling access from a client computer to a remote computer for fluid handling at a fluid-handling site. Other claims merely recite additional attributes involving the conventional devices, e.g., fluid-handling device "states"; user control options, communication modes and formats; and use functional language without specifying *how* to carry out functions.[4] Taken individually or in combination, the claim elements neither improve the functions of the computer itself, nor provide specific programming, tailored software, or meaningful guidance for implementing the abstract concept. *Alice*, 134 S. Ct at 2359.

All other claims are also ineligible

The Federal Circuit has held that a district court need not expressly address each asserted claim where the court concludes particular claims are representative because all the claims are "substantially similar and linked to the same abstract idea." *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat. Ass'n*, 776 F.3d 1343, 1348 (Fed. Cir. 2014). Here, claim 1 is representative of all asserted claims. *Elec. Power Grp.,* 830 F.3d at 1352 (claim may be treated as

[4] Claims 2-16 of the '461 Patent are very similar to claims 2-16 of the '504 Patent discussed in TankLogix's Motion to Dismiss in the related -642 Case.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

representative where there is no "distinctive significance" of any limitation found in any other allegedly infringed claims). All claims recite the abstract idea of controlling fluid-handling devices, e.g., valves or pumps. Nevertheless, TankLogix addresses other asserted claims.

Claims 2-4 depend from claim 1 and refer to a "sequence of different target states," but do not describe how to achieve [the results attributable to the device] in a non-abstract way." *See Two-Way Media*, 874 F.3d at 1337-38. Claim 5 depends from claim 1 and is analogous to claims 7-10 of the '403 Patent (web-based user interface). Claim 6 depends from claim 1 and adds the use of a wireless network connection, which is provided by a generic component. '461 Patent 8:38-45. Claims 7-8 depend directly or indirectly from claim 1, and add translation, an abstract idea as explained above. Claims 9, 13, and 15 depend from claim 7 and add protocol selection, an abstract idea as explained above. Claim 10 depends from claim 7 and adds the setting of a device to a target value, an abstract idea as explained for claims 6, 10, and 15 of the '078 Patent above. *See Two-Way Media*, 874 F.3d at 1337-38. The claim does not require an inventive way to perform this idea. Claim 11 depends from claim 7 and is analogous to claim 3 of the '078 Patent (communication). Claim 12 depends from claim 7 and is analogous to claim 7 of the '871 Patent (numeric qualifier). Claim 14 depends from claim 7 and is analogous to claim 11 of the '078 Patent above (automatic/manual modes of operation). Claim 16 depends from claim 1 and additionally identifies the functions of a conventional remote terminal unit, i.e., receiving a request, identifying the intended destination of the request, and routing the command. The specification explains that these functions were conventional, and were supported by a protocol in use prior to the date of invention. *See* '461 Patent 6:37-47. Independent claim 17 mirrors claim 1, identifying the same functions, i.e., measuring, receiving, obtaining, determining, and providing.

B. PRIOR ART REFERENCES

Defendant identifies the following prior art to anticipate or render obvious the '461

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

Asserted Claims under at least 35 U.S.C. §§ 102(a), (b), (e), and/or (g), and/or § 103, either expressly or inherently as understood by a POSITA.

The following patents and publications are prior art to the '461 Asserted Claims under at least 35 U.S.C. §§ 102(a), (b), (e), and/or (g). Invalidity claim charts for some of the following references are attached as Exhibit H-1.

Reference	**Statute**
Kahn – U.S. Patent No. 7,424,399	102(a)
Almadi – U.S. Patent No. 8,667,091	102(a)
Gutierrez – U.S. Patent No. 9,709,995	102(a)
Abdallah – U.S. Published Application 2008/0316048	102(a)
Cardamone – U.S. Published Application 2015/0308244A1	102(e)
64utah-SCADA	102(a)
BoilerControl_2008	102(a)
Brochure-VTScada-FeaturesByVersion	102(a)
CampbellScientific_au_b_scada_01-10	102(a)
Case-Study-Turks-Caicos	102(a)
CR1000 Datalogger - Brochure	102(a)
DeltaV_EMERSON_2006	102(a)
en-606-mμ-connect-datasheet-2005	102(a)
Fundamental of Computing	102(a)
O'Reilly Java Threads (2nd Edition)	102(a)
Modbus_Application_Protocol_V1_1b3	102(a)
PMD_Test_Suite_v3.5	102(a)

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

NCSC Reference	102(a)
Profile-VTScada-TypicalInstallations-Wastewater	102(a)
SCADA 4th Ed	102(a)
SCADA System Upgrade _ Wastewater Digest	102(a)
scada_sys_wht_ppr-2a_new	102(a)
SCADA_system_for_oil_refinery_control	102(a)
The Many Faces of SCADA	102(a)
tm_5_601	102(a)
trenton_culinary_water_2011	102(a)
Whitepaper-CNRL-VTScadaEnterpriseArchitecture	102(a)

Defendant additionally identifies and relies on patent or publication references that describe or are otherwise related to the prior art systems identified below. Defendant's investigation into prior art patent and publication references remains ongoing, and Defendant reserves the right to identify and rely on additional patent or publication references that are identified through further investigation or discovery (including materials that may be in Plaintiff's possession and have yet to be produced). Defendant reserves the right to supplement as further prior art is identified through investigation or discovery.

C. INDEFINITENESS

Defendant identifies below marked claims are indefinite under 35 U.S.C. §§ 112(a), (b), and/or (f) for failing to disclose sufficient corresponding structure in the specification. Specifically, the following limitations are written in means-plus-function format or use nonce terms that invoke

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

§ 112(f), but the specification does not disclose structure sufficient to perform the claimed function.

Patentee expressly invokes mean-plus-function with the following limitations: "**steps for** mitigating shocks to up-stream or down-stream fluid-handling devices relative to the first pump," "**steps for** translating commands," "**means for** controlling which fluid handling devices are permitted to transmit signals on the bus at a given point in time," and "**steps for** identifying protocols and control busses". However, Patentee fails to recite sufficient structure within the specification of the '461 patent for a POSITA to understand the scope of these limitations.

Further, Patentee invokes mean-plus-function with the following nonce terms: "**a server system**" and "**a special-purpose application**". Similarly, Patentee fails to recite sufficient structure within the specification of the '461 patent for a POSITA to understand the scope of these limitations. Thus, the claims that include these limitations should be found invalid due to being indefinite under § 112(f).

Further, patentee utilizes the following subjective terms within the '461 patent: "**are configured to**" and "**configurable to**". These subjective terms fail to particularly point out the invention within the '461 patent, as such these claims lack sufficient detail for a POSITA to understand the scope of these limitations. Thus, the claims that include these limitations should be found invalid due to being indefinite under § 112(b).

Lastly, Defendant's analysis of indefiniteness under §§ 112(a), (b), and/or (f) remains ongoing, particularly with respect to Plaintiff's yet-to-be-produced technical documents and source code, and Defendant reserves the right to supplement its contentions with additional arguments and claim terms upon further investigation and discovery.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

Asserted	Patent #	Claim with Bolded Indefinite Term
X	12019461	1. A fluid processing method, comprising: [1a] receiving, with a first computer system disposed at a first fluid-handling site, information comprising one or more properties of a first fluid from one or more sensors disposed at a first fluid tank itself disposed at the first fluid-handling site, the fluid-handling site comprising one or more fluid-handling devices, the one or more fluid-handling devices comprising one or more of a first pump, a first filter, and a first valve; [1b] providing, with the first computer system disposed at a first fluid handling site, remote control of a first fluid-handling device of the one or more fluid-handling devices; [1c] receiving, with **a server system**, from the first computer system, via a network, a first fluid property of the one or more properties associated with the first fluid sensed by a first sensor of the one or more sensors; [1d] obtaining, with the server system, credentials from a first client computing device; [1e] determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site, wherein the server system hosts data about other fluid handling sites the user is not authorized to interact;

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

		[1f] after the determination, providing, with the server system, via the network, information by which the first client computing device presents a user interface indicating the first fluid property, the first client computing device being remote from the server system and the first computer system; [1g] receiving, with the server system, from the first client computing device, a first command to change a state of the first fluid-handling device; [1h] and causing, with the server system, the first computer system disposed at the first fluid handling site to effectuate the command by changing the state of the first fluid-handling device to a sequence of different target states that change over time.
X	12019461	2. The method of claim 1, wherein: the sequence of different target states that change over time **are configured to** ramp up or down a speed of the first fluid-handling device.
X	12019461	3. The method of claim 1, wherein: the sequence of different target states that change over time are determined with **steps for** mitigating shocks to up-stream or down-stream fluid-handling devices relative to the first pump.
X	12019461	5. The method of claim 1, wherein: the server system **is configured to** interface with both a web browser on the client computing device and **a special-purpose application** executing on the client computing device to present the user interface indicating the first

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

		fluid property, wherein the first fluid property corresponds to a first fluid level.
X	12019461	6. The method of claim 1, wherein: the first computer system **is configured to** communicate with the server system via a cellular wireless connection.
X	12019461	7. The method of claim 1, wherein the first computer system **is configured to** translate a plurality of commands from the server system, including the command, from an input format to a plurality of different formats and protocols configured to effectuate changes in states of a plurality of different fluid-handling devices at the first fluid handling site.
X	12019461	8. The method of claim 7, wherein translating the plurality of commands comprises **steps for** translating commands.
X	12019461	10. The method of claim 7, wherein at least some of the plurality of different fluid-handling devices comprise proportional-integral-derivative controllers **configured to** drive respective fluid-handing devices to different target setpoints determined by the first computer system responsive to corresponding commands from the server system.
X	12019461	11. The method of claim 7, wherein: the first computer system is coupled to at least some of the plurality of different fluid-handling devices via a bus; and the first computer system comprises **means**

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

		for controlling which fluid handling devices are permitted to transmit signals on the bus at a given point in time.
X	12019461	14. The method of claim 7, wherein the first computer system **is configurable to** operate in an automatic mode, a mixed automatic mode, and a manual mode.
X	12019461	15. The method of claim 7, wherein translating the plurality of commands comprises **steps for** identifying protocols and control busses.
X	12019461	16. The method of claim 1, wherein the first computing system **is configured to** receive and transmit data and commands via a remote terminal unit protocol wherein the data and commands comprise redundant bits.
X	12019461	17. A method, comprising: [17a] measuring, with one or more sensors at a first fluid tank located at a first fluid-handling site, one or more properties associated with a first fluid; [17b] receiving, with a first computer system disposed at a first fluid handling site, information associated with the one or more properties associated with the first fluid; [17c] providing, with the first computer system, remote control of a first fluid-handling device of a plurality of fluid-handling devices, the first fluid-handling device comprising at least one of a first pump, a first filter, and a first valve;

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

		[17d] receiving, with **a server system**, from the first computer system, via a network, a first fluid property of the one or more properties associated with the first fluid sensed by a first sensor of the one or more sensors; [17e] obtaining, with the server system, credentials from a first client computing device; [17f] determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site, wherein the server system hosts data about other fluid handling sites the user is not authorized to interact; [17g] after the determination, providing, with the server system, via the network, information by which the first client computing device presents a user interface indicating the first fluid property, the first client computing device being remote from the server system and the first computer system; [17h] receiving, with the server system, from the first client computing device, a first command to change a state of the first fluid-handling device; [17i] and causing, with the server system, the first computer system disposed at the first fluid handling site to effectuate the command by changing the state of the first fluid-handling device to a sequence of different target states that change over time.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

XIII. CONCLUSION

These Invalidity Contentions and the accompanying documents are preliminary and subject to further investigation and revision. Defendant does not admit to the accuracy or sufficiency of any asserted priority date, date of conception, or date of reduction to practice of the Asserted Claims. Defendant expressly reserves the right to modify or supplement these contentions, including in response to any discovery, claim construction rulings, expert opinions, or positions taken by Plaintiff concerning the meaning, scope, or validity of the Asserted Claims.

These contentions address the invalidity of the Asserted Claims under at least 35 U.S.C. §§ 101, 102, 103, and 112. Defendant reserves the right to supplement or revise its contentions upon further investigation and expert analysis regarding:

- The lack of patent-eligible subject matter under § 101;
- Anticipation by or obviousness over the identified prior art under §§ 102 and 103; and/or
- The failure of the claims to satisfy the requirements of § 112, including written description, enablement, and definiteness.

Defendant's claim charts provide representative examples of how prior art references disclose, either expressly or inherently, the limitations of the Asserted Claims or render them obvious to a person of ordinary skill in the art ("POSITA") in view of the state of the art at the time of the alleged invention. These examples are provided without limitation and do not represent the exclusive disclosure of such limitations within each reference.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

To the extent any claims are construed to include functional limitations or invoke 35 U.S.C. § 112(f), Defendant reserves the right to challenge such claims as indefinite under § 112(b) where the specification fails to disclose corresponding structure, algorithm, or materials necessary to perform the claimed function. Defendant likewise reserves the right to assert that certain claim terms lack sufficient written description or enabling disclosure under § 112(a), particularly where the claim scope exceeds or diverges from the specification.

Because the Court has not yet construed any of the disputed terms, these Invalidity Contentions are based on Defendant's current understanding of Plaintiff's apparent interpretation of the claims. By relying on prior art references in light of Plaintiff's infringement contentions, Defendant does not concede that such interpretations are correct or reasonable.

Defendant reserves the right to rely on any admissions by Plaintiff, the named inventors, or third parties concerning the scope and content of the prior art or the alleged invention. This includes, but is not limited to, statements made during prosecution, depositions, other litigation, or in technical publications. In addition, Defendant reserves the right to rely on any other documents, references, or evidence identified through discovery, including third-party subpoenas, to support its invalidity positions.

Defendant may also rely on other uncited portions of the references identified herein and on related patents, patent applications, foreign counterparts, and any associated materials. A POSITA would interpret each reference in light of its entire disclosure and the broader knowledge in the field at the time. Defendant likewise incorporates by reference all prior art references cited during prosecution of the Asserted Patents, including related post-grant proceedings.

SitePro, Ex. 2004
TankLogix v. SitePro, IPR2025-00761

Exhibit A-1

Invalidity Claim Chart for U.S. Patent No. 8,649,909 ("the 909 patent")

In view of

US 2015/0308244 ("Cardamone")

The asserted claims of '909 patent are anticipated and/or rendered obvious by Cardamone as identified in Defendant Preliminary Invalidity Contentions.

U.S. Patent No. 2015/0308244 ("Cardamone") was filed on November 26, 2013, published on October 29, 2015. This application is a National Stage Entry of PCT/US2013/071976, filed on November 26, 2013 that claims priority from a provisional application 61/729,815, filed on November 26, 2012. Cardamone is prior art under at least 35 U.S.C. 102(e).

The citations to portions of any reference in this chart are exemplary only. Defendant will rely on the entirety of the reference cited in this chart, as well as any additional materials relevant to the reference identified through their ongoing investigation, to show that the asserted claims are invalid.

Claim#	Claim Language	Cardamone
1.	[1.p] A system for remotely controlling a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station, the system comprising	To the extent that the preamble is found to be limiting, Cardamone discloses a system for remotely controlling a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station. ¶¶0001, 0022; ¶0005 ("downhole pump"). A POSITA would recognize that a downhole pump is used at oil wells, water disposal sites, re-injection facilities, or petroleum pumping stations. Therefore, Cardamone discloses a system for remotely controlling a fluid- handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station.
	[1a] a command-center server having a data store storing multiple user accounts, each user account corresponding to a set of one or more oil wells, petro water disposal or re- injection facilities, or petroleum pumping	Cardamone discloses data server 134, a server computer remote from the oil well. Data server 134 links to control and communication computer 126 through standard wired and wireless communication links. ¶0024. Data server 134 receives sensory data logs from control and communication computer 126 and contains a web server/web application 136 for providing a client interface for viewing the sensory data logs on remote management computer 138. ¶0027.

	stations, or a combination thereof, each set being operated by a different entity corresponding to the respective user account; and	Data server 134 acts as a data storage for sensory data. ¶0027. GUI Computer 130 includes software application 131 to provide an interface for connecting to control and communication computer 126 which presents "a graphical geographical view of known pumps," and provides "basic operation statuses for each of the known pumps," thereby disclosing "multiple user accounts" according to the Claim. ¶0041. Data server 134 provides the functionality of GUI Computer 130, acts as a data storage and backup facility, as well as a mechanism to provide periodic data to control and communications computer 126. ¶0046. A POSITA would recognize that Cardamone discloses the command center server with its disclosure of data server 134. ¶¶51-52. Therefore, Cardamone discloses a command-center server having a data store.
	[1b] a plurality of geographically distributed site master controllers, each site master controller corresponding to a respective one of the oil wells, petro water disposal or re- injection facilities, or petroleum pumping stations, each site master controller comprising:	Cardamone discloses control and communication computer 126 arranged at the surface of the deep oil well. ¶0024. Control and communication computer 126 includes data sampling and storage mechanisms for receiving and storing sensory data from both pump system 122 and motor driver 124. *Id*. GUI Computer 130 includes software application 131 to provide an interface for connecting to control and communication computer 126 which presents "a graphical geographical view of known pumps," and provides "basic operation statuses for each of the known pumps," thereby disclosing a plurality of geographically distributed site master controllers according to the Claim. ¶0041. A POSITA would understand that Cardamone discloses the site master controller of the '909 Patent through its disclosure of control and communication computer 126. Thus, Cardamone discloses a plurality of geographically distributed site master controllers.
	[1c] a communication module operable to communicate with a plurality of fluid-handling devices;	Cardamone discloses that the control and communication computer system may include "a wifi access port (141), *a* satcom modem or port (143), ... an Ethernet (423) ... or an RS-485 transducer interface (435) for communication." ¶¶0008, 0033-34 (emphasis added). A POSITA would understand that the Wi-Fi access port, satcom modem, ethernet, and RS-485

		transducer interface are communication modules. Thus, Cardamone discloses a communication module.
	[1d] a network interface;	Cardamone discloses that the control and communication computer system 126 may include a router (419), a switch (421), *a Wi-Fi access port* (141), GSM modem (145), a satcom modem or port (143), and a single-board computer (410). The control computer may include *an Ethernet* (423) for linking each of its components. ¶¶0008, 0033-34 (emphasis added). Cardamone also discloses that data server 134 is connected to network 132 which is linked to control and communication computer 126 through a variety of network communication types, including hardwire connection, or internet connection via wire, Wi-Fi, satellite modem, and/or cellular data connections. ¶0027. A POSITA would understand that the Wi-Fi access port and Ethernet are network interfaces. Thus, Cardamone discloses a network interface.
	[1e] memory; and	Cardamone discloses that the control and communication computer 126 includes "a memory (431)" and that it "stores and relays sensory data . . . to data server 134 and/or GUI computer 130." ¶¶0008, 0021. Cardamone further discloses that the control and communication computer 126 includes data storage for storing operational parameters as well as sensory data logs." ¶¶0021, 0024. A POSITA would understand that Cardamone discloses the memory of the '909 Patent. Thus, Cardamone discloses a memory.
	[1f] one or more processors communicatively coupled to the communication module, the network interface, and the memory, wherein the memory stores instructions that when executed by the processors cause the processors to effectuate steps comprising:	Cardamone discloses that the control and communication computer 126 contains a real-time controller/CPU. ¶¶0024 ("a CPU (429)"), 0033-35. Cardamone further discloses that control and communication computer 126 includes communications transceivers including Wi-Fi modems, satellite modems, or cellular data modems. ¶¶0008, 0033-34. Cardamone discloses that the control and communication computer 126 includes "a memory (431)" and that it "stores and relays sensory data" and "includes data storage for storing operational parameters as well as sensory data logs." ¶¶0008, 0021, 0024.

		A POSITA would understand that the CPUs are communicatively coupled to the communication module, network interface, and memory and such a configuration has been known in the industry for decades. Thus, Cardamone discloses the recited processor, communication module, network interface, and memory-storing instructions.
	[1g] receiving, via the network interface, from the command-center server, a plurality of commands encoded in a first protocol to control the fluid-handling devices from a user corresponding to one of the user accounts, different commands among the plurality of commands being directed to different fluid handling devices among the plurality of fluid-handling devices;	Cardamone discloses that data server 134 provides the functionality of GUI Computer 130. ¶0046. Cardamone discloses that users connect to GUI computer 130 to interface with control and communication computer 126, through application 131. ¶¶0042, 0011, 0021, 0026, 0041. Application 131 provides access to control and communication computer 126 to request data, including the current sensory data of pump control system 110. *Id*. Application 131 also allows the user to adjust the operating parameters with control and communication computer 126 through "a command interface." ¶¶0044-45. Cardamone also discloses that data server 134 is connected to network 132 which is linked to control and communication computer 126 through a variety of network communication types. ¶0027. A POSITA would understand that the site master controller, control and communication computer 126, receives from the command center server, data server 134, a plurality of commands, including the retrieval of various data or various control adjustments, encoded in a first protocol (an internet, network, or cellular protocol) from a user of GUI computer 130. ¶66. Thus, Cardamone discloses receiving, via the network interface from the command-center server, a plurality of commands encoded in a first protocol to control the fluid-handling devices.
	[1h] for at least some of the plurality of commands, determining a plurality of different target states of a given one of the fluid-handling devices over time, wherein the respective site-master controller is operative to maintain control of the fluid handling devices in the	Cardamone discloses the determining a plurality of different target states of a given one of the fluid-handling devices over time. ¶¶0009, 0021-0022, 0025-0026, 0029, 0036. Cardamone discloses that the "control algorithm may control the motor drive system and/or pump as a function of sensory data." ¶0009. Cardamone further discloses application 131 also allows the user to adjust the operating parameters of control and communication computer 126 through "a command interface" to

	absence of a network connection to the command-center server;	specify the "movement profile" for the pump system, including through a distance versus time curve, or a force versus time curve for an operation cycle of the pump. ¶0044. Application 131 allows the user to program the operating function to control and communication computer 126 based on sensory data. ¶0045. For example, user 101 may program control and communication computer 126 to set the pump frequency to be equal to the inlet pressure times a constant or more complex functions based on a whole range of sensory input conditions. *Id.* A POSITA would understand establishing a movement profile, or adjusting operating function based upon the receipt of sensory data described above, determines a plurality of different target states of a given one of the fluid-handling devices over time. A POSITA would further understand establishing—on control and communication computer 126—the movement profile or operating function based upon certain data causes control and communication computer 126 to maintain control of the fluid handling devices in the absence of a network connection to the command-center server, because the operating parameters have already been locally established. *Id.* Thus, Cardamone discloses this element of the '909 Patent.
	[1i] translating the plurality of commands into translated commands encoded in a plurality of protocols different from the first protocol, each translated command being translated into a protocol among the plurality of protocols suitable for a fluid-handling device to which the respective command is directed, the at least some of the translated command being operative to cause a local controller of the given fluid- handling device to drive the given fluid-handling device to the	Cardamone discloses data server 134 connected to network 132 linked to control and communication computer 126 through one of a variety of communication link types, including hardwire connection, or internet connection via wire, Wi-Fi, satellite modem, or cellular data connections. ¶¶0024, 0027. Whereas, the pump drive unit 318 interfaces with control and communication computer 126 over digital interface bus 326. ¶0031; ¶¶0029- 31 (describing Pump System 122). Bus 326 has multiple protocols implemented including DeviceNet, RS485, F-NET, Modbus, FireWire, CANopen, Ethernet IP, ProfiNet, and SERCOS. ¶0031. These protocols, which include but are not limited to internet or computer networking protocols, drive the fluid-handling device. ¶0007. And other similar protocols may also be used as alternatives, through either analog or digital signal transfer. ¶0030-31.

	plurality of different target states, the local controller being responsive to the translated commands and feedback from the given fluid-handling device indicative of whether the given fluid-handling device is in a targeted state; and	A POSITA would understand the claimed translation of protocols is required to permit the data interface and bus to operate and communicate with various types of devices using multiple different types of protocols. Thus, Cardamone discloses translating the plurality of commands into translated commands encoded in a plurality of protocols different from the first protocol.
	[1j] sending the translated commands to respective local controllers of the respective fluid-handling devices to which the respective commands are directed.	Cardamone discloses control and communication computer 126 providing motor driver 124 with command signals to properly drive pump system 122. ¶0021. Pump drive unit 318 receives commands from control and communication computer 126 over digital interface bus 326. ¶0031; ¶¶0029-31 (describing Pump System 122). A POSITA would understand that sending translated commands, i.e., commands in the computing language of the respective fluid handling device is required to program control and communication computer 126 to drive the pump according to the user-provided specifications. Thus, Cardamone discloses sending the translated commands to respective local controllers of the respective fluid-handling devices. Cardamone, therefore, anticipates, or renders obvious to a POSITA Claim 1.
2.	The system of Claim 1, wherein the memory also stores instructions that when executed by the processors cause the processors to effectuate steps comprising: receiving, from the fluid-handling device, sensor data indicative of the operation of the fluid-handling device obtained by sensors of the fluid-handling device; and sending, to a remote data store, the received sensor data.	Cardamone discloses control and communication computer 126 includes "a memory (431)" and that it "stores and relays sensory data from pump system 122 and driver 124 to data server 134 and/or GUI computer 130." ¶¶0008, 0021 (emphasis added). A POSITA would understand that the control and communication computer 126 stores and relays sensor data indicative of the operation of a fluid-handling device. A POSITA would further understand that the control and communication computer 126 sends the respective fluid handling device data to data server 134, a remote data store. *Id.* Cardamone, therefore, anticipates, or renders obvious to a POSITA Claim 2.

3.	The system of Claim 2, comprising the remote data store and a web-server, wherein the web-server is operative to perform steps comprising: receiving, from a user device, a password corresponding to a selected one of the user accounts; receiving, from the user device, a request for a data indicative of the operation of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station coupled to the fluid-handling device of the selected one of the user accounts; retrieving, from the data store, data responsive to the request from the user device; and sending, to the user device, the retrieved data for presentation to the user.	Claim 3 recites. Cardamone discloses that after user 101 connects GUI computer 130 to control and communication computer 126's LAN, user 101 then starts application 131. ¶0042. Application 131 queries user 101 for a username and password, which are then provided to control and communication computer 126 for authentication. *Id*. Cardamone thus discloses the web server (GUI computer 130) receives a username and password for at least one user account. *Id*. After authentication, application 131 provides user 101 several options. *Id*. User 101 may select an option to view the current sensory data of pump control system 110 from a data stream from control and communication computer 126. *Id*. Cardamone, therefore, anticipates, or renders obvious to a POSITA Claim 3.
4.	The system of Claim 3, wherein the request is a request for data indicative of an amount of oil or other types of fluid extracted from, or injected into, an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station to which the fluid-handling device is coupled, and wherein the retrieved data comprises data indicative of the amount of oil, produced fluid, or flowback fluid.	Cardamone discloses GUI Computer 130 includes software application 131 to provide an interface for connecting to control and communication computer 126 for viewing live and stored sensor data. ¶0041. The available data includes inlet pressure, which can be used to determine the depth of fluids remaining in the well, and monitoring pump frequency to monitor the volume of fluids extracted from the well. ¶¶0029-30, 0044-45, 0049. Cardamone, therefore, anticipates, or renders obvious to a POSITA Claim 4.
5.	The system of Claim 3, wherein the request is a request to view alarms issued by a fluid-handling	Cardamone discloses in claim 21 that the system set forth in claim 20, wherein said user signal is a warning signal or a graphical display. *id.* ¶¶0036 ("if a 'Pump Hitting' curve is recognized in the sensory data, single-

	device among the plurality of fluid handling devices, and wherein the retrieved data comprises data indicative of the alarms.	board computer 410 will attempt to send a warning to data server 134, all GUI computers 130, and all remote management computers 138"), 0043 ("software application 131 may be used to display a warning to user 101"). Cardamone, therefore, anticipates, or renders obvious to a POSITA Claim 5.
6.	The system of Claim 3, wherein the retrieved data comprises messages provided to the web server regarding attempts to address the alarms.	Cardamone discloses that single-board computer 410 recognizes operating regimes, and accordingly triggers a warning and/or adjusts pump operation. ¶¶0009, 0036 ("computer 410 will attempt to send a warning to data server 134, all GUI computers 130, and all remote management computers 138"). After sending warnings, Cardamone discloses that single-board computer 410 will then adjust the drive command sent to motor driver 124 such that pump 122 is driven with a shorter stroke. ¶0036, ¶0045. The motor driver 124 relays its status back to control and communication computer 126, which relays the system's attempt to address the alarms. ¶¶0031, 0035, 0042. Cardamone, therefore, anticipates, or renders obvious to a POSITA Claim 6.
7.	The system of Claim 2, comprising the remote data store and a web-server, wherein the web-server is operative to perform steps comprising: receiving, from a user device, the command to change the state of the fluid-handling device; and determining a network address of the network interface of the respective site master controller; and sending the command to the network interface.	Cardamone discloses control and communication computer 126 at the surface of the deep oil well, providing motor driver 124 with the proper gate drive signals for operating pump system 122. ¶0024. Control and communication computer 126 includes data sampling and storage mechanisms for receiving and storing sensory data from both pump system 122 and motor driver 124. *Id*. GUI Computer 130 includes software application 131 to provide an interface for connecting to control and communication computer 126 presenting "a graphical geographical view of known pumps," with "basic operation statuses for each of the known pumps." ¶0041. A POSITA would understand Cardamone discloses the elements of Claim 7 of the '909 Patent through its disclosure of control and communication computer 126 interface with GUI Computer 130 which communications with "known pumps." Cardamone, therefore, anticipates, or renders obvious to a POSITA Claim 7.

8.	The system of Claim 1, wherein at least some of the fluid- handling devices comprise a pump, and wherein the plurality of commands comprise a command to change the speed of the pump.	Cardamone discloses control and communication computer 126 with real- time controller/CPU for providing motor driver 124 with the proper gate drive signals for operating pump system 122 with a desired movement profile, including adjusting pump frequency. ¶¶0024, 0044-45, 0049. Cardamone, therefore, anticipates, or renders obvious to a POSITA Claim 8.
12.	The system of Claim 1, wherein translating the commands comprises selecting among an Internet Protocol, a Modbus protocol, and an analog output to convey the translated command.	Cardamone discloses motor drive unit with a field bus interface (326) capable of communicating through various protocols, including DeviceNet, RS485, F-NET, Modbus, FireWire, CANopen, Ethernet IP, ProfiNet, SERCOS, 12-bit Analog IN, 16-bit Analog I/O, and/or other similar bus hardware and protocols. *See, e.g.*, ¶0007 (emphasis added). Cardamone, therefore, anticipates, or renders obvious to a POSITA Claim 12.
14.	The system of Claim 1, comprising one of the following coupled to the fluid-handling devices: an oil well, a saltwater disposal well, a carbon-capture well, or a pump station.	Cardamone discloses use with a deep oil well pump. ¶¶0021-22, 0024, 0026. Cardamone, therefore, anticipates, or renders obvious to a POSITA Claim 14.
17.	The system of claim 1, wherein each user account corresponds to one or more user names, one or more user passwords, billing information, and identifiers of one or more of the site master-controllers with which users under the corresponding account are authorized to interact.	Cardamone discloses that Application 131 queries user 101 for a username and password, which are then provided to control and communication computer 126 for authentication. ¶0042. User 101 may select an option to view the current sensory data of pump control system 110, causing application 131 to request data from control and communication computer 126, including information for known pumps. ¶0041. Cardamone, therefore, anticipates, or renders obvious to a POSITA Claim 17.
18.	The system of claim 1, wherein the system is operative to exercise two layers of control, the two layers of control including: a first layer of control in which targeted states of the fluid handling devices are	Cardamone discloses that the "control algorithm may control the motor drive system and/or pump as a function of sensory data." ¶0009. Cardamone further discloses application 131 also allows the user to adjust the operating parameters of control and communication computer 126 through "a command interface" to specify the "movement profile" for the pump system, including through a distance versus time curve, or a

	determined by a respective site master controller in response to some of the received commands; and a second layer of control in which, for each targeted state specified by the first layer of control, the respective fluid-handling device exercises feedback control to drive the respective fluid-handling device to the respective targeted state.	force versus time curve for an operation cycle of the pump. ¶0044. Cardamone further discloses control and communication computer 126 providing motor driver 124 with command signals to properly drive pump system 122. A POSITA would understand establishing a movement profile, or adjusting operating function based upon the receipt of sensory data described above, determines a plurality of different target states of a given one of the fluid-handling devices over time. A POSITA would further understand establishing—on control and communication computer 126—the movement profile or operating function based upon certain data causes control and communication computer 126 to maintain the control of the fluid handling devices. Thus, a POSITA would understand Cardamone discloses exercising two layers of control to drive the respective fluid-handling device to the respective targeted state, in the manner described in dependent claim 18.
19.	The system of Claim 1, wherein the system is operative to provide web-based control and monitoring of oil and gas wells to multiple account holders corresponding to the user accounts.	Cardamone discloses data server 134 contains web application 136 for providing a client interface for viewing the sensory data logs on remote management computer 138. Web application 136 allows the user to set the control parameters on the control and communication server 126. ¶27. Cardamone further discloses that Application 131 includes a graphical view of known pumps, as well as operation statistics for the known pumps. ¶¶0041-42. Cardamone discloses Application 131 provides the functionality of GUI computer 130 to many potential *remote users* 102. ¶¶0046, 0048 ("multiple remote users"). Cardamone, therefore, anticipates, or renders obvious to a POSITA Claim 19.
20.	[20a] A tangible, non-transitory machine-readable medium storing instructions that when executed by a data processing apparatus cause the data processing apparatus to perform operations comprising:	Cardamone discloses each and every limitation of Claim 20, anticipating Claim 20. To the extent that the Board finds that the preamble is limiting, Cardamone discloses a tangible, non-transitory machine-readable medium storing instructions that when executed by a data processing apparatus cause the data processing apparatus to perform operations. For example, Cardamone discloses that software application 131 may also be used to adjust the operating parameters of

	[20b] receiving, via a network interface, from a remote user device, a plurality of commands to control a plurality of different fluid-handling devices, each of the plurality of commands being directed to a different one of the plurality of fluid-handling devices, and the plurality of commands being encoded in a first protocol;	control and communication computer 126, and application 131 allows user 101 to specify the exact movement profile for pump system 122. ¶¶0041-42. Therefore, a POSITA would understand that Cardamone discloses a tangible, non-transitory machine-readable medium recited in Claim 20. Claim 20's limitation 20[a] is analogous to limitation 1[g], limitation 20[b] is analogous to limitation 1[h], limitation 20[c] is analogous to limitation 1[i] and limitation 20[d] is analogous to limitation 1[j]. Each of Claim 20's limitations are disclosed by Cardamone for reasons provided above, and incorporated here. *See supra,* Section VIII(A)(1). Cardamone anticipates Claim 20.
	[20c] determining a plurality of different target states of the fluid-handling devices over time such that control of the fluid handling devices is maintained in the absence of a network connection with the remote user device;	
	[20d] translating the plurality of commands into a plurality of translated commands operative to cause local controllers of the fluid-handling devices to drive the respective fluid-handling devices to different target states among the plurality of different target states, the plurality of translated commands including translated commands encoded in a plurality of different protocols, and the local controllers being responsive to the translated commands and feedback from a corresponding fluid-handling device among the plurality of different fluid	

	handling devices, the feedback being indicative of whether the corresponding fluid-handling device is in a targeted state; and	
	[20e] sending the translated commands to the local controllers.	
21.	[21a] A method, comprising:	To the extent that the preamble is found to be limiting, Cardamone discloses a method. *See, e.g.*, ¶¶0049-0050. Therefore, a POSITA would understand that Cardamone discloses the element recited in Claim 21. Claim 21's limitation 21[a] is analogous to limitation 1[g], limitation 21[b] is analogous to limitation 1[h], limitation 21[c] is analogous to limitation 1[i] and limitation 21[d] is analogous to limitation 1[j]. Each of Claim 21's limitations are disclosed by Cardamone for reasons provided above, and incorporated here. *See supra,* Section VIII(A)(1). Cardamone anticipates Claim 21.
	[21b] receiving, via a network interface, from a remote user device, a plurality of commands to control fluid-handling devices, the plurality of commands being encoded in a shared protocol;	
	[21c] determining a plurality of different target states of the fluid-handling devices over time such that control of the fluid handling devices is maintained;	
	[21d] translating the commands into translated commands encoded in a plurality of different protocols different from the shared protocol, each translated command being encoded in a protocol among the plurality of different protocols suitable for a fluid-handling device to which the respective command is directed, the translated commands being operative to cause local controllers of the fluid-handling devices to drive a respective fluid-handling device different target states among the plurality	

	of different target states, the local controllers being responsive to the translated commands directed to their respective fluid-handling device and feedback from the respective fluid-handling device indicative of whether the respective fluid-handling device is in a targeted state; and	
	[21e] sending the translated commands to the local controllers.	

Exhibit A-2

Invalidity Claim Chart for U.S. Patent No. 8,649,909 ("the 909 patent")

In view of

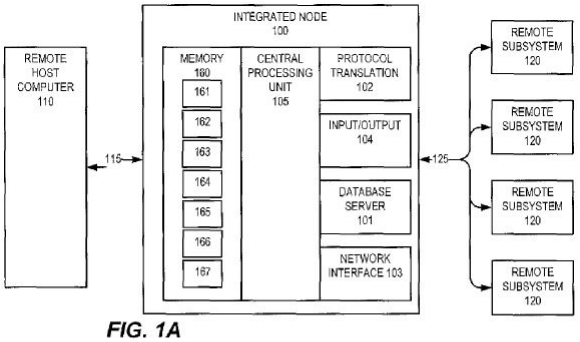
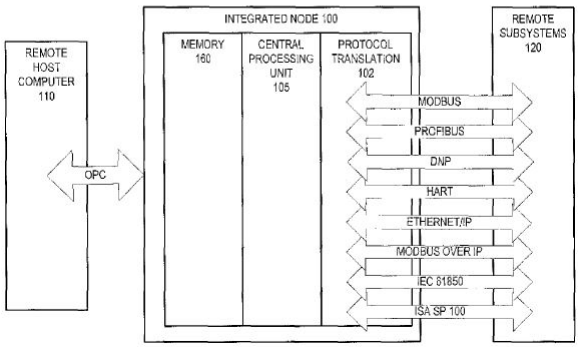
US 8,667,091 ("Almadi")

The asserted claims of '909 patent are anticipated and/or rendered obvious by Almadi as identified in Defendant Preliminary Invalidity Contentions.

U.S. Patent No. 8,667,091 ("Almadi") was filed on July 22, 2011, published on April 05, 2012 and issued on March 04, 2014. Almadi is prior art under at least 35 U.S.C. 102(a).

The citations to portions of any reference in this chart are exemplary only. Defendant will rely on the entirety of the reference cited in this chart, as well as any additional materials relevant to the reference identified through their ongoing investigation, to show that the asserted claims are invalid.

Claim#	Claim Language	Almadi
1.	[1.p] A system for remotely controlling a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station, the system comprising	To the extent that the preamble is found to be limiting, Almadi discloses a system for remotely controlling a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station. For example, Almadi discloses that the present invention relates to the control of, and acquisition of data from, remote and in-plant subsystems in automated industrial processes. *See, e.g.*, Abstract; 1:18-22. Almadi further discloses that the automation architecture of modern industrial operations, such as that found in modern oil and gas field applications, is enabled at the field level and process level by various interconnected devices referred to as remote subsystems or field devices. *See, e.g.*, 1:28-35. These field devices monitor and collect data, such as measurements of fluid pressure, temperature, or flow, reflective of the operations of the automated process. *Id*. A POSITA would recognize that the system disclosed by Almadi remotely monitors and controls a fluid handling device pump at oil wells, water disposal sites, re-injection facilities, or petroleum pumping stations. Therefore, Almadi discloses a system for remotely

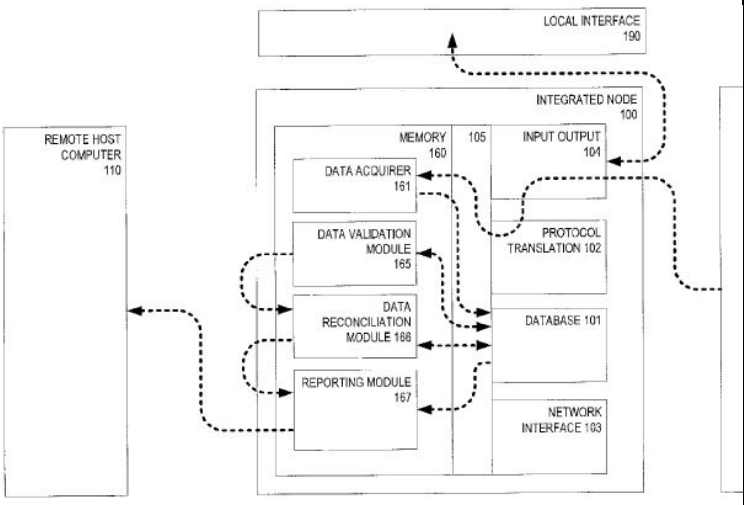
		controlling a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station.
	[1a] a command-center server having a data store storing multiple user accounts, each user account corresponding to a set of one or more oil wells, petro water disposal or re- injection facilities, or petroleum pumping stations, or a combination thereof, each set being operated by a different entity corresponding to the respective user account; and	Almadi discloses integrated node 100, as illustrated in Figures 1A and 1B, having a central processing unit 105 and a memory 160 to allow a remote host 110 to interface with a plurality of remote subsystems 120. 11:18-21. Integrated node 100 is a programmable logic controller ("PLC"), meaning any PLC, remote terminal unit ("RTU"), computer, server, system, node, or unit. 11:21-28.  *FIG. 1A*  *FIG. 1B* Almadi discloses that the plurality of remote subsystems 120 can include, for example, intelligent field systems such as permanent downhole monitoring ("PDHM") systems, electrical submersible pump ("ESP") systems, smart well completion ("SWC") systems, flow meter systems, and any of the types of Intelligent Equipment Devices ("IED"). 12:27-35. Almadi discloses that the present invention can serve different networking operating environments, including, for example, intelligent field for oil and gas, substations/power grids, and remote security, and can be utilized and can be extended for enterprise applications. 11:18-12:59; Abstract; 1:18-22, 1:28-35.

		A POSITA would understand that Almadi discloses the command-center server of the '909 Patent through its disclosure of the integrated node 100. A POSITA would understand that Almadi discloses each set of facilities being operated by a different entity corresponding to the respective user account of the '909 Patent through its disclosure of multiple different network operating environments and applications applicable to different entities who would each have a respective user account. *Id.* Thus, Almadi discloses the recited command-center server.
	[1b] a plurality of geographically distributed site master controllers, each site master controller corresponding to a respective one of the oil wells, petro water disposal or re- injection facilities, or petroleum pumping stations, each site master controller comprising:	Almadi discloses a plurality of remote subsystems 120 can include, for example, intelligent field systems such as PDHM systems, ESP systems, SWC systems, flow meter systems, and any other types of IED. 12:27-59. Remote subsystems 120 can perform tasks including processing of measurement and control data and signal conversions. *Id*. A POSITA would understand Almadi discloses a plurality of geographically distributed site master controllers where the site master controller corresponds to an oil well, petro water disposal or re-injection facilities, or petroleum pumping station of the '909 Patent through its disclosure of remote subsystems 120. Thus, Almadi discloses the recited geographically distributed site master controllers.
	[1c] a communication module operable to communicate with a plurality of fluid-handling devices;	Almadi discloses that remote subsystems 120 can be adapted to be programmed to communicate with other field devices, for example, independent of the integrated node, as well as intelligent sensors, actuators, and controllers can be connected to the network by means of communication busses, interface boards, cables, and accessories. 12:27-59. Almadi further discloses an integrated node 100, as can be shown in FIG. 1A and FIG. 2A, for example, includes an input/output unit 104 positioned to transfer communications between the integrated node 100 the plurality of remote subsystems 120, and the remote host computer 110. 13:47-14:9 (disclosing various communication protocols).

		A POSITA would understand that Almadi discloses the communication module of the '909 Patent through its disclosure of input/output unit 104 that provides communications capabilities between remote subsystems 120 and integrated node 100.
	[1d] a network interface;	Almadi discloses that the integrated node 100 is connected to any of the remote host computers 110 or remote subsystems 120 by way of communication links 115 and 125, respectively, as would be understood by a POSITA. 11:31-35. Almadi further discloses that the input/output unit 104 provides both serial and Ethernet interfaces over communication links 115 and 125. 13:51-14:9 (disclosing various communication protocols). A POSITA would understand that Almadi discloses a network interface of the '909 Patent through its disclosure of various wired or wireless interfaces for remote subsystems 120 to connect to integrated node 100.
	[1e] memory; and	Almadi discloses that any of the measurements or values can be output by storing to a storage medium such as memory 160 or database 101, by transmitting to remote host computer 110, or by transmitting to any other computer or interface in communication with the integrated node 100 over the input/output unit, such as the local interface 190 or any computer terminal having a graphical user interface as will be understood by those having skill in the art. 27:2-10. Remote subsystems 120 connect to integrated node 100 over the input/output unit. 13:47-51; 1:18-57; 11:18-12:59. From Almadi's disclosure that measurements or values can be stored in memory or output to any other computer or interface in communication with the integrated node 100 over the input/output unit, a POSITA would understand requires remote subsystems 120 to have a memory. A POSITA would understand that Almadi discloses a memory for the site master controller of the '909 Patent through its disclosure of remote subsystems 120. *Id.*
	[1f] one or more processors communicatively coupled to the communication module, the network	Almadi discloses that remote subsystems 120 can include, for example, intelligent field systems that can perform tasks including processing and accepting programming. 11:18-12:59. Almadi discloses that its

	interface, and the memory, wherein the memory stores instructions that when executed by the processors cause the processors to effectuate steps comprising:	"intelligent field devices" (i.e. remote subsystems 120) include the ability to process data, self- monitor, self-regulate, self-calibrate, or provide early warnings with respect to malfunctions or predictive maintenance. 1:18-57. A POSITA would understand that Almadi's disclosure of processing by remote subsystems 120 necessarily requires a processor. A POSITA would further understand because remote subsystems 120 can also adapted to be programmed so as to communicate with other field devices that a processor is required. A POSITA would understand Almadi's disclosure of intelligent field device processing data, self-monitoring, self-regulating, etc. requires remote subsystems 120, to store in memory instructions that when executed will cause remote subsystems 120's processors to execute the instruction's steps. *Id.* Thus, Almadi discloses the recited processors, communication modules, memory, and network interfaces in remote subsystems 120.
	[1g] receiving, via the network interface, from the command-center server, a plurality of commands encoded in a first protocol to control the fluid-handling devices from a user corresponding to one of the user accounts, different commands among the plurality of commands being directed to different fluid handling devices among the plurality of fluid-handling devices;	Almadi discloses that integrated node 100 supports a local programming interface over a computer, such as through computer terminals having one or more input devices and one or more display devices that are accessible to a human user (not pictured) or, for example, by using the remote host computer 110. 12:10-15. The remote host 110 can be any type of remote host computer for management or hosting of process automation functions as will be known or available to those having skill in the art, for example, a SCADA host. 12:55-59. Almadi discloses that the PLC or RTU functions of the integrated node 100 enable data processing in the integrated node 100 and also enable data collection from, and control of, the plurality of remote subsystems 120. 11:51-63; 22:32-36 ("The DVRM 164 enhances the accuracy of data acquired by the integrated node 100, which also enhances the effectiveness of the integrated node 100 in controlling the plurality of remote subsystems 120.").

		A POSITA would understand that Almadi discloses the recited receiving commands from the command center server to control specific fluid handling devices of the '909 Patent through its disclosure of receiving commands from a user through remote host 110, which connects through integrated node 100 to individually addressable remote subsystems 120 for controlling operation of well site components.
	[1h] for at least some of the plurality of commands, determining a plurality of different target states of a given one of the fluid-handling devices over time, wherein the respective site-master controller is operative to maintain control of the fluid handling devices in the absence of a network connection to the command-center server;	Almadi discloses that modern field devices monitor and collect data, such as measurements of fluid pressure, temperature, or flow, reflective of the operations of the automated process. 1:28-57. Almadi further discloses that modern field devices may be termed "intelligent field devices," generally, in the sense that they may also incorporate more robust functionality, such as the ability to process data, self-monitor, self-regulate, self-calibrate, or provide early warning with respect to malfunctions or predictive maintenance. 1:18-57. Almadi discloses that remote subsystems 120 can include a variety of intelligent field systems. *See generally*, 12:27-59. A POSITA would understand Almadi's disclosure of monitoring and collecting data, such as measurements of fluid pressure, temperature, or flow determines a plurality of different target states of a given one of the fluid-handling devices over time as claimed in the '909 Patent. A POSITA would further understand from Almadi's disclosure that "intelligent field devices" process data, self-monitor, self-regulate, and self-calibrate among other operations necessary to maintain control of the fluid handling devices without requiring network connectivity to a command center server as claimed in the '909 Patent. *Id.* Thus, Almadi discloses determining a plurality of different target states of a given one of the fluid-handling devices over time, where the local node device is operative to maintain control in the absence of a network connection to the central communication device gateway.
	[1i] translating the plurality of commands into translated commands encoded in a plurality of	Almadi discloses that integrated node 100 can further include a protocol translator or translation server 102 to translate communications with each of the remote subsystems 120 according to any one or more of a

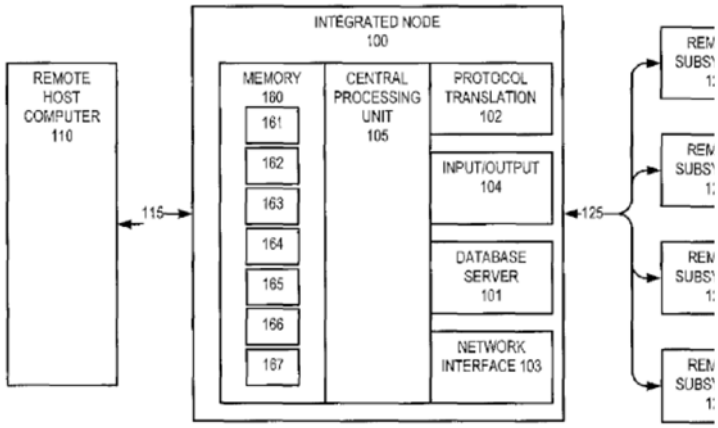
	protocols different from the first protocol, each translated command being translated into a protocol among the plurality of protocols suitable for a fluid-handling device to which the respective command is directed, the at least some of the translated command being operative to cause a local controller of the given fluid- handling device to drive the given fluid-handling device to the plurality of different target states, the local controller being responsive to the translated commands and feedback from the given fluid-handling device indicative of whether the given fluid-handling device is in a targeted state; and	plurality of messaging protocols, as demonstrated with reference to the arrows connecting protocol translator or translation server 102 and the plurality of remote subsystems 120. 14:10-17, FIG. 1B; 11:35-41. Almadi discloses that the protocol translator or translation server 102 can be configured by a user to support communications according to various protocols, including serial and Ethernet physical interfaces, Serial Modbus, Modbus over IP (Internet Protocol), Highway Addressable Remote Transducer (HART) Protocol, Foundation Fieldbus, Distributed Network Protocol (DNP), IEC 61850, ISA100.11a, Wireless HART, ZigBee, and Ethernet/IP (Ethernet Industrial Protocol), including supporting subsystems data exchange. 14:17-28; FIG. 2D.  ***FIG. 2D*** Almadi discloses translated commands used by the local controller to drive the fluid handling device to a particular target state: “field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps.” 1:45-49, 12:27-59; 25:26-37 (“switching a pump off if the flow is below certain limit or activating some bounds or streams based on some readings/conditions”). A POSITA would understand that the use of different protocols by the protocol translator requires that the protocols must be translated as claimed in the ‘909

		Patent. Thus, Almadi discloses translating the plurality of commands into translated commands encoded in a plurality of protocols different from the first protocol.
	[1j] sending the translated commands to respective local controllers of the respective fluid-handling devices to which the respective commands are directed.	Almadi discloses that integrated node 100 can further include a protocol translator or translation server 102 to translate communications with each of the remote subsystems 120 according to any one or more of a plurality of messaging protocols. 14:10-17, FIG. 1B; 11:35-41. Almadi discloses sending translated commands to the local controller to drive the fluid handling device to a particular target state: "field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps." 1:45-49; 12:27-59; 25:26-37 ("switching a pump off if the flow is below certain limit or activating some bounds or streams based on some readings/conditions"). A POSITA would understand that integrated node 100 translating communications with each of the remote subsystems 120 requires sending the translated commands as claimed in the '909 Patent. Thus, Almadi discloses sending the translated commands to respective local controllers of the respective fluid-handling devices. Almadi, therefore, anticipates, or renders obvious to a POSITA Claim 1.
5.	The system of Claim 3, wherein the request is a request to view alarms issued by a fluid-handling device among the plurality of fluid handling devices, and wherein the retrieved data comprises data indicative of the alarms.	Claim 3 recites the system of Claim 2, comprising the remote data store and a web-server, wherein the web-server is operative to perform steps comprising: receiving, from a user device, a password corresponding to a selected one of the user accounts; receiving, from the user device, a request for a data indicative of the operation of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station coupled to the fluid-handling device of the selected one of the user accounts; retrieving, from the data store, data responsive to the request from the user device; and sending, to the user device, the retrieved data for presentation to the user. Claim 2 recites the system of Claim 1, wherein the memory also stores instructions that when executed by the processors cause the processors to effectuate steps comprising: receiving,

		from the fluid-handling device, sensor data indicative of the operation of the fluid-handling device obtained by sensors of the fluid- handling device; and sending, to a remote data store, the received sensor data. Almadi discloses that integrated node 100 may be accessed by a user through a computer terminal having one or more input devices and one or more display devices that are accessible to a human user (not pictured) or, for example, by using the remote host computer 110. 12:10-15. Almadi discloses that the integrated node 100 collects data from remote subsystems 120. 11:51-55; 13:47-14:9. Almadi discloses that field devices perform sensor functions to collect data such as temperature, pressure, pH, or flow rate and deliver that information to the system-level controller devices. communicate or report 812 an alarm to the integrated node. 17:1-28. Almadi discloses that the reporting of an exception alarm includes data transmissions through input/output unit 104 and network interface 103 and in communication with the remote host computer 110. *Id*. Almadi discloses that the remote host can then execute instructions responsive to the alarm, for example, to relay or present the alarm to a human user or to cause the remote host to issue a command to the integrated node in response to the alarm. 5:33-36. Almadi discloses a system intended to serve in various networking operating environments, including, for example, intelligent field for oil and gas, substations/power grid, and remote security, and can be utilized and can be extended for enterprise applications12:48-59, 13:20-25. A POSITA would understand that Almadi requires users of such systems would be required to input a username and password for accessing the remote host computer. Almadi, therefore, anticipates, or renders obvious to a POSITA Claim 5 through its disclosure of exemption and alarm reporting. *Id.*
6.	The system of Claim 3, wherein the retrieved data comprises messages provided to the web server	Claim 6 depends from independent Claim 1, and dependent Claims 2 and 3. Almadi discloses Claim 1-3 for the reasons discussed above for Claim 5 and incorporated herein.

	regarding attempts to address the alarms.	Claim 6 discloses the system of claim 3, wherein the retrieved data comprises messages provided to the web-server regarding attempts to address the alarms. Almadi discloses that the remote host can then execute instructions responsive to the alarm, for example, to relay or present the alarm to a human user or to cause the remote host to issue a command to the integrated node in response to the alarm, which the integrated node may later receive and process to thereby affect the operation of the integrated node or any remote subsystem. 5:21-39. Almadi, therefore, anticipates, or renders obvious to a POSITA Claim 6.
9.	The system of claim 1, comprising a remote terminal unit through which the one or more processes communicate with a fluid-handling device among the plurality of fluid-handling devices, wherein translating the received commands comprises: identifying an address on a serial bus corresponding to a component of the fluid-handling device responsive to the received command; identifying a command code operative to cause the component to execute the received command; and sending to the address on the serial bus the command code.	Almadi discloses identifying an address on a serial bus corresponding to a component of the fluid-handling device responsive to the received command through its disclosure that the protocol translator or translation server 102 can be configured by a user to support communications according to various protocols, including serial and Ethernet physical interfaces, for example, Serial Modbus. 14:17-28; FIG. 2D. Similarly, Almadi discloses identifying a command code operative to cause the component to execute the received command through its disclosure that the protocol translator or translation server 102 can be configured by a user to support communications according to the Serial Modbus protocol. 14:17-28; FIG. 2D. Finally, Almadi discloses sending to the address on the serial bus the command code that the input/output unit 104 provides both serial and Ethernet interfaces over communication links 115 and 125, which can be any type of serial or Ethernet links. 13:47-14:9. A POSITA would understand from the above disclosure that Almadi discloses identifying an address on a serial bus such as a Serial Modbus, identifying a command code operative to cause the component to execute the received command using the protocol translator or translation server 102, and sending to the address on the serial bus such as the command code that the

		input/output unit 104 provides both serial and Ethernet interfaces communication links 115 and 125. Almadi, therefore, anticipates, or renders obvious to a POSITA Claim 9.
10.	The system of claim 1, comprising a digital-to-analog converter, wherein a fluid-handling device among the plurality of fluid-handling devices comprises a valve responsive to an output signal of the digital-to-analog converter, and wherein translating the received commands comprises changing an output signal of the digital-to-analog converter responsive to a received command among the plurality of received commands.	Almadi discloses that the input/output unit 104 can support, for example, any analog inputs, analog outputs, digital inputs, digital outputs, pulse inputs, and pulse outputs for both wired and wireless instrumentation interfaces (analog, digital, and wireless ISA 100.11a/WHART/Zigbee). 13:64-14:9. A POSITA would understand that analog and digital inputs and outputs disclosed in Almadi are the changing of an output signal of the digital-to-analog converter responsive to a received command among the plurality of received commands of claim 10. Almadi, therefore, anticipates, or renders obvious to a POSITA Claim 10.
11.	The system of claim 1, wherein receiving the commands comprises receiving the commands via a first network socket, and wherein sending the translated command comprises sending at least some of the translated commands via a second network socket.	Almadi discloses that the input/output unit 104 provides both serial and Ethernet interfaces over communication links 115 and 125, which can be any type of serial or Ethernet links. 13:47-14:9. Almadi also discloses that "[t]he integrated node 100 includes a protocol translator or translation server 102." 11:35-36. Thus, Almadi discloses receiving commands via a first network socket (115) and sending the translated command via a second network socket (125):

		 FIG. 1A Therefore, a POSITA would understand that receiving the commands via a serial interface is done via a first network socket, and sending the translated command using an Ethernet interface is done via a second network socket. Almadi, therefore, anticipates, or renders obvious to a POSITA Claim 11.
14.	The system of Claim 1, comprising one of the following coupled to the fluid-handling devices: an oil well, a saltwater disposal well, a carbon-capture well, or a pump station.	Almadi discloses that the present invention can serve different networking operating environments, including, for example, intelligent field for oil and gas 11:18-12:59 (emphasis added); Abstract; 1:18-22, 1:28-35. Almadi, therefore, anticipates, or renders obvious to a POSITA Claim 14.
15.	The system of claim 1, wherein a fluid-handling device among the plurality of fluid handling devices comprises a separation unit configured to separate oil from water, and wherein the command comprises a command operative to change a level of the separation unit at which oil meets water.	Almadi teaches a configuration interface to identify process streams between plants and different numbers and types of process units, such as tanks, crude switches, and other process units that will be known to those having skill in the art. 23:51-24:53. For comparison, the '909 Patent broadly recites that "the fluid-handling devices may be a valve, a pump, a process chamber (for instance an oil/water separation tank)." at 5:30-34. A POSITA would understand that a process chamber as recited in the '909 Patent is the same as the "process unit" disclosed by Almadi. A POSITA would recognize an oil/water separation tank as a standard process unit/chamber in oil processing streams. *Id.*

		Almadi's configuration interface includes methods such as balance calculations for inputs, outputs, and inventories of receipts, charges, processing, intermediate products, and final products. 24:4-26:19. A POSITA would understand that the balancing calculations and inventory at industrial plants include process streams at plants for oil and water separation units that adjust the level of water in a tank to change the interface level to remove oil through valves placed above the water level. Almadi, therefore, anticipates, or renders obvious to a POSITA Claim 15.
16.	The system of claim 15, wherein the separation unit comprises a pump having a variable-frequency drive, and wherein the local controller is operative to adjust a frequency of the variable frequency drive until the level of the separation unit reaches a target level corresponding to the target state.	Almadi teaches predefined rules and conditions 712, for example, switching a pump off if the flow is below a certain limit or activating some bounds or streams based on some readings/conditions. 25:26-26:19. A POSITA would understand that switching off a pump and activating some bounds, such as adjusting a frequency in a variable drive motor, based on readings and conditions to reach a target level, at least in part because this approach would decrease the risk of spilling oil or waste products. Almadi, therefore, anticipates, or renders obvious to a POSITA Claim 16.
18.	The system of claim 1, wherein the system is operative to exercise two layers of control, the two layers of control including: a first layer of control in which targeted states of the fluid handling devices are determined by a respective site master controller in response to some of the received commands; and a second layer of control in which, for each targeted state specified by the first layer of control, the respective fluid-handling	Almadi discloses that field devices in use prior to the date of invention monitored and collected data, such as measurements of fluid pressure, temperature, or flow, reflective of the operations of the automated process. 1:28-57. Almadi further discloses that modern field devices may be termed as "intelligent field devices" were in use prior to the date of invention, and that they incorporated more robust functionality, such as the ability to process data, self-monitor, self-regulate, self-calibrate, or provide early warning with respect to malfunctions or predictive maintenance. 1:18-57. Such "self-monitor" functions reflect the use of feedback control. Almadi discloses that remote subsystems 120 can include a variety of intelligent field systems. *See generally*, 12:27-59.

	device exercises feedback control to drive the respective fluid-handling device to the respective targeted state.	A POSITA would understand Almadi's disclosure of monitoring and collecting data, such as measurements of fluid pressure, temperature, or flow determines a plurality of different target states of a given one of the fluid-handling devices over time as claimed in the '909 Patent. Almadi further discloses driving the fluid handling device to a particular target state: "field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps." 1:45-49, 12:27-59; 25:26-37 ("switching a pump off if the flow is below certain limit or activating some bounds or streams based on some readings/conditions"). Almadi, therefore, discloses exercising two layers of control to drive the respective fluid-handling device to the respective targeted state, and therefore anticipates, or renders obvious to a POSITA Claim 18.
19.	The system of Claim 1, wherein the system is operative to provide web-based control and monitoring of oil and gas wells to multiple account holders corresponding to the user accounts.	Almadi discloses that the present invention can serve different networking operating environments, including, for example, intelligent field for oil and gas, substations/power grids, and remote security, and can be utilized and can be extended for enterprise applications. 11:18-12:59; Abstract; 1:18-22, 1:28-35. Almadi discloses that wherein the plurality of remote subsystems includes one or more intelligent field systems selected from the following: permanent downhole monitoring (PDHM) systems, electrical submersible pump (ESP) systems, smart well completion (SWC) systems, and flow meter systems. 12:27-59. A POSITA would understand that Almadi discloses each set of facilities being operated by a different entity corresponding to the respective user account of the '909 Patent through its disclosure of multiple different network operating environments and remote subsystem applications, applicable to different entities each having a respective user account. Almadi, therefore, discloses multiple account holders, and therefore anticipates, or renders obvious to a POSITA Claim 19.

20.	[20a] A tangible, non-transitory machine-readable medium storing instructions that when executed by a data processing apparatus cause the data processing apparatus to perform operations comprising:	To the extent that the preamble is found to be limiting, Almadi discloses a system for remotely controlling a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station. Abstract; 1:18-22, 1:28-35. It includes machines, computer-readable media having computer programs or computer program products stored thereon, and computer-implemented methods to provide an integrated node for data acquisition from process automation remote subsystems. Abstract, 11:18- 12:26. Almadi discloses Claim 20[a]-[d] for the reasons discussed above for Claim elements 1[g]-[j] and incorporated herein. Therefore, a POSITA would understand that Almadi discloses a tangible, non- transitory machine-readable medium storing instructions that when executed by a data processing apparatus cause the data processing apparatus to perform operations. Almadi, therefore, anticipates, or renders obvious to a POSITA Claim 20.
	[20b] receiving, via a network interface, from a remote user device, a plurality of commands to control a plurality of different fluid-handling devices, each of the plurality of commands being directed to a different one of the plurality of fluid-handling devices, and the plurality of commands being encoded in a first protocol;	
	[20c] determining a plurality of different target states of the fluid-handling devices over time such that control of the fluid handling devices is maintained in the absence of a network connection with the remote user device;	
	[20d] translating the plurality of commands into a plurality of translated commands operative to cause local controllers of the fluid-handling devices to drive the respective fluid-handling devices to different target states among the plurality of different target states, the plurality of translated commands including	

	translated commands encoded in a plurality of different protocols, and the local controllers being responsive to the translated commands and feedback from a corresponding fluid-handling device among the plurality of different fluid handling devices, the feedback being indicative of whether the corresponding fluid-handling device is in a targeted state; and	
	[20e] sending the translated commands to the local controllers.	
21.	[21a] A method, comprising:	Almadi discloses a method. (Abstract) and discloses Claim 21[a]-[d] for the reasons discussed above for Claim elements 1[g]-[j] and incorporated herein. Almadi, therefore, discloses a method, and anticipates, or renders obvious to a POSITA Claim 21.
	[21b] receiving, via a network interface, from a remote user device, a plurality of commands to control fluid-handling devices, the plurality of commands being encoded in a shared protocol;	
	[21c] determining a plurality of different target states of the fluid-handling devices over time such that control of the fluid handling devices is maintained;	
	[21d] translating the commands into translated commands encoded in a plurality of different protocols different from the shared protocol, each translated command being encoded in a protocol among the plurality of different protocols suitable for a fluid-handling device	

	to which the respective command is directed, the translated commands being operative to cause local controllers of the fluid-handling devices to drive a respective fluid-handling device different target states among the plurality of different target states, the local controllers being responsive to the translated commands directed to their respective fluid-handling device and feedback from the respective fluid-handling device indicative of whether the respective fluid-handling device is in a targeted state; and	
	[21e] sending the translated commands to the local controllers.	

Exhibit A-3

Invalidity Claim Chart for U.S. Patent No. 8,649,909 ("the 909 patent")

In view of

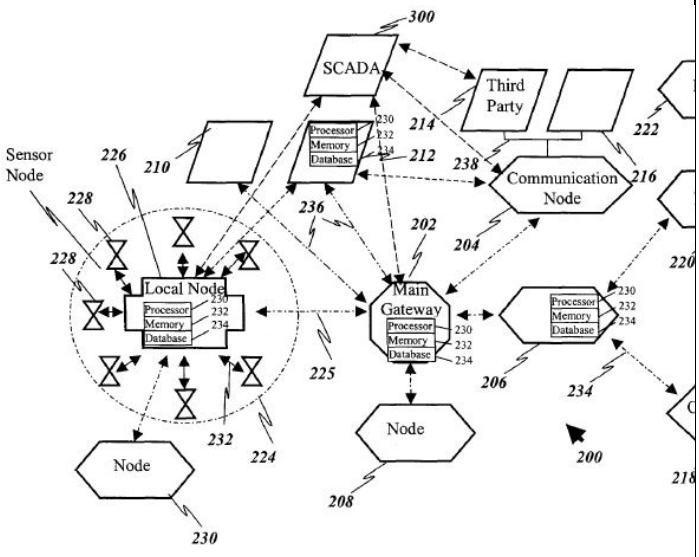
US 2008/0316048 ("Abdallah")

The asserted claims of '909 patent are anticipated and/or rendered obvious by Abdallah as identified in Defendant Preliminary Invalidity Contentions.

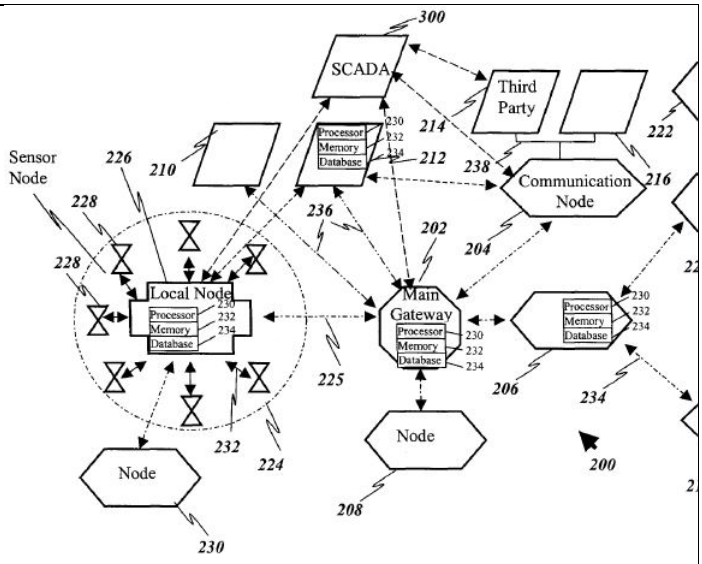
U.S. Patent No. 2008/0316048 ("Abdallah") was filed on March 26, 2008, published on December 25, 2008. Abdallah is prior art under at least 35 U.S.C. 102(a).

The citations to portions of any reference in this chart are exemplary only. Defendant will rely on the entirety of the reference cited in this chart, as well as any additional materials relevant to the reference identified through their ongoing investigation, to show that the asserted claims are invalid.

Claim#	Claim Language	Abdallah
1.	[1.p] A system for remotely controlling a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station, the system comprising	To the extent that the preamble is found to be limiting, Abdallah discloses a system for remotely controlling a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station, in that it relates to the control of, and acquisition of data from, remote and in-plant subsystems in automated industrial processes ¶0006. Abdallah specifically discloses that a well site 100 may be provided with several monitoring and control devices for remote operations at the site. ¶¶0051-55. A POSITA would recognize that the system disclosed by Abdallah remotely monitors and controls a fluid handling device pump at oil wells, water disposal sites, re-injection facilities, or petroleum pumping stations. Therefore, Abdallah discloses a system for remotely controlling a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station.
	[1a] a command-center server having a data store storing multiple user accounts, each user	Abdallah discloses a command center server as its central communication gateway 202 that connects the remote system's sensor and control nodes through network 200. ¶0056; ¶0055. Abdallah

	account corresponding to a set of one or more oil wells, petro water disposal or re- injection facilities, or petroleum pumping stations, or a combination thereof, each set being operated by a different entity corresponding to the respective user account; and	discloses central communication gateway 202 is a data store server because each includes a processor, memory, and database. FIG. 2. Abdallah discloses that the remote nodes provide sensor data and control access to well-site equipment, such as pumps, valves, and tanks. ¶¶0049-0059. Abdallah discloses that multiple accounts, i.e. well sites, may be connected to the gateways. ¶206 ("Multiple well sites may be monitored using more local gateways"). A POSITA would understand that Abdallah discloses the command-center server of the '909 Patent through its disclosure of the central communication device gateway. Thus, Abdallah discloses the recited command center server.
	[1b] a plurality of geographically distributed site master controllers, each site master controller corresponding to a respective one of the oil wells, petro water disposal or re- injection facilities, or petroleum pumping stations, each site master controller comprising:	Abdallah discloses that the remote nodes provide sensor data and control access to well-site equipment, such as pumps, valves, and tanks. ¶¶0049-0059. More specifically, Abdallah discloses that central communication gateway 202 connects to the remote system's local nodes that connect to well-site equipment. *Id.*, ¶¶0055-0056, 0058, FIG. 2.  ***FIG. 2*** A POSITA would understand that Abdallah discloses a plurality of geographically distributed site master controllers where the site master controller corresponds to an oil well, petro water

		disposal or re-injection facilities, or petroleum pumping station of the '909 Patent through its disclosure of well site sensor nodes. Thus, Abdallah discloses a plurality of geographically distributed site master controllers.
	[1c] a communication module operable to communicate with a plurality of fluid-handling devices;	Abdallah discloses that the well site nodes have "output control interfaces coupled to well site tools such as valves 128, 138 for controlling at least some operations at the well site." ¶0051; ¶¶0035-36. A POSITA would understand that Abdallah discloses the communication module operable to communicate with the fluid handling device of the '909 Patent through its disclosure of output control interfaces that couple to well-site tools. Thus, Abdallah discloses a communication module.
	[1d] a network interface;	Abdallah discloses communication among the nodes forming the network 200 as well as between the nodes and third-party devices to share information and receive commands from users. ¶¶0055-56, 0058 (wired or wireless examples), 0060 (wired or wireless, short range or long range, and a mix of different methodologies disclosed including short-range wireless UCMP, long range wireless UCMP short-range Modbus and long-range wireless Modbus). A POSITA would understand that Abdallah discloses the network interface of the '909 Patent through its disclosure of various wired or wireless interfaces. Thus, Abdallah discloses a network interface.
	[1e] memory; and	Abdallah discloses that both local and main gateway nodes in the network include processor, memory, and database. ¶0056, FIG. 2.

		 *FIG. 2* A POSITA would understand that Abdallah discloses the recited memory of the '909 Patent through its disclosure of memory in each node. Thus, Abdallah discloses a memory.
	[1f] one or more processors communicatively coupled to the communication module, the network interface, and the memory, wherein the memory stores instructions that when executed by the processors cause the processors to effectuate steps comprising:	Abdallah discloses that both local and main gateway nodes in the network include processor, memory, database, and network connection. ¶0051- 0056, FIG. 2. Abdallah discloses that monitoring devices are strategically located at several locations of the well site 100 to monitor parameters relating to the produced products and/or well site tools. ¶0051. The sensors include monitoring downhole and surface parameters of a well site, with a wide range of listed functionalities. ¶¶0053-0054, 0059. Abdallah further discloses that the well site monitoring devices include nodes with "output control interfaces coupled to well site tools such as valves 128, 138 for controlling at least some operations at the well site." ¶0051; ¶¶0035-36, FIG. 2. A POSITA would understand that Abdallah discloses the recited processor of the '909 Patent through its disclosure of processors in the local node, coupled to the well site monitoring device. A POSITA would understand that Abdallah discloses the recited instructions stored in memory

		of the '909 Patent through its disclosure of sensor nodes with output control interfaces coupled to the well site monitoring device, which receive commands over the network. *Id.* Thus, Abdallah discloses one or more processors coupled to the communication module network, interface, and memory-storing instructions for the site controller.
	[1g] receiving, via the network interface, from the command-center server, a plurality of commands encoded in a first protocol to control the fluid-handling devices from a user corresponding to one of the user accounts, different commands among the plurality of commands being directed to different fluid handling devices among the plurality of fluid-handling devices;	Abdallah discloses that the central gateway 202 is in communication with the sensor nodes. ¶0058. Abdallah further discloses that the monitoring network establishes "two-way communication with every node, including every remote node and every gateway node in the network." ¶0056. Abdallah also discloses that every node and gateway in the system are "individually addressable and can be in direct communication with each other and a third party communication device, such as a SCADA system through a mesh network." *Id*. A POSITA would understand that Abdallah discloses the recited receiving commands from the command center server encoded in a first protocol, a computer networking protocol, to control specific fluid handling devices of the '909 Patent through its disclosure of networked individually addressable nodes for controlling operation of well site components. Thus, Abdallah discloses receiving, via the network interface, from the command-center server, a plurality of commands encoded in a first protocol to control the fluid-handling devices from a user corresponding to one of the user accounts.
	[1h] for at least some of the plurality of commands, determining a plurality of different target states of a given one of the fluid-handling devices over time, wherein the respective site-master controller is operative to maintain control of the fluid handling devices in the absence of a network	Abdallah discloses monitoring devices strategically located at several locations of the well site 100 to monitor parameters relating to the produced products and/or well site tools. ¶0051. The sensors include monitoring downhole and surface parameters of a well site, with a wide range of listed functionalities. ¶¶0053-0054, 0059. Abdallah further discloses the well site monitoring devices include nodes with "output control interfaces coupled to well site tools such as valves 128, 138 for controlling at least some operations at the well site." ¶0051; ¶¶0035-36, FIG. 2.

	connection to the command-center server;	Abdallah discloses determining different target states, including selecting a real-time transmission mode when an input signal change rate is less than a predetermined value and selecting a buffered data transmission mode when the signal change rate is greater than or equal to the predetermined value; and transmitting the data in the selected transmission mode from a wireless oil field environment. ¶0010, ¶0045, 0047. A POSITA would understand that the number of parameters corresponds to a plurality of different target states. A POSITA would further understand that the "sensing a signal change rate for an input signal from an oil field apparatus; selecting a real-time transmission mode when the signal change rate is less than a predetermined value" described in Abdallah determines a plurality of different target states of a given one of the fluid-handling devices over time in the absence of a network connection to the command-center server. *Id.* Thus, Abdallah discloses determining a plurality of different target states of a given one of the fluid- handling devices over time. Abdallah also discloses that every node and gateway in the system are "individually addressable and can be in direct communication with each other and a third party communication device, such as a SCADA system through a mesh network." ¶0056. A POSITA would understand that the local node controller controlling at least some operations at an individually addressable well site requires determining from a set of target states parameters that are used to control the operations at the well site without active communications with the command server. Thus, Abdallah discloses determining a plurality of different target states of a given one of the fluid-handling devices over time, where the local node device is operative to maintain control in the absence of a network connection to the central communication device gateway.

	[1i] translating the plurality of commands into translated commands encoded in a plurality of protocols different from the first protocol, each translated command being translated into a protocol among the plurality of protocols suitable for a fluid-handling device to which the respective command is directed, the at least some of the translated command being operative to cause a local controller of the given fluid- handling device to drive the given fluid-handling device to the plurality of different target states, the local controller being responsive to the translated commands and feedback from the given fluid-handling device indicative of whether the given fluid-handling device is in a targeted state; and	Abdallah discloses the translating of the plurality of commands into translated commands encoded in a plurality of protocols different from the first protocol of the '909 Patent. The claimed device in Abdallah is "configured as a protocol translator to change the received information from the first communication protocol to the second communication protocol." Abstract, ¶¶0008-0009 ("translating the received data from the first communication protocol to a second communication protocol"); Claim 12. For example, Abdallah discloses FIG. 3 is a non-limiting example of anode gateway 300. ¶0051. The gateway 300 communicates with other nodes and devices as described above and shown in FIG. 2 using one or more protocols. ¶0097. Abdallah discloses Modbus RTU serial protocol, SNMP, Modbus Universal Plug and Play, as well as other proprietary protocols. *Id.*; FIG. 6, ¶¶0098 ("the gateway 300 may further include a protocol translator 306"); 0209. Abdallah further discloses in Figure 6 that the node sends a response related to the command back to the user. FIG. 6; ¶¶107, 209.

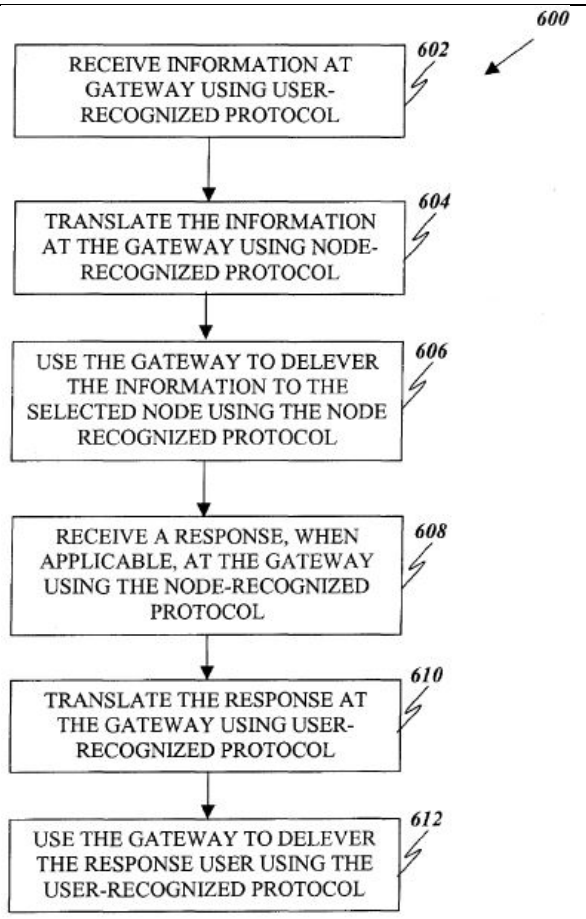


FIG. 6

A POSITA would understand that Abdallah discloses the local controller being responsive to the translated commands and providing feedback from the fluid- handling device indicative of whether the given fluid-handling device is in a targeted state.

Abdallah discloses Figures 7 and 8 show illustrative data structures used for data communication and protocol translation in different particular illustrative embodiments. ¶0102; FIG. 7; FIG. 8;

A POSITA would understand that the use of different protocols by the gateway 300 to communicate with other nodes and devices requires the protocols must be translated for communication between the nodes and disparate devices. Thus, Abdallah discloses translating the plurality of commands into translated commands encoded in a

		plurality of protocols different from the first protocol.
	[1j] sending the translated commands to respective local controllers of the respective fluid-handling devices to which the respective commands are directed.	Abdallah discloses that the translated commands described in Element 1[i] above are sent to the fluid handling device. *See, e.g.*, ¶¶0008-0009 ("translating the received data from the first communication protocol to a second communication protocol"); Claim 12. Abdallah discloses that the signal transmission functionality circuit 312 may be coupled to the controller 302 and the communication interface 310 via a radio transceiver 318. ¶0098; ¶0097. FIG. 6. of Abdallah further discloses that the gateway is used to deliver the translated responses using the user-recognized protocol. ¶0209; FIG. 6.

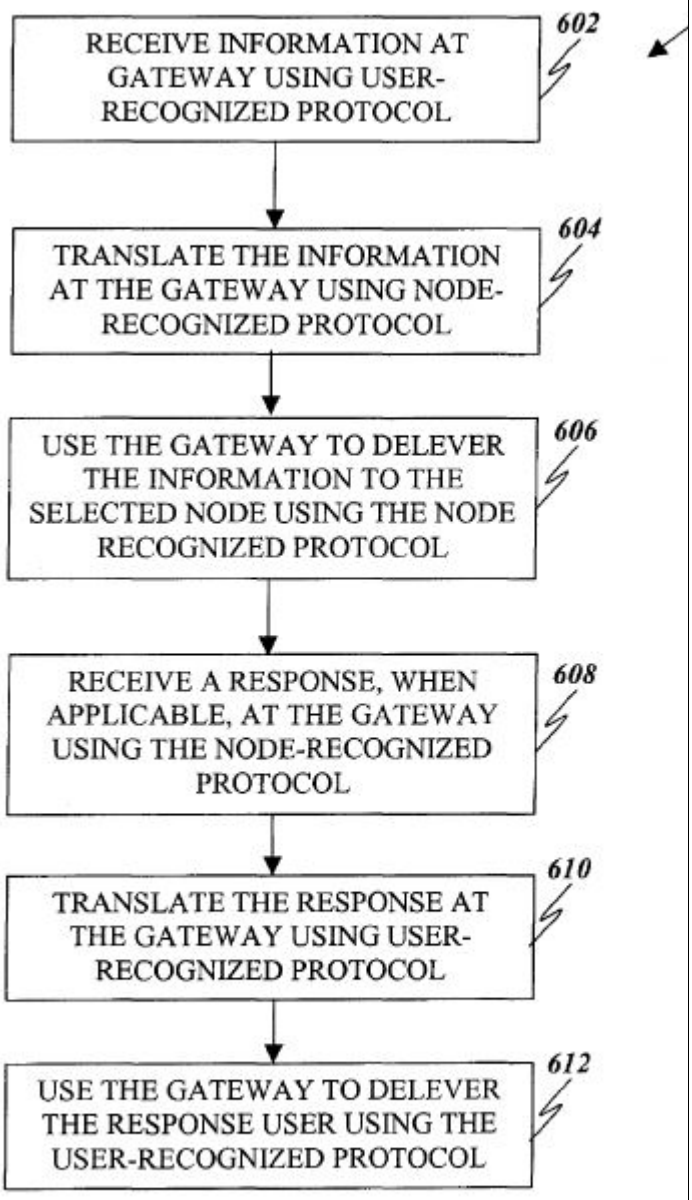
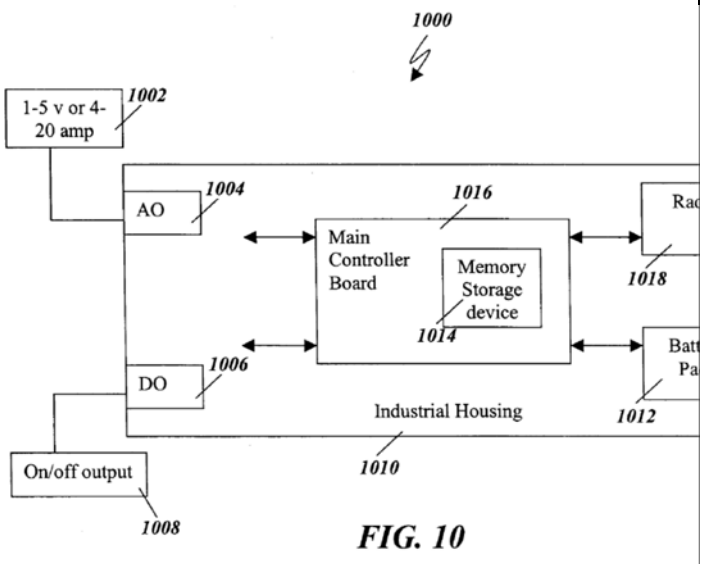


FIG. 6

A POSITA would understand that Abdallah discloses sending the translated commands to respective local controllers for fluid handling devices. Thus, Abdallah discloses sending the translated commands to respective local controllers of the respective fluid-handling devices.

Abdallah, therefore, anticipates, or renders obvious to a POSITA Claim 1.

9.	The system of claim 1, comprising a remote terminal unit through which the one or more processes communicate with a fluid-handling device among the plurality of fluid-handling devices, wherein translating the received commands comprises: identifying an address on a serial bus corresponding to a component of the fluid-handling device responsive to the received command; identifying a command code operative to cause the component to execute the received command; and sending to the address on the serial bus the command code.	Abdallah discloses that monitoring devices are strategically located at several locations of the well site 100 to monitor parameters relating to the produced products and/or well site tools. ¶0051. Abdallah further discloses that the well site monitoring devices include nodes with "output control interfaces coupled to well site tools such as valves 128, 138 for controlling at least some operations at the well site." ¶0051, ¶¶0035-36, FIG. 2. Abdallah further discloses "a user or SCADA system in one example uses serial Modbus protocol to send commands to the gateway 300 or to any number of remote nodes via the gateway 300 using a single communication path. The Modbus command has a byte ID signifying the destination of the node that is to respond to this command. The Modbus protocol imbedded in the controller includes instructions to operate as a router. When the gateway 300 receives a command, the gateway will respond if a command ID matches the gateway 300 ID. Where the command ID does not match the gateway ID, then the gateway protocol will operate to poll connected nodes for a node ID matching the command ID. Matching a command ID to a remote node ID results in the gateway protocol using a routing header to send the command or message to the appropriate node." ¶0105. In addition, Abdallah discloses "sensors in data communication with the first network node wherein the sensors are read and reported based on a command code received at the first network node ... the first network node receives a command code to execute a command selected from the group consisting of change modes, read sensor, report, and reconfigure" ¶0034. Thus, Abdallah discloses the serial Modbus protocol for communicating commands to gateway/nodes using a single communication path. Abdallah further discloses the command code to operate/control the sensors (e.g., change modes, read sensor, report, and reconfigure the sensors). Abdallah, therefore, anticipates, or renders obvious to a POSITA Claim 9.

10.	The system of claim 1, comprising a digital-to-analog converter, wherein a fluid-handling device among the plurality of fluid-handling devices comprises a valve responsive to an output signal of the digital-to-analog converter, and wherein translating the received commands comprises changing an output signal of the digital-to-analog converter responsive to a received command among the plurality of received commands.	Abdallah discloses "In several embodiments, the gateway 500 operates using the processor 502 and instructions in the storage medium 504 for communication with sensor nodes 514." ¶0197. Abdallah further discloses "Any or all of these sensors may be analog or digital sensors. In the case of analog sensors, analog to digital converters may be employed at the well site or at the sensor location to aide in the transmission and processing of information obtained by the sensors." ¶0054. Abdallah's monitoring devices may be used in conjunction with interfaces to control valves. *Id*. at ¶0051. Abdallah discloses commands sent in analog format. and also discloses an analog output "AO" device. *Id*. at ¶¶0028, 0211.  *FIG. 10* Abdallah, therefore, anticipates, or renders obvious to a POSITA Claim 10.
11.	The system of claim 1, wherein receiving the commands comprises receiving the commands via a first network socket, and wherein sending the translated command comprises sending at least some of the translated commands via a second network socket.	Abdallah discloses receiving commands via a first network socket, translating the command, and sending a translated command via a second network socket. ¶0032. Abdallah, therefore, anticipates, or renders obvious to a POSITA Claim 11.

20.	[20a] A tangible, non-transitory machine-readable medium storing instructions that when executed by a data processing apparatus cause the data processing apparatus to perform operations comprising:	To the extent that the preamble is found to be limiting, Abdallah discloses a system for remotely controlling a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station. It includes logic, software or software-implemented aspects typically encoded on a variety of computer-readable media including, but not limited to, computer-readable media, machine-readable media, program storage media or computer program product. *See, e.g.*, ¶¶0027, 0051, 0098. Such media may be handled, read, sensed, and/or interpreted by a computer. ¶0027. Abdallah discloses Claim 20[a]-[d] for the reasons discussed above for Claim elements 1[g]-[j], and incorporated herein. Abdallah, therefore, anticipates, or renders obvious to a POSITA Claim 20.
	[20b] receiving, via a network interface, from a remote user device, a plurality of commands to control a plurality of different fluid-handling devices, each of the plurality of commands being directed to a different one of the plurality of fluid-handling devices, and the plurality of commands being encoded in a first protocol;	
	[20c] determining a plurality of different target states of the fluid-handling devices over time such that control of the fluid handling devices is maintained in the absence of a network connection with the remote user device;	
	[20d] translating the plurality of commands into a plurality of translated commands operative to cause local controllers of the fluid-handling devices to drive the respective fluid-handling devices to different target states among the plurality of different target states, the plurality of translated commands including	

	translated commands encoded in a plurality of different protocols, and the local controllers being responsive to the translated commands and feedback from a corresponding fluid-handling device among the plurality of different fluid handling devices, the feedback being indicative of whether the corresponding fluid-handling device is in a targeted state; and	
	[20e] sending the translated commands to the local controllers.	
21.	[21a] A method, comprising:	To the extent that the preamble is found to be limiting, Abdallah discloses a method. *See, e.g.*, Abstract. Abdallah discloses Claim 21[a]-[d] for the reasons discussed above for Claim elements 1[g]-[j], and incorporated herein. Therefore, a POSITA would understand that Abdallah discloses a method, and all claim elements, and therefore, anticipates, or renders obvious to a POSITA Claim 21.
	[21b] receiving, via a network interface, from a remote user device, a plurality of commands to control fluid-handling devices, the plurality of commands being encoded in a shared protocol;	
	[21c] determining a plurality of different target states of the fluid-handling devices over time such that control of the fluid handling devices is maintained;	
	[21d] translating the commands into translated commands encoded in a plurality of different protocols different from the shared protocol, each translated command being encoded in a protocol among the plurality of different protocols suitable for a fluid-handling device	

	to which the respective command is directed, the translated commands being operative to cause local controllers of the fluid-handling devices to drive a respective fluid-handling device different target states among the plurality of different target states, the local controllers being responsive to the translated commands directed to their respective fluid-handling device and feedback from the respective fluid-handling device indicative of whether the respective fluid-handling device is in a targeted state; and	
	[21e] sending the translated commands to the local controllers.	

Exhibit A-4

Invalidity Claim Chart for U.S. Patent No. 8,649,909 ("the 909 patent")

In view of

US 2015/0308244 ("Cardamone")

Alone or in combination with

64utah-SCADA

Brochure-VTScada-FeaturesByVersion

sys_wht_ppr-2a_new

CR1000 Datalogger – Brochure

TM 5-601 Supervisory Control

The asserted claims of '909 patent are anticipated and/or rendered obvious by Cardamone alone or in combination with 64utah-SCADA, Brochure-VTScada-FeaturesByVersion, scada_sys_wht_ppr-2a_new, CR1000 Datalogger – Brochure, TM 5-601 Supervisory Control as identified in Defendant Preliminary Invalidity Contentions.

U.S. Patent No. 2015/0308244 ("Cardamone") was filed on November 26, 2013, published on October 29, 2015. This application is a National Stage Entry of PCT/US2013/071976, filed on November 26, 2013 that claim priority from a provisional application 61/729,815, filed on November 26, 2012. Cardamone is prior art under at least 35 U.S.C. 102(e).

64utah-SCADA was published in 2012. 64utah-SCADA is prior art under at least 35 U.S.C. 102(a).

Brochure-VTScada-FeaturesByVersion was published in 2016 (continuously updated since 2007). Brochure-VTScada-FeaturesByVersion is prior art under at least 35 U.S.C. 102(a).

scada_sys_wht_ppr-2a_new was published in 2007. scada_sys_wht_ppr-2a_new is prior art under at least 35 U.S.C. 102(a).

CR1000 Datalogger – Brochure was published in June 2004 and 2008. CR1000 Datalogger – Brochure is prior art under at least 35 U.S.C. 102(a).

TM 5-601 Supervisory Control was published on January 21, 2006. TM 5-601 Supervisory Control is prior art under at least 35 U.S.C. 102(a).

The citations to portions of any reference in this chart are exemplary only. Defendant will rely on the entirety of the reference cited in this chart, as well as any additional materials relevant to the reference identified through their ongoing investigation, to show that the asserted claims are invalid.

Claim#	Claim Language	Cardamone, 64utah-SCADA, Brochure-VTScada-FeaturesByVersion, scada_sys_wht_ppr-2a_new, CR1000 Datalogger – Brochure, TM 5-601 Supervisory Control
1.	[1.p] A system for remotely controlling a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station, the system comprising	To the extent that the preamble is found to be limiting, Cardamone discloses a system for remotely controlling a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station. ¶¶0001, 0022; ¶0005 ("downhole pump"). A POSITA would recognize that a downhole pump is used at oil wells, water disposal sites, re-injection facilities, or petroleum pumping stations. Therefore, Cardamone discloses a system for remotely controlling a fluid- handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station. Further 64utah-SCADA discloses a system for remotely controlling a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station. 64utah-SCADA recites, "[t]he systems connect with numerous sensors via a Campbell multiplexer to monitor parameters such as flow and pressure from water sources into tanks, flow and pressure from tanks into the towns, tank level, and flood conditions at the building housing the system. The CR1000 uses a Campbell SDM-CD8S dc device controller to control pumps and valves, with each town controlling the valves to allow or disallow the water flowing to the other." *See* 64utah-Scada (Page 2), Also, 64utah-Scada recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* 64utah-Scada, page 2.

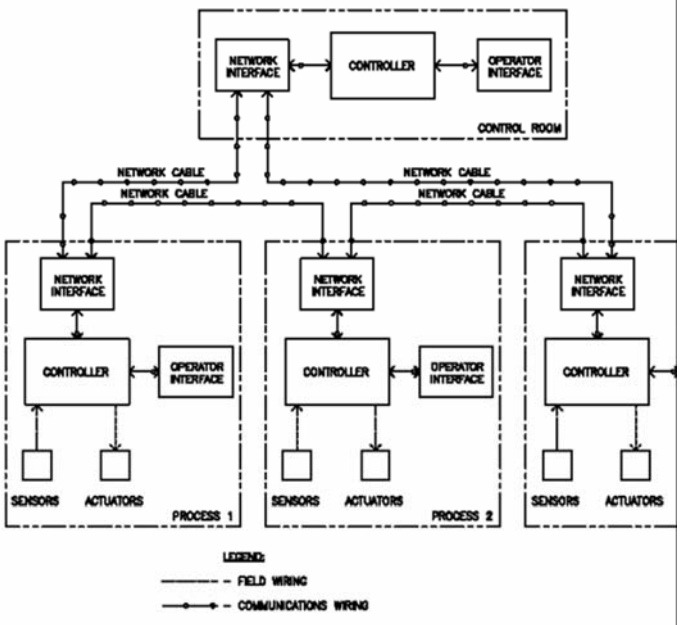
		Further, Brochure-VTScada-FeaturesByVersion discloses a system for remote controlling on field system. Brochure-VTScada-FeaturesByVersion recites, "[t]he simplest way to access your process from smart phones or tablets. This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* Brochure-VTScada-FeaturesByVersion, page 4. Further scada_sys_wht discloses a system for remote controlling. Scada_sys_wht, recites, "[r]emote monitoring and control of oil and gas production, pumping, and storage at refineries from both offshore platforms and onshore wells". *See* page 2. Scada_sys_wht further recites, "The RTU or PLC acquires the site data, which includes meter readings, pressure, voltage, or other equipment status, then performs local control and transfers the data to the central SCADA system."
	[1a] a command-center server having a data store storing multiple user accounts, each user account corresponding to a set of one or more oil wells, petro water disposal or re- injection facilities, or petroleum pumping stations, or a combination thereof, each set being operated by a different entity corresponding to the respective user account; and	Cardamone discloses data server 134, a server computer remote from the oil well. Data server 134 links to control and communication computer 126 through standard wired and wireless communication links. ¶0024. Data server 134 receives sensory data logs from control and communication computer 126 and contains a web server/web application 136 for providing a client interface for viewing the sensory data logs on remote management computer 138. ¶0027. Data server 134 acts as a data storage for sensory data. ¶0027. GUI Computer 130 includes software application 131 to provide an interface for connecting to control and communication computer 126 which presents "a graphical geographical view of known pumps," and provides "basic operation statuses for each of the known pumps," thereby disclosing "multiple user accounts" according to the Claim. ¶0041. Data server 134 provides the functionality of GUI Computer 130, acts as a data storage and backup facility, as well as a mechanism to provide periodic data to control and communications computer 126. ¶0046.

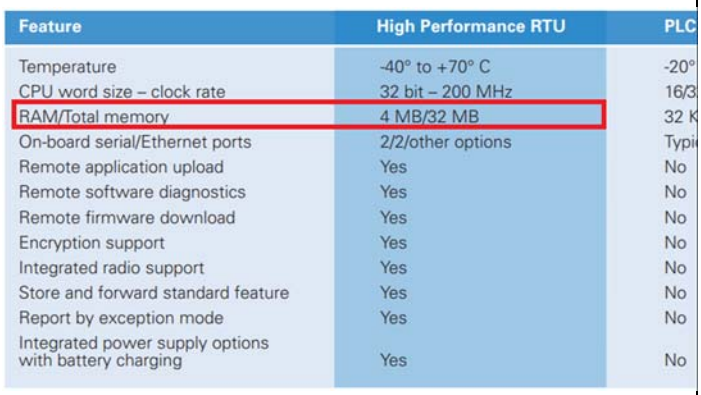
		A POSITA would recognize that Cardamone discloses the command center server with its disclosure of data server 134. ¶¶51-52. Therefore, Cardamone discloses a command-center server having a data store. Further 64utah-SCADA discloses a command center to control the site via user account. 64utah-SCADA recites "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* 64utah-SCADA, page 2. Further, Brochure-VTScada-FeaturesByVersion discloses a command center with multiple user account, Brochure-VTScada-FeaturesByVersion recites, "[t]he simplest way to access your process from smart phones or tablets. This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* Page 4. Further Brochure-VTScada-FeaturesByVersion discloses aspect of authorized user, Brochure-VTScada-FeaturesByVersion recites, "[t]his optional feature, introduced in 10, allows authorized users to see changes made on all servers, roll back to previous versions and merge versions together." "New 'Roles' and 'Rules' allow you to finely tune what users can do and where while reducing configuration time. Rules are combinations of tags and privileges that vastly reduce the number of privileges required. Roles are pre-defined sets of rules that correspond to specific jobs (e.g., plant operator). To reduce duplication and ensure consistency, accounts can now be shared across applications. The security database scheme now employs military-grade encryption as does the security information exchanged between the VTScada Internet Client and Server. Accounts can also now be disabled following repeated failed log-

		in attempts." *See* Brochure-VTScada-FeaturesByVersion page 4. A POSITA would recognize that Brochure-VTScada-FeaturesByVersion has a data store storing multiple account with each account having access to a set of equipment.
	[1b] a plurality of geographically distributed site master controllers, each site master controller corresponding to a respective one of the oil wells, petro water disposal or re- injection facilities, or petroleum pumping stations, each site master controller comprising:	Cardamone discloses control and communication computer 126 arranged at the surface of the deep oil well. ¶0024. Control and communication computer 126 includes data sampling and storage mechanisms for receiving and storing sensory data from both pump system 122 and motor driver 124. *Id*. GUI Computer 130 includes software application 131 to provide an interface for connecting to control and communication computer 126 which presents "a graphical geographical view of known pumps," and provides "basic operation statuses for each of the known pumps," thereby disclosing a plurality of geographically distributed site master controllers according to the Claim. ¶0041. A POSITA would understand that Cardamone discloses the site master controller of the '909 Patent through its disclosure of control and communication computer 126. Thus, Cardamone discloses a plurality of geographically distributed site master controllers. Further 64utah-SCADA discloses a master site controller. 64utah-SCADA recites, "The systems connect with numerous sensors via a Campbell multiplexer to monitor parameters such as flow and pressure from water sources into tanks, flow and pressure from tanks into the towns, tank level… The CR1000 uses a Campbell SDM-CD8S dc device controller to control pumps and valves, with each town controlling the valves to allow or disallow the water flowing to the other." *See* 64Utah-SCADA page 2. Further CR1000 Datalogger – Brochure discloses about a site controller, CR1000 Datalogger – Brochure recites, "[t]he module measures sensors, drives direct communications and telecommunications, reduces data, controls external

		devices, and stores data and programs in on-board, non-volatile storage." *See* page 2. Further TM 5-601 discloses the aspect of a site controller, "[t]he RTUs were developed primarily to provide monitoring and control capability at unattended sites such as substations, metering stations, pump stations, and water towers." *See* page 3-4. Further scada_sys_wht_ppr-2a_new discloses a site controller, scada_sys_wht_ppr-2a_new recites, "RTUs that contain a 200 MHz, 500 Million Instructions per Second (MIPS) CPU with multiple communication port support are optimal for performing simultaneous communications, networking, and control tasks." *See* page 5.
	[1c] a communication module operable to communicate with a plurality of fluid-handling devices;	Cardamone discloses that the control and communication computer system may include "a wifi access port (141), *a* satcom modem or port (143), ... an Ethernet (423) ... or an RS-485 transducer interface (435) for communication." ¶¶0008, 0033-34 (emphasis added). A POSITA would understand that the Wi-Fi access port, satcom modem, ethernet, and RS-485 transducer interface are communication modules. Thus, Cardamone discloses a communication module. Further 64utah-SCADA discloses control and communication with the plurality of fluid handling device. 64utah-SCADA recites, "[t]he systems connect with numerous sensors via a Campbell multiplexer to monitor parameters such as flow and pressure from water sources into tanks, flow and pressure from tanks into the towns, tank level… The CR1000 uses a Campbell SDM-CD8S dc device controller to control pumps and valves, with each town controlling the valves to allow or disallow the water flowing to the other." *See* page 2. Further CR1000 Datalogger – Brochure discloses a control and communication module to communicate with the field device. CR1000 Datalogger – Brochure recites, "[t]he module measures sensors, drives direct communications and telecommunications, reduces data, controls external

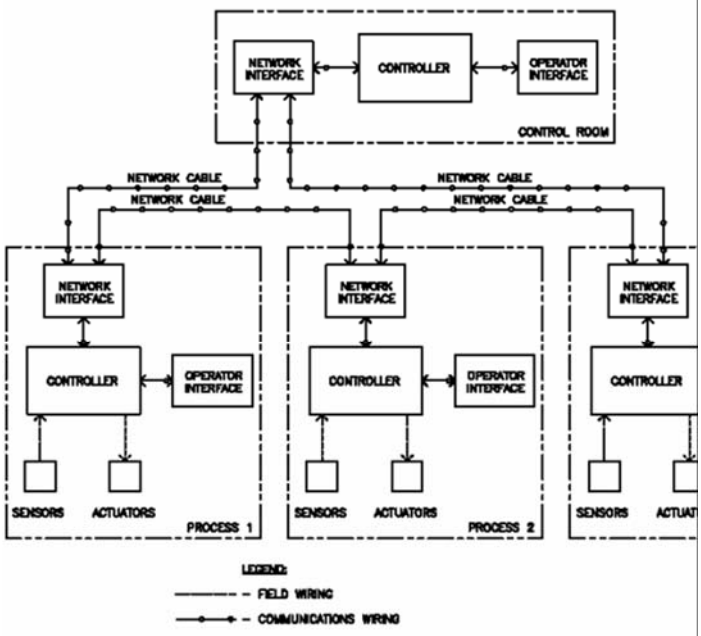
		devices, and stores data and programs in on-board, non-volatile storage… The module can simultaneously provide measurement and communication functions." *See* Page 2. Further scada_sys_wht discloses a communicating module and controlling plurality of fluid-handling devices. Scada_sys_wht recites "Remote monitoring and control of oil and gas production, pumping, and storage at refineries from both offshore platforms and onshore wells", *see also,* "The RTU or PLC acquires the site data, which includes meter readings, pressure, voltage, or other equipment status, then performs local control and transfers the data to the central SCADA system." *See* page 2. Further TM 5-601 discloses a communication module. TM 5-601 recites, "Input/Output (I/O): These modules provide the means of connecting the processor to the field devices." *See* pages 3-5.
	[1d] a network interface;	Cardamone discloses that the control and communication computer system 126 may include a router (419), a switch (421), *a Wi-Fi access port* (141), GSM modem (145), a satcom modem or port (143), and a single-board computer (410). The control computer may include *an Ethernet* (423) for linking each of its components. ¶¶0008, 0033-34 (emphasis added). Cardamone also discloses that data server 134 is connected to network 132 which is linked to control and communication computer 126 through a variety of network communication types, including hardwire connection, or internet connection via wire, Wi-Fi, satellite modem, and/or cellular data connections. ¶0027. A POSITA would understand that the Wi-Fi access port and Ethernet are network interfaces. Thus, Cardamone discloses a network interface. Further 64utah-SCADA discloses a network interface to communicate with server. 64utah-SCADA recites, "LoggerNet and VTScada run on Windows 7 PCs and communicate with the CR1000 master unit over Ethernet connections." *See* page 2.

		Further CR1000 Datalogger – Brochure discloses a network interface, CR1000 Datalogger recites, "The CR1000 supports the PakBus® communication protocol. PakBus networks have the distributed routing intelligence to continually evaluate links." *See* page 3. CR1000 Datalogger – Brochure also recites, "Use of an NL100 or NL115 interface enables the CR1000 to communicate over a local network or a dedicated Internet connection via TCP/IP. The NL115 also supports data storage on a CompactFlash card." *See* page 4. Further scada_sys_wht_ppr-2a_new discloses a network interface. scada_sys_wht_ppr-2a_new recites, "RTUs that contain a 200 MHz, 500 Million Instructions per Second (MIPS) CPU with multiple communication port support are optimal for performing simultaneous communications, networking, and control tasks." *See* page 5. Further TM 5-601, discloses a network interface at the site. TM 5-601 recites, "Input/Output (I/O): These modules provide the means of connecting the processor to the field devices." *See* pages 3-5 (Fig. 3-3).  *Figure 3-3. Distributed control system architecture*

	[1e] memory; and	Cardamone discloses that the control and communication computer 126 includes "a memory (431)" and that it "stores and relays sensory data . . . to data server 134 and/or GUI computer 130." ¶¶0008, 0021. Cardamone further discloses that the control and communication computer 126 includes data storage for storing operational parameters as well as sensory data logs." ¶¶0021, 0024. A POSITA would understand that Cardamone discloses the memory of the '909 Patent. Thus, Cardamone discloses a memory. Further CR1000 Datalogger discloses a memory unit, CR1000 Datalogger recives, "The CR1000 has 2 Mbyte of FLASH memory for the Operating System, and 4 Mbytes of battery-backed SRAM for CPU usage, program storage, and data storage." *See* page 3. Further scada_sys_wht_ppr-2a_new disclose a memory unit. Scada_sys_wht_ppr-2a_new recites, "To perform event data logging, systems require large amounts of available program and or user memory." *See* page 6.  Feature / High Performance RTU / PLC Temperature / -40° to +70° C / -20° CPU word size – clock rate / 32 bit – 200 MHz / 16/3 RAM/Total memory / 4 MB/32 MB / 32 K On-board serial/Ethernet ports / 2/2/other options / Typi Remote application upload / Yes / No Remote software diagnostics / Yes / No Remote firmware download / Yes / No Encryption support / Yes / No Integrated radio support / Yes / No Store and forward standard feature / Yes / No Report by exception mode / Yes / No Integrated power supply options with battery charging / Yes / No
	[1f] one or more processors communicatively coupled to the communication module, the network interface, and the memory, wherein the memory stores instructions that when executed by the processors	Cardamone discloses that the control and communication computer 126 contains a real-time controller/CPU. ¶¶0024 ("a CPU (429)"), 0033-35. Cardamone further discloses that control and communication computer 126 includes communications transceivers including Wi-Fi modems, satellite modems, or cellular data modems. ¶¶0008, 0033-34. Cardamone discloses that the

	cause the processors to effectuate steps comprising:	control and communication computer 126 includes "a memory (431)" and that it "stores and relays sensory data" and "includes data storage for storing operational parameters as well as sensory data logs." ¶¶0008, 0021, 0024. A POSITA would understand that the CPUs are communicatively coupled to the communication module, network interface, and memory and such a configuration has been known in the industry for decades. Thus, Cardamone discloses the recited processor, communication module, network interface, and memory-storing instructions. Further CR1000 Datalogger discloses a processor coupled to communication module. *See* page 8. **CPU AND INTERFACE** PROCESSOR: Renesas H8S 2322 (16-bit CPU with 32-bit internal core) MEMORY: 2 Mbytes of Flash for operating system; 4 Mbytes of battery-backed SRAM for CPU usage, program storage and data storage. SERIAL INTERFACES: CS I/O port is used to interface with Campbell Scientific peripherals; RS-232 port is for computer or non-CSI modem connection. PARALLEL INTERFACE: 40-pin interface for attaching data storage or communication peripherals such as the CFM100 module BAUD RATES: Selectable from 300 bps to 115.2 kbps. ASCII protocol is one start bit, one stop bit, eight data bits, and no parity. CLOCK ACCURACY: ±3 min. per year Further scada_sys_wht_ppr-2a_new discloses a processor, scada_sys_wht_ppr-2a_new recites, "CPU – **RTUs require high processing capability to manage complex control tasks efficiently. For example, RTUs that contain a 200 MHz, 500 Million Instructions per Second (MIPS) CPU with multiple communication port support are optimal for performing simultaneous communications, networking, and control tasks**." *See* page 5. Further TM 5-601 discloses a processor. TM 5-601 recites, "Processor: The processor module contains the microprocessor that performs control functions and computations, as well as the memory required to store the program.", "Input/Output (I/O): These

		modules provide the means of connecting the processor to the field devices." *See* pages 3-5.
	[1g] receiving, via the network interface, from the command-center server, a plurality of commands encoded in a first protocol to control the fluid-handling devices from a user corresponding to one of the user accounts, different commands among the plurality of commands being directed to different fluid handling devices among the plurality of fluid-handling devices;	Cardamone discloses that data server 134 provides the functionality of GUI Computer 130. ¶0046. Cardamone discloses that users connect to GUI computer 130 to interface with control and communication computer 126, through application 131. ¶¶0042, 0011, 0021, 0026, 0041. Application 131 provides access to control and communication computer 126 to request data, including the current sensory data of pump control system 110. *Id*. Application 131 also allows the user to adjust the operating parameters with control and communication computer 126 through "a command interface." ¶¶0044-45. Cardamone also discloses that data server 134 is connected to network 132 which is linked to control and communication computer 126 through a variety of network communication types. ¶0027. A POSITA would understand that the site master controller, control and communication computer 126, receives from the command center server, data server 134, a plurality of commands, including the retrieval of various data or various control adjustments, encoded in a first protocol (an internet, network, or cellular protocol) from a user of GUI computer 130. ¶66. Thus, Cardamone discloses receiving, via the network interface from the command-center server, a plurality of commands encoded in a first protocol to control the fluid-handling devices. Further TM 5-601 discloses receiving "Control action for each system or subsystem takes place in the local controller, but the central operator station has complete visibility of the status of all systems and the input and output data in each controller, as well as the ability to intervene in the control logic of the local controllers if necessary." *See* page 3-2, Fig. 3-3.

		 *Figure 3-3. Distributed control system architecture* Further 64utah-SCADA discloses receiving from the command center server about controlling the site based on the user command using the site controller, 64utah-SCADA recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 2. 64utah-recites, "The CR1000 uses a Campbell SDM-CD8S dc device controller to control pumps and valves, with each town controlling the valves to allow or disallow the water flowing to the other." *See* page 2.
	[1h] for at least some of the plurality of commands, determining a plurality of different target states of a given one of the fluid-handling devices over time, wherein the respective site-master controller is operative to maintain control of the fluid handling devices in the	Cardamone discloses the determining a plurality of different target states of a given one of the fluid-handling devices over time. ¶¶0009, 0021-0022, 0025-0026, 0029, 0036. Cardamone discloses that the "control algorithm may control the motor drive system and/or pump as a function of sensory data." ¶0009. Cardamone further discloses application 131 also allows the user to adjust the operating parameters of control and communication computer 126 through "a command

	absence of a network connection to the command-center server;	interface" to specify the "movement profile" for the pump system, including through a distance versus time curve, or a force versus time curve for an operation cycle of the pump. ¶0044. Application 131 allows the user to program the operating function to control and communication computer 126 based on sensory data. ¶0045. For example, user 101 may program control and communication computer 126 to set the pump frequency to be equal to the inlet pressure times a constant or more complex functions based on a whole range of sensory input conditions. *Id*. A POSITA would understand establishing a movement profile, or adjusting operating function based upon the receipt of sensory data described above, determines a plurality of different target states of a given one of the fluid-handling devices over time. A POSITA would further understand establishing—on control and communication computer 126—the movement profile or operating function based upon certain data causes control and communication computer 126 to maintain control of the fluid handling devices in the absence of a network connection to the command-center server, because the operating parameters have already been locally established. *Id.* Thus, Cardamone discloses this element of the '909 Patent.
	[1i] translating the plurality of commands into translated commands encoded in a plurality of protocols different from the first protocol, each translated command being translated into a protocol among the plurality of protocols suitable for a fluid-handling device to which the respective command is directed, the at least some of the translated command being operative to cause a local controller	Cardamone discloses data server 134 connected to network 132 linked to control and communication computer 126 through one of a variety of communication link types, including hardwire connection, or internet connection via wire, Wi-Fi, satellite modem, or cellular data connections. ¶¶0024, 0027. Whereas, the pump drive unit 318 interfaces with control and communication computer 126 over digital interface bus 326. ¶0031; ¶¶0029-31 (describing Pump System 122). Bus 326 has multiple protocols implemented including DeviceNet, RS485, F-NET, Modbus, FireWire, CANopen, Ethernet IP, ProfiNet, and SERCOS. ¶0031. These protocols, which include but are not limited to internet or computer networking protocols, drive the fluid-handling device. ¶0007.

	of the given fluid- handling device to drive the given fluid-handling device to the plurality of different target states, the local controller being responsive to the translated commands and feedback from the given fluid-handling device indicative of whether the given fluid-handling device is in a targeted state; and	And other similar protocols may also be used as alternatives, through either analog or digital signal transfer. ¶0030-31. A POSITA would understand the claimed translation of protocols is required to permit the data interface and bus to operate and communicate with various types of devices using multiple different types of protocols. Thus, Cardamone discloses translating the plurality of commands into translated commands encoded in a plurality of protocols different from the first protocol.
	[1j] sending the translated commands to respective local controllers of the respective fluid-handling devices to which the respective commands are directed.	Cardamone discloses control and communication computer 126 providing motor driver 124 with command signals to properly drive pump system 122. ¶0021. Pump drive unit 318 receives commands from control and communication computer 126 over digital interface bus 326. ¶0031; ¶¶0029-31 (describing Pump System 122). A POSITA would understand that sending translated commands, i.e., commands in the computing language of the respective fluid handling device is required to program control and communication computer 126 to drive the pump according to the user-provided specifications. Thus, Cardamone discloses sending the translated commands to respective local controllers of the respective fluid-handling devices. Cardamone, therefore, anticipates, or renders obvious to a POSITA Claim 1.
2.	The system of Claim 1, wherein the memory also stores instructions that when executed by the processors cause the processors to effectuate steps comprising: receiving, from the fluid-handling device, sensor data indicative of the operation of the fluid-handling device obtained by sensors of the fluid-	Cardamone discloses control and communication computer 126 includes "a memory (431)" and that it "stores and relays sensory data from pump system 122 and driver 124 to data server 134 and/or GUI computer 130." ¶¶0008, 0021 (emphasis added). A POSITA would understand that the control and communication computer 126 stores and relays sensor data indicative of the operation of a fluid-handling device. A POSITA would further understand that the control and communication computer 126 sends the respective fluid handling

	handling device; and sending, to a remote data store, the received sensor data.	device data to data server 134, a remote data store. *Id.* Cardamone, therefore, anticipates, or renders obvious to a POSITA Claim 2. Further 64utah-SCADA discloses receiving sensory data and send it to the central serve. 64utah-SCADA recites, "The systems connect with numerous sensors via a Campbell multiplexer to monitor parameters such as flow and pressure from water sources into tanks, flow and pressure from tanks into the towns, tank level, and flood conditions at the building housing the system." *See* page 2. 64utah-SCADA further recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 2. Further CR1000 Datalogger, discloses memory to store instruction, CR1000 Datalogger recites, "The module measures sensors, drives direct communications and telecommunications, reduces data, controls external devices, and stores data and programs in on-board, non-volatile storage." *See* page 2. Further scada_sys_wht_ppr-2a_new discloses a memory to store instruction. Scada_sys_wht_ppr-2a_new recites, "RTUs require high processing capability to manage complex control tasks efficiently. For example, RTUs that contain a 200 MHz, 500 Million Instructions per Second (MIPS) CPU with multiple communication port support are optimal for performing simultaneous communications, networking, and control tasks." *See* page 5. Further TM 5-601 discloses memory, TM 5-601 recites, "The processor module contains the microprocessor that performs control functions and computations, as well as the memory required to store the program.", "These modules provide the

		means of connecting the processor to the field devices", "Communications modules are available for a wide range of industry-standard communication network connections. These allow digital data transfer between PLCs and to other systems within the facility." *See* pages 3-5.
3.	The system of Claim 2, comprising the remote data store and a web-server, wherein the web-server is operative to perform steps comprising: receiving, from a user device, a password corresponding to a selected one of the user accounts; receiving, from the user device, a request for a data indicative of the operation of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station coupled to the fluid-handling device of the selected one of the user accounts; retrieving, from the data store, data responsive to the request from the user device; and sending, to the user device, the retrieved data for presentation to the user.	Claim 3 recites. Cardamone discloses that after user 101 connects GUI computer 130 to control and communication computer 126's LAN, user 101 then starts application 131. ¶0042. Application 131 queries user 101 for a username and password, which are then provided to control and communication computer 126 for authentication. *Id*. Cardamone thus discloses the web server (GUI computer 130) receives a username and password for at least one user account. *Id*. After authentication, application 131 provides user 101 several options. *Id*. User 101 may select an option to view the current sensory data of pump control system 110 from a data stream from control and communication computer 126. *Id*. Cardamone, therefore, anticipates, or renders obvious to a POSITA Claim 3. 64utah-SCADA, discloses a remote system to receive data. 64utah-SCADA recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 2. Further Brochure-VTScada-FeaturesByVersion, discloses a server for user to control the site. Brochure-VTScada-FeaturesByVersion recites, "This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* page 4. Brochure-VTScada-FeaturesByVersion further recites, "This optional feature, introduced in 10, allows authorized users to see changes made on all servers, roll back to

		previous versions and merge versions together." *See* page 4.
4.	The system of Claim 3, wherein the request is a request for data indicative of an amount of oil or other types of fluid extracted from, or injected into, an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station to which the fluid-handling device is coupled, and wherein the retrieved data comprises data indicative of the amount of oil, produced fluid, or flowback fluid.	Cardamone discloses GUI Computer 130 includes software application 131 to provide an interface for connecting to control and communication computer 126 for viewing live and stored sensor data. ¶0041. The available data includes inlet pressure, which can be used to determine the depth of fluids remaining in the well, and monitoring pump frequency to monitor the volume of fluids extracted from the well. ¶¶0029-30, 0044-45, 0049. Cardamone, therefore, anticipates, or renders obvious to a POSITA Claim 4. 64utah-SCADA, discloses receiving data. 64utah-SCADA recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 4. Further Brochure-VTScada-FeaturesByVersion, discloses about receiving data, Brochure-VTScada-FeaturesByVersion recites, "This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch**."** *See* page 4. Further TM 5-601, discloses receiving data, TM 5-601 recites, "Distributed control system architecture (figure 3-3) offers the best features of both local control and centralized control… Control action for each system or subsystem takes place in the local controller, but the central operator station has complete visibility of the status of all systems and the input and output data in each controller, as well as the ability to intervene in the control logic of the local controllers if necessary." *See* page 3-2.
5.	The system of Claim 3, wherein the request is a request to view alarms	Cardamone discloses in claim 21 that the system set forth in claim 20, wherein said user signal is a warning signal or a graphical display. *id.* ¶¶0036 ("if

	issued by a fluid-handling device among the plurality of fluid handling devices, and wherein the retrieved data comprises data indicative of the alarms.	a 'Pump Hitting' curve is recognized in the sensory data, single- board computer 410 will attempt to send a warning to data server 134, all GUI computers 130, and all remote management computers 138"), 0043 ("software application 131 may be used to display a warning to user 101"). Cardamone, therefore, anticipates, or renders obvious to a POSITA Claim 5. Further 64utah-SCADA, Brochure-VTScada-FeaturesByVersion discloses Claim 5 for the reasons discussed above for Claim 4 and incorporated herein.
6.	The system of Claim 3, wherein the retrieved data comprises messages provided to the web server regarding attempts to address the alarms.	Cardamone discloses that single-board computer 410 recognizes operating regimes, and accordingly triggers a warning and/or adjusts pump operation. ¶¶0009, 0036 ("computer 410 will attempt to send a warning to data server 134, all GUI computers 130, and all remote management computers 138"). After sending warnings, Cardamone discloses that single-board computer 410 will then adjust the drive command sent to motor driver 124 such that pump 122 is driven with a shorter stroke. ¶0036, ¶0045. The motor driver 124 relays its status back to control and communication computer 126, which relays the system's attempt to address the alarms. ¶¶0031, 0035, 0042. Cardamone, therefore, anticipates, or renders obvious to a POSITA Claim 6. Further 64utah-SCADA, Brochure-VTScada-FeaturesByVersion discloses Claim 6 for the reasons discussed above for Claim 4 and incorporated herein.
7.	The system of Claim 2, comprising the remote data store and a web-server, wherein the web-server is operative to perform steps comprising: receiving, from a user device, the command to change the state of the fluid-handling device; and determining a	Cardamone discloses control and communication computer 126 at the surface of the deep oil well, providing motor driver 124 with the proper gate drive signals for operating pump system 122. ¶0024. Control and communication computer 126 includes data sampling and storage mechanisms for receiving and storing sensory data from both pump system 122 and motor driver 124. *Id*. GUI Computer 130 includes software application 131 to provide an interface for connecting to control and

	network address of the network interface of the respective site master controller; and sending the command to the network interface.	communication computer 126 presenting "a graphical geographical view of known pumps," with "basic operation statuses for each of the known pumps." ¶0041. A POSITA would understand Cardamone discloses the elements of Claim 7 of the '909 Patent through its disclosure of control and communication computer 126 interface with GUI Computer 130 which communications with "known pumps." Cardamone, therefore, anticipates, or renders obvious to a POSITA Claim 7. Further as shown in Further 64utah-SCADA, Brochure-VTScada-FeaturesByVersion discloses Claim 7 for the reasons discussed above for Claim 4 and incorporated herein.
8.	The system of Claim 1, wherein at least some of the fluid- handling devices comprise a pump, and wherein the plurality of commands comprise a command to change the speed of the pump.	Cardamone discloses control and communication computer 126 with real- time controller/CPU for providing motor driver 124 with the proper gate drive signals for operating pump system 122 with a desired movement profile, including adjusting pump frequency. ¶¶0024, 0044-45, 0049. Cardamone, therefore, anticipates, or renders obvious to a POSITA Claim 8. Further 64utah-SCADA discloses controlling the pump, 64utah-SCADA recites, "The CR1000 uses a Campbell SDM-CD8S dc device controller to control pumps and valves, with each town controlling the valves to allow or disallow the water flowing to the other.", "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms." *See* page 2. Further CR1000 Datalogger discloses controlling pump, CR1000 Datalogger recites, "Alarm and pump actuation are controlled through digital I/O ports that operate external relay drivers". *See* page 7.
14.	The system of Claim 1, comprising one of the following coupled to the fluid-handling devices: an oil well, a saltwater	Cardamone discloses use with a deep oil well pump. ¶¶0021-22, 0024, 0026. Cardamone, therefore, anticipates, or renders obvious to a POSITA Claim 14.

	disposal well, a carbon-capture well, or a pump station.	Further 64utah-SCADA, CR1000 Datalogger discloses Claim 14 for the reasons discussed above for Claim 8 and incorporated herein.
19.	The system of Claim 1, wherein the system is operative to provide web-based control and monitoring of oil and gas wells to multiple account holders corresponding to the user accounts.	Cardamone discloses data server 134 contains web application 136 for providing a client interface for viewing the sensory data logs on remote management computer 138. Web application 136 allows the user to set the control parameters on the control and communication server 126. ¶27. Cardamone further discloses that Application 131 includes a graphical view of known pumps, as well as operation statistics for the known pumps. ¶¶0041-42. Cardamone discloses Application 131 provides the functionality of GUI computer 130 to many potential *remote users* 102. ¶¶0046, 0048 ("multiple remote users"). Cardamone, therefore, anticipates, or renders obvious to a POSITA Claim 19. Further 64utah-SCADA, Brochure-VTScada-FeaturesByVersion, discloses Claim 19 for the reasons discussed above for Claim element 1a and incorporated herein.

Exhibit A-5

Invalidity Claim Chart for U.S. Patent No. 8,649,909 ("the 909 patent")

In view of

US 8,667,091 ("Almadi")

Alone or in combination with

64utah-SCADA

Brochure-VTScada-FeaturesByVersion

sys_wht_ppr-2a_new

CR1000 Datalogger – Brochure

TM 5-601 Supervisory Control

The asserted claims of '909 patent are anticipated and/or rendered obvious by Almadi alone or in combination with 64utah-SCADA, Brochure-VTScada-FeaturesByVersion, scada_sys_wht_ppr-2a_new, CR1000 Datalogger – Brochure, TM 5-601 Supervisory Control as identified in Defendant Preliminary Invalidity Contentions.

U.S. Patent No. 8,667,091 ("Almadi") was filed on July 22, 2011, published on April 05, 2012 and issued on March 04, 2014. Almadi is prior art under at least 35 U.S.C. 102(a).

64utah-SCADA was published in 2012. 64utah-SCADA is prior art under at least 35 U.S.C. 102(a).

Brochure-VTScada-FeaturesByVersion was published in 2016 (continuously updated since 2007). Brochure-VTScada-FeaturesByVersion is prior art under at least 35 U.S.C. 102(a).

scada_sys_wht_ppr-2a_new was published in 2007. scada_sys_wht_ppr-2a_new is prior art under at least 35 U.S.C. 102(a).

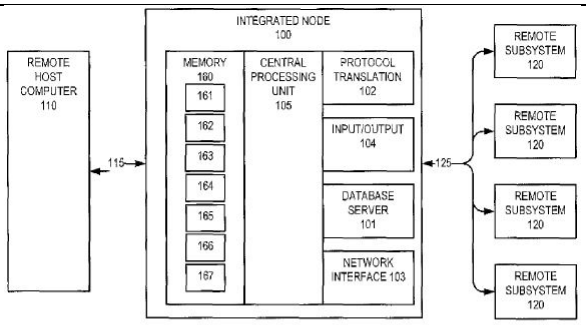
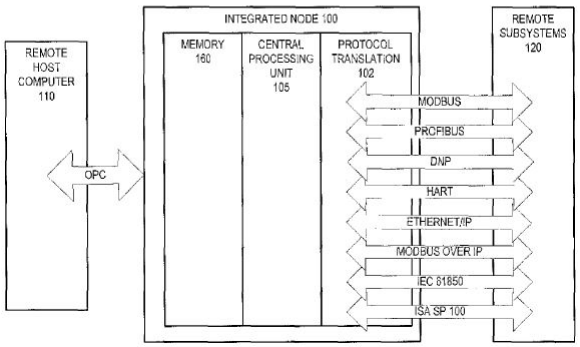
CR1000 Datalogger – Brochure was published in June 2004 and 2008. CR1000 Datalogger – Brochure is prior art under at least 35 U.S.C. 102(a).

TM 5-601 Supervisory Control was published on January 21, 2006. TM 5-601 Supervisory Control is prior art under at least 35 U.S.C. 102(a).

The citations to portions of any reference in this chart are exemplary only. Defendant will rely on the entirety of the reference cited in this chart, as well as any additional materials relevant to the reference identified through their ongoing investigation, to show that the asserted claims are invalid.

Claim#	Claim Language	Almadi, 64utah-SCADA, Brochure-VTScada-FeaturesByVersion, scada_sys_wht_ppr-2a_new, CR1000 Datalogger – Brochure, TM 5-601 Supervisory Control
1.	[1.p] A system for remotely controlling a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station, the system comprising	To the extent that the preamble is found to be limiting, Almadi discloses a system for remotely controlling a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station. For example, Almadi discloses that the present invention relates to the control of, and acquisition of data from, remote and in-plant subsystems in automated industrial processes. *See, e.g.*, Abstract; 1:18-22. Almadi further discloses that the automation architecture of modern industrial operations, such as that found in modern oil and gas field applications, is enabled at the field level and process level by various interconnected devices referred to as remote subsystems or field devices. *See, e.g.*, 1:28-35. These field devices monitor and collect data, such as measurements of fluid pressure, temperature, or flow, reflective of the operations of the automated process. *Id*. A POSITA would recognize that the system disclosed by Almadi remotely monitors and controls a fluid handling device pump at oil wells, water disposal sites, re-injection facilities, or petroleum pumping stations. Therefore, Almadi discloses a system for remotely controlling a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station. Further 64utah-SCADA discloses a system for remotely controlling a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station. 64utah-SCADA recites, “The systems connect with numerous sensors via a Campbell multiplexer to monitor parameters such as flow and pressure from water sources into tanks, flow and pressure from tanks into the towns, tank level, and flood conditions at the building housing the system. The CR1000

		uses a Campbell SDM-CD8S dc device controller to control pumps and valves, with each town controlling the valves to allow or disallow the water flowing to the other." *See* 64utah-Scada, page 2. Also, 64utah-Scada recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* 64utah-Scada, page 2. Further, Brochure-VTScada-FeaturesByVersion discloses a system for remote controlling on field system. Brochure-VTScada-FeaturesByVersion recites, "The simplest way to access your process from smart phones or tablets. This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* Brochure-VTScada-FeaturesByVersion, page 4. Further scada_sys_wht discloses a system for remote controlling. Scada_sys_wht, recites, "Remote monitoring and control of oil and gas production, pumping, and storage at refineries from both offshore platforms and onshore wells". *See* page 2. Scada_sys_wht further recites, "The RTU or PLC acquires the site data, which includes meter readings, pressure, voltage, or other equipment status, then performs local control and transfers the data to the central SCADA system."
	[1a] a command-center server having a data store storing multiple user accounts, each user account corresponding to a set of one or more oil wells, petro water disposal or re- injection facilities, or petroleum pumping stations, or a combination thereof, each set being operated by a different entity corresponding to the	Almadi discloses integrated node 100, as illustrated in Figures 1A and 1B, having a central processing unit 105 and a memory 160 to allow a remote host 110 to interface with a plurality of remote subsystems 120. 11:18-21. Integrated node 100 is a programmable logic controller ("PLC"), meaning any PLC, remote terminal unit ("RTU"), computer, server, system, node, or unit. 11:21-28.

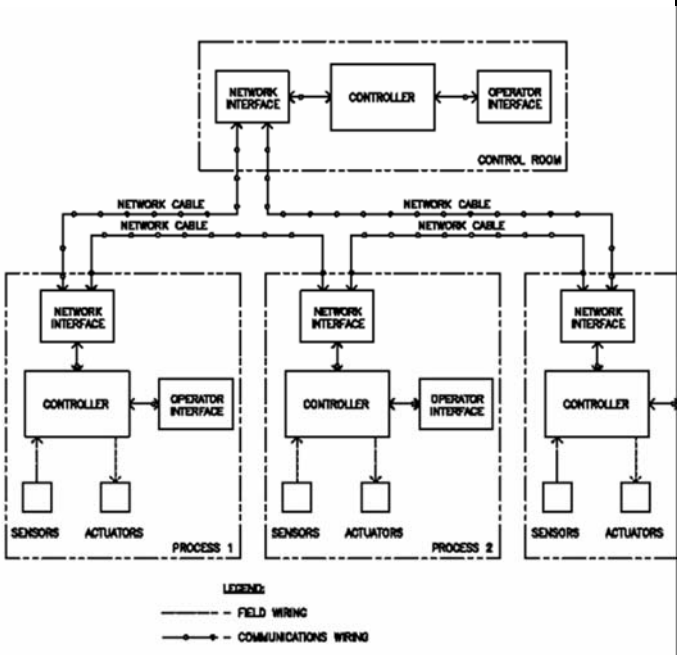
	respective user account; and	 FIG. 1A  FIG. 1B Almadi discloses that the plurality of remote subsystems 120 can include, for example, intelligent field systems such as permanent downhole monitoring ("PDHM") systems, electrical submersible pump ("ESP") systems, smart well completion ("SWC") systems, flow meter systems, and any of the types of Intelligent Equipment Devices ("IED"). 12:27-35. Almadi discloses that the present invention can serve different networking operating environments, including, for example, intelligent field for oil and gas, substations/power grids, and remote security, and can be utilized and can be extended for enterprise applications. 11:18-12:59; Abstract; 1:18-22, 1:28-35. A POSITA would understand that Almadi discloses the command-center server of the '909 Patent through its disclosure of the integrated node 100. A POSITA would understand that Almadi discloses each set of facilities being operated by a different entity corresponding to the respective user account of the '909 Patent through its disclosure of multiple different network operating environments and

		applications applicable to different entities who would each have a respective user account. *Id.* Thus, Almadi discloses the recited command-center server. Further 64utah-SCADA discloses a command center to control the site via user account. 64utah-SCADA recites "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* 64utah-SCADA, page 2. Further, Brochure-VTScada-FeaturesByVersion discloses a command center with multiple user account. Brochure-VTScada-FeaturesByVersion recites, "The simplest way to access your process from smart phones or tablets. This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* page 4. Further Brochure-VTScada-FeaturesByVersion discloses authorized user. Brochure-VTScada-FeaturesByVersion recites, "This optional feature, introduced in 10, allows authorized users to see changes made on all servers, roll back to previous versions and merge versions together." "New 'Roles' and 'Rules' allow you to finely tune what users can do and where while reducing configuration time. Rules are combinations of tags and privileges that vastly reduce the number of privileges required. Roles are pre-defined sets of rules that correspond to specific jobs (e.g., plant operator). To reduce duplication and ensure consistency, accounts can now be shared across applications. The security database scheme now employs military-grade encryption as does the security information exchanged between the VTScada Internet Client and Server. Accounts can also now be disabled following repeated failed log-in attempts." *See* Brochure-VTScada-FeaturesByVersion, page 4.

		A POSITA would recognize that Brochure-VTScada-FeaturesByVersion has a data store storing multiple account with each account having access to a set of equipment.
	[1b] a plurality of geographically distributed site master controllers, each site master controller corresponding to a respective one of the oil wells, petro water disposal or re- injection facilities, or petroleum pumping stations, each site master controller comprising:	Almadi discloses a plurality of remote subsystems 120 can include, for example, intelligent field systems such as PDHM systems, ESP systems, SWC systems, flow meter systems, and any other types of IED. 12:27-59. Remote subsystems 120 can perform tasks including processing of measurement and control data and signal conversions. *Id*. A POSITA would understand Almadi discloses a plurality of geographically distributed site master controllers where the site master controller corresponds to an oil well, petro water disposal or re-injection facilities, or petroleum pumping station of the '909 Patent through its disclosure of remote subsystems 120. Thus, Almadi discloses the recited geographically distributed site master controllers. Further 64utah-SCADA discloses a master site controller. 64utah-SCADA recites, "The systems connect with numerous sensors via a Campbell multiplexer to monitor parameters such as flow and pressure from water sources into tanks, flow and pressure from tanks into the towns, tank level… The CR1000 uses a Campbell SDM-CD8S dc device controller to control pumps and valves, with each town controlling the valves to allow or disallow the water flowing to the other." *See* 64Utah-SCADA, page 2. Further CR1000 Datalogger – Brochure discloses about a site controller. CR1000 Datalogger – Brochure recites, "The module measures sensors, drives direct communications and telecommunications, reduces data, controls external devices, and stores data and programs in on-board, non-volatile storage." *See* page 2. Further TM 5-601 discloses a site controller, "The RTUs were developed primarily to provide monitoring and control capability at unattended sites such as substations, metering stations, pump stations, and water towers." *See* page 3-4.

		Further scada_sys_wht_ppr-2a_new discloses a site controller. Scada_sys_wht_ppr-2a_new recites, "RTUs that contain a 200 MHz, 500 Million Instructions per Second (MIPS) CPU with multiple communication port support are optimal for performing simultaneous communications, networking, and control tasks." *See* page 5.
	[1c] a communication module operable to communicate with a plurality of fluid-handling devices;	Almadi discloses that remote subsystems 120 can be adapted to be programmed to communicate with other field devices, for example, independent of the integrated node, as well as intelligent sensors, actuators, and controllers can be connected to the network by means of communication busses, interface boards, cables, and accessories. 12:27-59. Almadi further discloses an integrated node 100, as can be shown in FIG. 1A and FIG. 2A, for example, includes an input/output unit 104 positioned to transfer communications between the integrated node 100 the plurality of remote subsystems 120, and the remote host computer 110. 13:47-14:9 (disclosing various communication protocols). A POSITA would understand that Almadi discloses the communication module of the '909 Patent through its disclosure of input/output unit 104 that provides communications capabilities between remote subsystems 120 and integrated node 100. Further 64utah-SCADA discloses control and communication with the plurality of fluid handling device. 64utah-SCADA recites, "The systems connect with numerous sensors via a Campbell multiplexer to monitor parameters such as flow and pressure from water sources into tanks, flow and pressure from tanks into the towns, tank level… The CR1000 uses a Campbell SDM-CD8S dc device controller to control pumps and valves, with each town controlling the valves to allow or disallow the water flowing to the other." *See* page 2. Further CR1000 Datalogger – Brochure discloses a control and communication module to communicate with the field device. CR1000 Datalogger – Brochure recites, "The module measures sensors, drives direct communications and

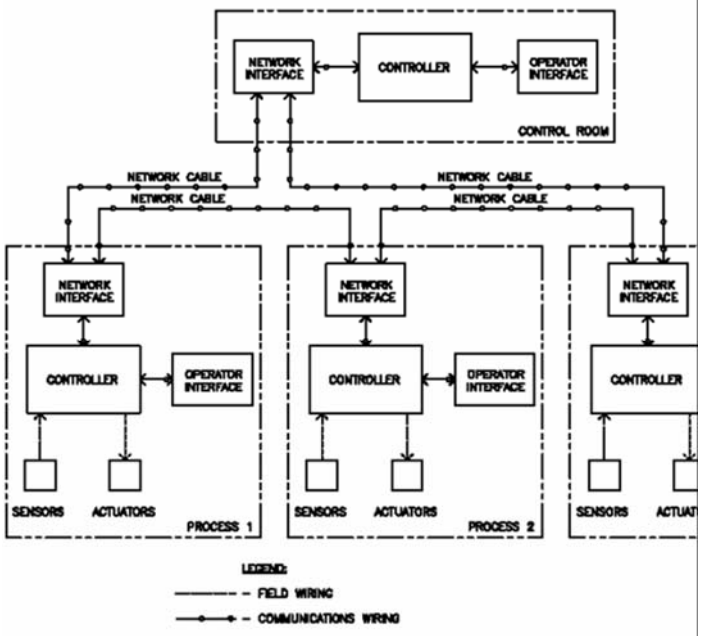
		telecommunications, reduces data, controls external devices, and stores data and programs in on-board, non-volatile storage… The module can simultaneously provide measurement and communication functions." *See* page 2. Further scada_sys_wht discloses communicating modlule and controlling plurality of fluid-handling devices. Scada_sys_wht recites "Remote monitoring and control of oil and gas production, pumping, and storage at refineries from both offshore platforms and onshore wells. The RTU or PLC acquires the site data, which includes meter readings, pressure, voltage, or other equipment status, then performs local control and transfers the data to the central SCADA system." *See* page 2. Further TM 5-601 discloses a communication module. TM 5-601 recites, "Input/Output (I/O): These modules provide the means of connecting the processor to the field devices." *See* page 3-5.
	[1d] a network interface;	Almadi discloses that the integrated node 100 is connected to any of the remote host computers 110 or remote subsystems 120 by way of communication links 115 and 125, respectively, as would be understood by a POSITA. 11:31-35. Almadi further discloses that the input/output unit 104 provides both serial and Ethernet interfaces over communication links 115 and 125. 13:51-14:9 (disclosing various communication protocols). A POSITA would understand that Almadi discloses a network interface of the '909 Patent through its disclosure of various wired or wireless interfaces for remote subsystems 120 to connect to integrated node 100. Further 64utah-SCADA discloses a network interface to communicate with server. 64utah-SCADA recites, "LoggerNet and VTScada run on Windows 7 PCs and communicate with the CR1000 master unit over Ethernet connections." *See* page 2. Further CR1000 Datalogger – Brochure discloses a network interface, CR1000 Datalogger recites, "The CR1000 supports the PakBus® communication

		protocol. PakBus networks have the distributed routing intelligence to continually evaluate links." *See*, page 3. CR1000 Datalogger – Brochure also recites, "Use of an NL100 or NL115 interface enables the CR1000 to communicate over a local network or a dedicated Internet connection via TCP/IP. The NL115 also supports data storage on a CompactFlash card." *See* page 4. Further scada_sys_wht_ppr-2a_new discloses a network interface. Scada_sys_wht_ppr-2a_new recites, "RTUs that contain a 200 MHz, 500 Million Instructions per Second (MIPS) CPU with multiple communication port support are optimal for performing simultaneous communications, networking, and control tasks." *See* page 5. Further TM 5-601, discloses a network interface at the site, TM 5-601 recites, "Input/Output (I/O): These modules provide the means of connecting the processor to the field devices." *See* page 3-5, Fig. 3-3.  *Figure 3-3. Distributed control system architecture*
	[1e] memory; and	Almadi discloses that any of the measurements or values can be output by storing to a storage medium such as memory 160 or database 101, by

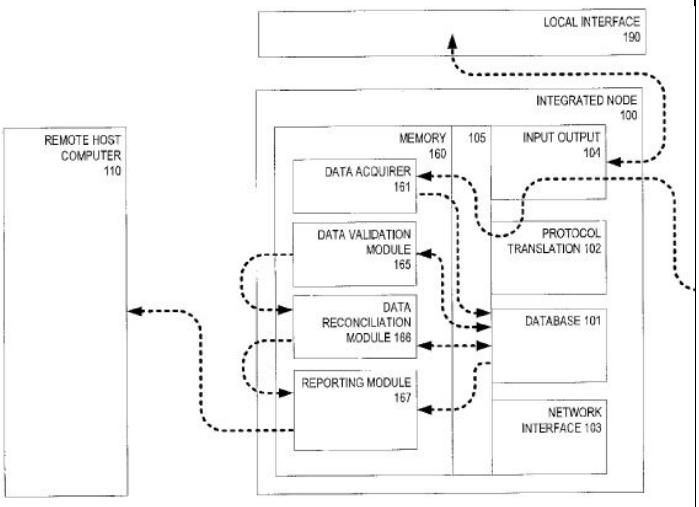
		transmitting to remote host computer 110, or by transmitting to any other computer or interface in communication with the integrated node 100 over the input/output unit, such as the local interface 190 or any computer terminal having a graphical user interface as will be understood by those having skill in the art. 27:2-10. Remote subsystems 120 connect to integrated node 100 over the input/output unit. 13:47-51; 1:18-57; 11:18-12:59. From Almadi's disclosure that measurements or values can be stored in memory or output to any other computer or interface in communication with the integrated node 100 over the input/output unit, a POSITA would understand requires remote subsystems 120 to have a memory. A POSITA would understand that Almadi discloses a memory for the site master controller of the '909 Patent through its disclosure of remote subsystems 120. *Id.* Further CR1000 Datalogger discloses a memory unit, CR1000 Datalogger recives, "The CR1000 has 2 Mbyte of FLASH memory for the Operating System, and 4 Mbytes of battery-backed SRAM for CPU usage, program storage, and data storage." *See* page 3. Further scada_sys_wht_ppr-2a_new disclose a memory unit, scada_sys_wht_ppr-2a_new recites, "To perform event data logging, systems require large amounts of available program and or user memory." *See* page 6. **Feature** | **High Performance RTU** | **PLC** Temperature | -40° to +70° C | -20° CPU word size – clock rate | 32 bit – 200 MHz | 16/3 RAM/Total memory | 4 MB/32 MB | 32 K On-board serial/Ethernet ports | 2/2/other options | Typi Remote application upload | Yes | No Remote software diagnostics | Yes | No Remote firmware download | Yes | No Encryption support | Yes | No Integrated radio support | Yes | No Store and forward standard feature | Yes | No Report by exception mode | Yes | No Integrated power supply options with battery charging | Yes | No

	[1f] one or more processors communicatively coupled to the communication module, the network interface, and the memory, wherein the memory stores instructions that when executed by the processors cause the processors to effectuate steps comprising:	Almadi discloses that remote subsystems 120 can include, for example, intelligent field systems that can perform tasks including processing and accepting programming. 11:18-12:59. Almadi discloses that its "intelligent field devices" (i.e. remote subsystems 120) include the ability to process data, self- monitor, self-regulate, self-calibrate, or provide early warnings with respect to malfunctions or predictive maintenance. 1:18-57. A POSITA would understand that Almadi's disclosure of processing by remote subsystems 120 necessarily requires a processor. A POSITA would further understand because remote subsystems 120 can also adapted to be programmed so as to communicate with other field devices that a processor is required. A POSITA would understand Almadi's disclosure of intelligent field device processing data, self-monitoring, self-regulating, etc. requires remote subsystems 120, to store in memory instructions that when executed will cause remote subsystems 120's processors to execute the instruction's steps. *Id.* Thus, Almadi discloses the recited processors, communication modules, memory, and network interfaces in remote subsystems 120. Further CR1000 Datalogger discloses a processor coupled to communication module. *See* page 8. **CPU AND INTERFACE** PROCESSOR: Renesas H8S 2322 (16-bit CPU with 32-bit internal core) MEMORY: 2 Mbytes of Flash for operating system; 4 Mbytes of battery-backed SRAM for CPU usage, program storage and data storage. SERIAL INTERFACES: CS I/O port is used to interface with Campbell Scientific peripherals; RS-232 port is for computer or non-CSI modem connection. PARALLEL INTERFACE: 40-pin interface for attaching data storage or communication peripherals such as the CFM100 module BAUD RATES: Selectable from 300 bps to 115.2 kbps. ASCII protocol is one start bit, one stop bit, eight data bits, and no parity. CLOCK ACCURACY: ±3 min. per year

		Further scada_sys_wht_ppr-2a_new discloses a processor, scada_sys_wht_ppr-2a_new recites, "CPU – RTUs require high processing capability to manage complex control tasks efficiently. For example, RTUs that contain a 200 MHz, 500 Million Instructions per Second (MIPS) CPU with multiple communication port support are optimal for performing simultaneous communications, networking, and control tasks." *See* page 5. Further TM 5-601 discloses a processor, TM 5-601 recites, "Processor: The processor module contains the microprocessor that performs control functions and computations, as well as the memory required to store the program.", "Input/Output (I/O): These modules provide the means of connecting the processor to the field devices." *See* page 3-5.
	[1g] receiving, via the network interface, from the command-center server, a plurality of commands encoded in a first protocol to control the fluid-handling devices from a user corresponding to one of the user accounts, different commands among the plurality of commands being directed to different fluid handling devices among the plurality of fluid-handling devices;	Almadi discloses that integrated node 100 supports a local programming interface over a computer, such as through computer terminals having one or more input devices and one or more display devices that are accessible to a human user (not pictured) or, for example, by using the remote host computer 110. 12:10-15. The remote host 110 can be any type of remote host computer for management or hosting of process automation functions as will be known or available to those having skill in the art, for example, a SCADA host. 12:55-59. Almadi discloses that the PLC or RTU functions of the integrated node 100 enable data processing in the integrated node 100 and also enable data collection from, and control of, the plurality of remote subsystems 120. 11:51-63; 22:32-36 ("The DVRM 164 enhances the accuracy of data acquired by the integrated node 100, which also enhances the effectiveness of the integrated node 100 in controlling the plurality of remote subsystems 120."). A POSITA would understand that Almadi discloses the recited receiving commands from the command center server to control specific fluid handling devices of the '909 Patent through its disclosure of receiving commands from a user through remote host 110, which connects through integrated node

		100 to individually addressable remote subsystems 120 for controlling operation of well site components. Further TM 5-601 discloses receiving "Control action for each system or subsystem takes place in the local controller, but the central operator station has complete visibility of the status of all systems and the input and output data in each controller, as well as the ability to intervene in the control logic of the local controllers if necessary." *See* page 3-2, Fig. 3-3.  *Figure 3-3. Distributed control system architecture* Further 64utah-SCADA discloses receiving from the command center server about controlling the site based on the user command using the site controller. 64utah-SCADA recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 2. 64utah-recites, "The CR1000 uses a Campbell SDM-CD8S dc device controller to control pumps and valves, with each town

		controlling the valves to allow or disallow the water flowing to the other." *See* page 2.
	[1h] for at least some of the plurality of commands, determining a plurality of different target states of a given one of the fluid-handling devices over time, wherein the respective site-master controller is operative to maintain control of the fluid handling devices in the absence of a network connection to the command-center server;	Almadi discloses that modern field devices monitor and collect data, such as measurements of fluid pressure, temperature, or flow, reflective of the operations of the automated process. 1:28-57. Almadi further discloses that modern field devices may be termed "intelligent field devices," generally, in the sense that they may also incorporate more robust functionality, such as the ability to process data, self-monitor, self-regulate, self-calibrate, or provide early warning with respect to malfunctions or predictive maintenance. 1:18-57. Almadi discloses that remote subsystems 120 can include a variety of intelligent field systems. *See generally*, 12:27-59. A POSITA would understand Almadi's disclosure of monitoring and collecting data, such as measurements of fluid pressure, temperature, or flow determines a plurality of different target states of a given one of the fluid-handling devices over time as claimed in the '909 Patent. A POSITA would further understand from Almadi's disclosure that "intelligent field devices" process data, self-monitor, self-regulate, and self-calibrate among other operations necessary to maintain control of the fluid handling devices without requiring network connectivity to a command center server as claimed in the '909 Patent. *Id.* Thus, Almadi discloses determining a plurality of different target states of a given one of the fluid-handling devices over time, where the local node device is operative to maintain control in the absence of a network connection to the central communication device gateway.
	[1i] translating the plurality of commands into translated commands encoded in a plurality of protocols different from the first protocol, each translated command being translated into a protocol	Almadi discloses that integrated node 100 can further include a protocol translator or translation server 102 to translate communications with each of the remote subsystems 120 according to any one or more of a plurality of messaging protocols, as demonstrated with reference to the arrows connecting protocol translator or translation server

	among the plurality of protocols suitable for a fluid-handling device to which the respective command is directed, the at least some of the translated command being operative to cause a local controller of the given fluid- handling device to drive the given fluid-handling device to the plurality of different target states, the local controller being responsive to the translated commands and feedback from the given fluid-handling device indicative of whether the given fluid-handling device is in a targeted state; and	102 and the plurality of remote subsystems 120. 14:10-17, FIG. 1B; 11:35-41. Almadi discloses that the protocol translator or translation server 102 can be configured by a user to support communications according to various protocols, including serial and Ethernet physical interfaces, Serial Modbus, Modbus over IP (Internet Protocol), Highway Addressable Remote Transducer (HART) Protocol, Foundation Fieldbus, Distributed Network Protocol (DNP), IEC 61850, ISA100.11a, Wireless HART, ZigBee, and Ethernet/IP (Ethernet Industrial Protocol), including supporting subsystems data exchange. 14:17-28; FIG. 2D.  *FIG. 2D* Almadi discloses translated commands used by the local controller to drive the fluid handling device to a particular target state: “field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps.” 1:45-49, 12:27-59; 25:26-37 (“switching a pump off if the flow is below certain limit or activating some bounds or streams based on some readings/conditions”). A POSITA would understand that the use of different protocols by the protocol translator requires that the protocols must be translated as claimed in the ‘909 Patent. Thus, Almadi discloses translating

		the plurality of commands into translated commands encoded in a plurality of protocols different from the first protocol.
	[1j] sending the translated commands to respective local controllers of the respective fluid-handling devices to which the respective commands are directed.	Almadi discloses that integrated node 100 can further include a protocol translator or translation server 102 to translate communications with each of the remote subsystems 120 according to any one or more of a plurality of messaging protocols. 14:10-17, FIG. 1B; 11:35-41. Almadi discloses sending translated commands to the local controller to drive the fluid handling device to a particular target state: "field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps." 1:45-49; 12:27-59; 25:26-37 ("switching a pump off if the flow is below certain limit or activating some bounds or streams based on some readings/conditions"). A POSITA would understand that integrated node 100 translating communications with each of the remote subsystems 120 requires sending the translated commands as claimed in the '909 Patent. Thus, Almadi discloses sending the translated commands to respective local controllers of the respective fluid-handling devices. Almadi, therefore, anticipates, or renders obvious to a POSITA Claim 1.
2.	The system of Claim 1, wherein the memory also stores instructions that when executed by the processors cause the processors to effectuate steps comprising: receiving, from the fluid-handling device, sensor data indicative of the operation of the fluid-handling device obtained by sensors of the fluid-handling device; and sending, to a remote data	Further 64utah-SCADA discloses receiving sensory data and send it to the central serve. 64utah-SCADA recites, "The systems connect with numerous sensors via a Campbell multiplexer to monitor parameters such as flow and pressure from water sources into tanks, flow and pressure from tanks into the towns, tank level, and flood conditions at the building housing the system." *See* page 2. 64utah-SCADA further recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 2.

	store, the received sensor data.	Further CR1000 Datalogger, discloses memory to store instruction, CR1000 Datalogger recites, "The module measures sensors, drives direct communications and telecommunications, reduces data, controls external devices, and stores data and programs in on-board, non-volatile storage." *See* page 2. Further scada_sys_wht_ppr-2a_new discloses a memory to store instruction. Scada_sys_wht_ppr-2a_new recites, "RTUs require high processing capability to manage complex control tasks efficiently. For example, RTUs that contain a 200 MHz, 500 Million Instructions per Second (MIPS) CPU with multiple communication port support are optimal for performing simultaneous communications, networking, and control tasks." *See* page 5. Further TM 5-601 discloses memory, TM 5-601 recites, "The processor module contains the microprocessor that performs control functions and computations, as well as the memory required to store the program." "These modules provide the means of connecting the processor to the field devices", "Communications modules are available for a wide range of industry-standard communication network connections. These allow digital data transfer between PLCs and to other systems within the facility." *See* page 3-5.
3.	The system of Claim 2, comprising the remote data store and a web-server, wherein the web-server is operative to perform steps comprising: receiving, from a user device, a password corresponding to a selected one of the user accounts; receiving, from the user device, a request for a data indicative of the operation of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station	64utah-SCADA, discloses a remote system to receive data. 64utah-SCADA recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 2. Further Brochure-VTScada-FeaturesByVersion, discloses a server for user to control the site. Brochure-VTScada-FeaturesByVersion recites, "This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* page 4. Brochure-VTScada-

	coupled to the fluid-handling device of the selected one of the user accounts; retrieving, from the data store, data responsive to the request from the user device; and sending, to the user device, the retrieved data for presentation to the user.	FeaturesByVersion further recites, "This optional feature, introduced in 10, allows authorized users to see changes made on all servers, roll back to previous versions and merge versions together." *See* page 4.
4.	The system of Claim 3, wherein the request is a request for data indicative of an amount of oil or other types of fluid extracted from, or injected into, an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station to which the fluid-handling device is coupled, and wherein the retrieved data comprises data indicative of the amount of oil, produced fluid, or flowback fluid.	64utah-SCADA, discloses receiving data. 64utah-SCADA recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 4. Further Brochure-VTScada-FeaturesByVersion, discloses about receiving data. Brochure-VTScada-FeaturesByVersion recites, "This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* page 4. Further TM 5-601, discloses receiving data. TM 5-601 recites, "Distributed control system architecture (figure 3-3) offers the best features of both local control and centralized control… Control action for each system or subsystem takes place in the local controller, but the central operator station has complete visibility of the status of all systems and the input and output data in each controller, as well as the ability to intervene in the control logic of the local controllers if necessary." *See* page 3-2.
5.	The system of Claim 3, wherein the request is a request to view alarms issued by a fluid-handling device among the plurality of fluid handling devices, and wherein the retrieved	Claim 3 recites the system of Claim 2, comprising the remote data store and a web-server, wherein the web-server is operative to perform steps comprising: receiving, from a user device, a password corresponding to a selected one of the user accounts; receiving, from the user device, a request for a data indicative of the operation of an oil well, a petro water disposal or re-injection facility, or a petroleum

	data comprises data indicative of the alarms.	pumping station coupled to the fluid-handling device of the selected one of the user accounts; retrieving, from the data store, data responsive to the request from the user device; and sending, to the user device, the retrieved data for presentation to the user. Claim 2 recites the system of Claim 1, wherein the memory also stores instructions that when executed by the processors cause the processors to effectuate steps comprising: receiving, from the fluid-handling device, sensor data indicative of the operation of the fluid-handling device obtained by sensors of the fluid- handling device; and sending, to a remote data store, the received sensor data. Almadi discloses that integrated node 100 may be accessed by a user through a computer terminal having one or more input devices and one or more display devices that are accessible to a human user (not pictured) or, for example, by using the remote host computer 110. 12:10-15. Almadi discloses that the integrated node 100 collects data from remote subsystems 120. 11:51-55; 13:47-14:9. Almadi discloses that field devices perform sensor functions to collect data such as temperature, pressure, pH, or flow rate and deliver that information to the system-level controller devices. communicate or report 812 an alarm to the integrated node. 17:1-28. Almadi discloses that the reporting of an exception alarm includes data transmissions through input/output unit 104 and network interface 103 and in communication with the remote host computer 110. *Id*. Almadi discloses that the remote host can then execute instructions responsive to the alarm, for example, to relay or present the alarm to a human user or to cause the remote host to issue a command to the integrated node in response to the alarm. 5:33-36. Almadi discloses a system intended to serve in various networking operating environments, including, for example, intelligent field for oil and gas, substations/power grid, and remote security, and can be utilized and can be extended for enterprise applications12:48-59, 13:20-25. A POSITA would understand that Almadi requires

		users of such systems would be required to input a username and password for accessing the remote host computer. Almadi, therefore, anticipates, or renders obvious to a POSITA Claim 5 through its disclosure of exemption and alarm reporting. *Id.* Further 64utah-SCADA, Brochure-VTScada-FeaturesByVersion discloses Claim 5 for the reasons discussed above for Claim 4 and incorporated herein.
6.	The system of Claim 3, wherein the retrieved data comprises messages provided to the web server regarding attempts to address the alarms.	Claim 6 depends from independent Claim 1, and dependent Claims 2 and 3. Almadi discloses Claim 1-3 for the reasons discussed above for Claim 5 and incorporated herein. Claim 6 discloses the system of claim 3, wherein the retrieved data comprises messages provided to the web-server regarding attempts to address the alarms. Almadi discloses that the remote host can then execute instructions responsive to the alarm, for example, to relay or present the alarm to a human user or to cause the remote host to issue a command to the integrated node in response to the alarm, which the integrated node may later receive and process to thereby affect the operation of the integrated node or any remote subsystem. 5:21-39. Almadi, therefore, anticipates, or renders obvious to a POSITA Claim 6. Further 64utah-SCADA, Brochure-VTScada-FeaturesByVersion discloses Claim 6 for the reasons discussed above for Claim 4 and incorporated herein.
7.	The system of Claim 2, comprising the remote data store and a web-server, wherein the web-server is operative to perform steps comprising: receiving, from a user device, the command to change the state of the fluid-handling	64utah-SCADA, Brochure-VTScada-FeaturesByVersion discloses Claim 7 for the reasons discussed above for Claim 4 and incorporated herein.

	device; and determining a network address of the network interface of the respective site master controller; and sending the command to the network interface.	
8.	The system of Claim 1, wherein at least some of the fluid- handling devices comprise a pump, and wherein the plurality of commands comprise a command to change the speed of the pump.	64utah-SCADA discloses controlling the pump, 64utah-SCADA recites, "The CR1000 uses a Campbell SDM-CD8S dc device controller to control pumps and valves, with each town controlling the valves to allow or disallow the water flowing to the other.", "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms." *See* page 2. Further CR1000 Datalogger discloses controlling pump, CR1000 Datalogger recites, "Alarm and pump actuation are controlled through digital I/O ports that operate external relay drivers". *See* page 7.
14.	The system of Claim 1, comprising one of the following coupled to the fluid-handling devices: an oil well, a saltwater disposal well, a carbon-capture well, or a pump station.	Almadi discloses that the present invention can serve different networking operating environments, including, for example, intelligent field for oil and gas 11:18-12:59 (emphasis added); Abstract; 1:18-22, 1:28-35. Almadi, therefore, anticipates, or renders obvious to a POSITA Claim 14. Further 64utah-SCADA, CR1000 Datalogger discloses Claim 14 for the reasons discussed above for Claim 8 and incorporated herein.
19.	The system of Claim 1, wherein the system is operative to provide web-based control and monitoring of oil and gas wells to multiple account holders corresponding to the user accounts.	Almadi discloses that the present invention can serve different networking operating environments, including, for example, intelligent field for oil and gas, substations/power grids, and remote security, and can be utilized and can be extended for enterprise applications. 11:18-12:59; Abstract; 1:18-22, 1:28-35. Almadi discloses that wherein the plurality of remote subsystems includes one or more intelligent field systems selected from the following: permanent downhole monitoring (PDHM) systems, electrical submersible pump (ESP) systems, smart well completion (SWC) systems, and flow meter systems. 12:27-59.

		A POSITA would understand that Almadi discloses each set of facilities being operated by a different entity corresponding to the respective user account of the '909 Patent through its disclosure of multiple different network operating environments and remote subsystem applications, applicable to different entities each having a respective user account. Almadi, therefore, discloses multiple account holders, and therefore anticipates, or renders obvious to a POSITA Claim 19. Further see 64utah-SCADA, Brochure-VTScada-FeaturesByVersion, discloses Claim 19 for the reasons discussed above for Claim element 1a and incorporated herein.

Exhibit A-6

Invalidity Claim Chart for U.S. Patent No. 8,649,909 ("the 909 patent")

In view of

US 2008/0316048 ("Abdallah")

Alone or in combination with

64utah-SCADA

Brochure-VTScada-FeaturesByVersion

sys_wht_ppr-2a_new

CR1000 Datalogger – Brochure

TM 5-601 Supervisory Control

The asserted claims of '909 patent are anticipated and/or rendered obvious by Abdallah alone or in combination with 64utah-SCADA, Brochure-VTScada-FeaturesByVersion, scada_sys_wht_ppr-2a_new, CR1000 Datalogger – Brochure, TM 5-601 Supervisory Control as identified in Defendant Preliminary Invalidity Contentions.

U.S. Patent No. 2008/0316048 ("Abdallah") was filed on March 26, 2008, published on December 25, 2008. Abdallah is prior art under at least 35 U.S.C. 102(a).

64utah-SCADA was published in 2012. 64utah-SCADA is prior art under at least 35 U.S.C. 102(a).

Brochure-VTScada-FeaturesByVersion was published in 2016 (continuously updated since 2007). Brochure-VTScada-FeaturesByVersion is prior art under at least 35 U.S.C. 102(a).

scada_sys_wht_ppr-2a_new was published in 2007. scada_sys_wht_ppr-2a_new is prior art under at least 35 U.S.C. 102(a).

CR1000 Datalogger – Brochure was published in June 2004 and 2008. CR1000 Datalogger – Brochure is prior art under at least 35 U.S.C. 102(a).

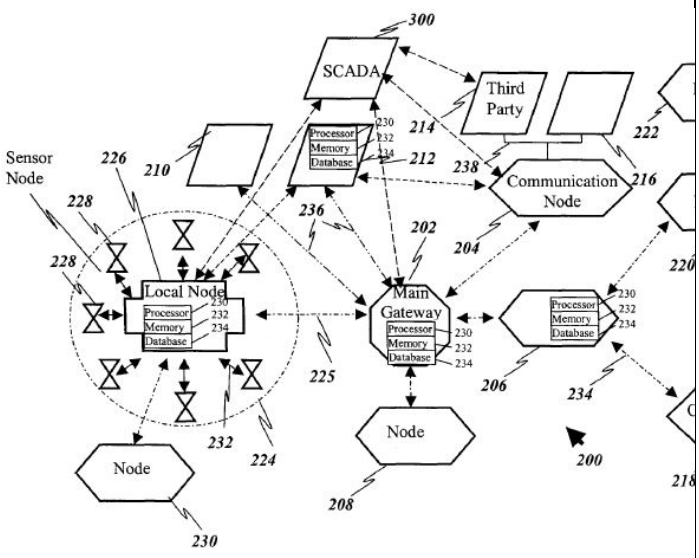
TM 5-601 Supervisory Control was published on January 21, 2006. TM 5-601 Supervisory Control is prior art under at least 35 U.S.C. 102(a).

The citations to portions of any reference in this chart are exemplary only. Defendant will rely on the entirety of the reference cited in this chart, as well as any additional materials relevant to the reference identified through their ongoing investigation, to show that the asserted claims are invalid.

Claim#	Claim Language	Abdallah, 64utah-SCADA, Brochure-VTScada-FeaturesByVersion, scada_sys_wht_ppr-2a_new, CR1000 Datalogger – Brochure, TM 5-601 Supervisory Control
1.	[1.p] A system for remotely controlling a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station, the system comprising	To the extent that the preamble is found to be limiting, Abdallah discloses a system for remotely controlling a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station, in that it relates to the control of, and acquisition of data from, remote and in-plant subsystems in automated industrial processes ¶0006. Abdallah specifically discloses that a well site 100 may be provided with several monitoring and control devices for remote operations at the site. ¶¶0051-55. A POSITA would recognize that the system disclosed by Abdallah remotely monitors and controls a fluid handling device pump at oil wells, water disposal sites, re-injection facilities, or petroleum pumping stations. Therefore, Abdallah discloses a system for remotely controlling a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station. Further 64utah-SCADA discloses a system for remotely controlling a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station, 64utah-SCADA recites, "The systems connect with numerous sensors via a Campbell multiplexer to monitor parameters such as flow and pressure from water sources into tanks, flow and pressure from tanks into the towns, tank level, and flood conditions at the building housing the system. The CR1000 uses a Campbell SDM-CD8S dc device controller to control pumps and valves, with each town controlling the valves to allow or disallow the water flowing to the other." *See* 64utah-Scada, page 2. Also, 64utah-Scada recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices

		over the Internet as if they were sitting at the main PC at the town hall." *See* 64utah-Scada, page 2. Further, Brochure-VTScada-FeaturesByVersion discloses a system for remote controlling on field system. Brochure-VTScada-FeaturesByVersion recites, "The simplest way to access your process from smart phones or tablets. This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* Brochure-VTScada-FeaturesByVersion recites, page 4. Further scada_sys_wht discloses a system for remote controlling. Scada_sys_wht, recites, "Remote monitoring and control of oil and gas production, pumping, and storage at refineries from both offshore platforms and onshore wells". *See* page 2. Scada_sys_wht further recites, "The RTU or PLC acquires the site data, which includes meter readings, pressure, voltage, or other equipment status, then performs local control and transfers the data to the central SCADA system."
	[1a] a command-center server having a data store storing multiple user accounts, each user account corresponding to a set of one or more oil wells, petro water disposal or re- injection facilities, or petroleum pumping stations, or a combination thereof, each set being operated by a different entity corresponding to the respective user account; and	Abdallah discloses a command center server as its central communication gateway 202 that connects the remote system's sensor and control nodes through network 200. ¶0056; ¶0055. Abdallah discloses central communication gateway 202 is a data store server because each includes a processor, memory, and database. FIG. 2. Abdallah discloses that the remote nodes provide sensor data and control access to well-site equipment, such as pumps, valves, and tanks. ¶¶0049-0059. Abdallah discloses that multiple accounts, i.e. well sites, may be connected to the gateways. ¶206 ("Multiple well sites may be monitored using more local gateways"). A POSITA would understand that Abdallah discloses the command-center server of the '909 Patent through its disclosure of the central communication device gateway. Thus, Abdallah discloses the recited command center server.

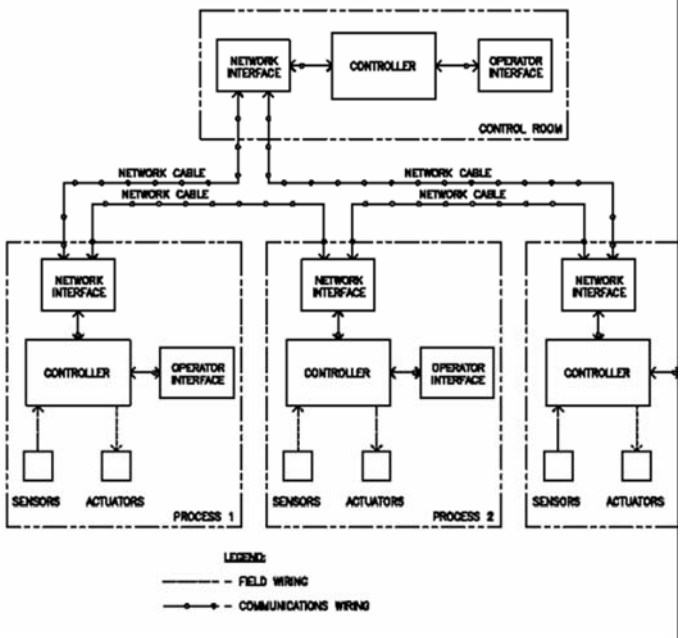
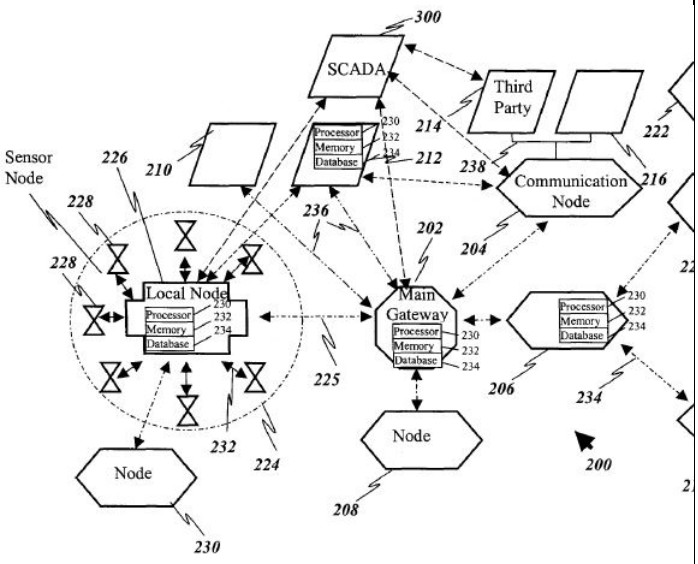
		Further 64utah-SCADA discloses a command center to control the site via user account, 64utah-SCADA recites "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* 64utah-SCADA, page 2. Further, Brochure-VTScada-FeaturesByVersion discloses a command center with multiple user account. Brochure-VTScada-FeaturesByVersion recites, "The simplest way to access your process from smart phones or tablets. This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* page 4. Further Brochure-VTScada-FeaturesByVersion discloses authorized user, Brochure-VTScada-FeaturesByVersion recites, "This optional feature, introduced in 10, allows authorized users to see changes made on all servers, roll back to previous versions and merge versions together." *See* Brochure-VTScada-FeaturesByVersion, page 4. "New 'Roles' and 'Rules' allow you to finely tune what users can do and where while reducing configuration time. Rules are combinations of tags and privileges that vastly reduce the number of privileges required. Roles are pre-defined sets of rules that correspond to specific jobs (e.g., plant operator). To reduce duplication and ensure consistency, accounts can now be shared across applications. The security database scheme now employs military-grade encryption as does the security information exchanged between the VTScada Internet Client and Server. Accounts can also now be disabled following repeated failed log-in attempts." A POSITA would recognize that Brochure-VTScada-FeaturesByVersion has a data store storing multiple account with each account having access to a set of equipment.

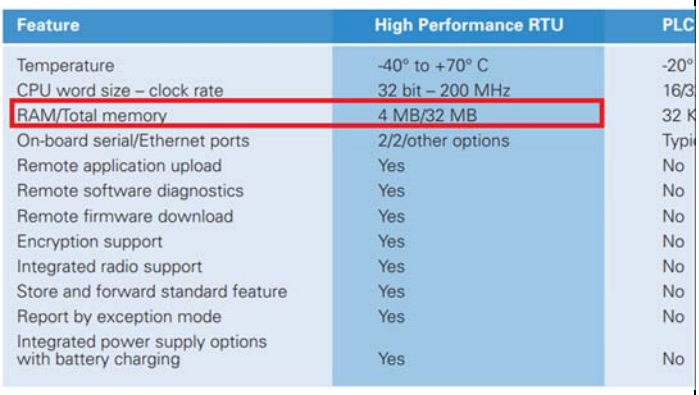
	[1b] a plurality of geographically distributed site master controllers, each site master controller corresponding to a respective one of the oil wells, petro water disposal or re- injection facilities, or petroleum pumping stations, each site master controller comprising:	Abdallah discloses that the remote nodes provide sensor data and control access to well-site equipment, such as pumps, valves, and tanks. ¶¶0049-0059. More specifically, Abdallah discloses that central communication gateway 202 connects to the remote system's local nodes that connect to well-site equipment. *Id.*, ¶¶0055-0056, 0058, FIG. 2.  *FIG. 2* A POSITA would understand that Abdallah discloses a plurality of geographically distributed site master controllers where the site master controller corresponds to an oil well, petro water disposal or re-injection facilities, or petroleum pumping station of the '909 Patent through its disclosure of well site sensor nodes. Thus, Abdallah discloses a plurality of geographically distributed site master controllers. Further 64utah-SCADA discloses a master site controller. 64utah-SCADA recites, "The systems connect with numerous sensors via a Campbell multiplexer to monitor parameters such as flow and pressure from water sources into tanks, flow and pressure from tanks into the towns, tank level… The CR1000 uses a Campbell SDM-CD8S dc device controller to control pumps and valves, with each town controlling the valves to allow or disallow the water flowing to the other." *See* 64Utah-SCADA, page 2.

		Further CR1000 Datalogger – Brochure discloses about a site controller. CR1000 Datalogger – Brochure recites, "The module measures sensors, drives direct communications and telecommunications, reduces data, controls external devices, and stores data and programs in on-board, non-volatile storage." *See* page 2. Further TM 5-601 discloses a site controller, "The RTUs were developed primarily to provide monitoring and control capability at unattended sites such as substations, metering stations, pump stations, and water towers." *See* page 3-4. Further scada_sys_wht_ppr-2a_new discloses a site controller. Scada_sys_wht_ppr-2a_new recites, "RTUs that contain a 200 MHz, 500 Million Instructions per Second (MIPS) CPU with multiple communication port support are optimal for performing simultaneous communications, networking, and control tasks." *See* page 5.
	[1c] a communication module operable to communicate with a plurality of fluid-handling devices;	Abdallah discloses that the well site nodes have "output control interfaces coupled to well site tools such as valves 128, 138 for controlling at least some operations at the well site." ¶0051; ¶¶0035-36. A POSITA would understand that Abdallah discloses the communication module operable to communicate with the fluid handling device of the '909 Patent through its disclosure of output control interfaces that couple to well-site tools. Thus, Abdallah discloses a communication module. Further 64utah-SCADA discloses control and communication with the plurality of fluid handling device. 64utah-SCADA recites, "The systems connect with numerous sensors via a Campbell multiplexer to monitor parameters such as flow and pressure from water sources into tanks, flow and pressure from tanks into the towns, tank level… The CR1000 uses a Campbell SDM-CD8S dc device controller to control pumps and valves, with each town controlling the valves to allow or disallow the water flowing to the other." *See* page 2.

		Further CR1000 Datalogger – Brochure discloses a control and communication module to communicate with the field device. CR1000 Datalogger – Brochure recites, "The module measures sensors, drives direct communications and telecommunications, reduces data, controls external devices, and stores data and programs in on-board, non-volatile storage… The module can simultaneously provide measurement and communication functions." *See* page 2. Further scada_sys_wht discloses communicating modlule and controlling plurality of fluid-handling devices. Scada_sys_wht recites "Remote monitoring and control of oil and gas production, pumping, and storage at refineries from both offshore platforms and onshore wells." "The RTU or PLC acquires the site data, which includes meter readings, pressure, voltage, or other equipment status, then performs local control and transfers the data to the central SCADA system." *See* page 2. Further TM 5-601 discloses a communication module, TM 5-601 recites, "Input/Output (I/O): These modules provide the means of connecting the processor to the field devices." *See* page 3-5.
	[1d] a network interface;	Abdallah discloses communication among the nodes forming the network 200 as well as between the nodes and third-party devices to share information and receive commands from users. ¶¶0055-56, 0058 (wired or wireless examples), 0060 (wired or wireless, short range or long range, and a mix of different methodologies disclosed including short-range wireless UCMP, long range wireless UCMP short-range Modbus and long-range wireless Modbus). A POSITA would understand that Abdallah discloses the network interface of the '909 Patent through its disclosure of various wired or wireless interfaces. Thus, Abdallah discloses a network interface. Further 64utah-SCADA discloses a network interface to communicate with server. 64utah-SCADA recites, "LoggerNet and VTScada run on

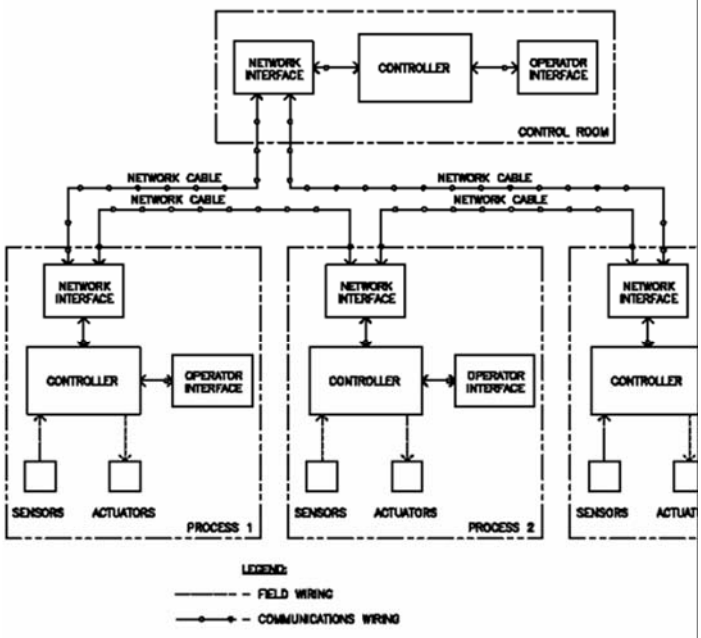
		Windows 7 PCs and communicate with the CR1000 master unit over Ethernet connections." *See* page 2. Further CR1000 Datalogger – Brochure discloses a network interface. CR1000 Datalogger recites, "The CR1000 supports the PakBus® communication protocol. PakBus networks have the distributed routing intelligence to continually evaluate links." *See* page 3. CR1000 Datalogger – Brochure also recites, "Use of an NL100 or NL115 interface enables the CR1000 to communicate over a local network or a dedicated Internet connection via TCP/IP. The NL115 also supports data storage on a CompactFlash card." *See* page 4. Further scada_sys_wht_ppr-2a_new discloses a network interface. Scada_sys_wht_ppr-2a_new recites, "RTUs that contain a 200 MHz, 500 Million Instructions per Second (MIPS) CPU with multiple communication port support are optimal for performing simultaneous communications, networking, and control tasks." *See* page 5. Further TM 5-601, discloses a network interface at the site, TM 5-601 recites, "Input/Output (I/O): These modules provide the means of connecting the processor to the field devices." *See* page 3-5, Fig. 3-3.

		 *Figure 3-3. Distributed control system architecture*
	[1e] memory; and	Abdallah discloses that both local and main gateway nodes in the network include processor, memory, and database. ¶0056, FIG. 2.  ***FIG. 2*** A POSITA would understand that Abdallah discloses the recited memory of the '909 Patent through its disclosure of memory in each node. Thus, Abdallah discloses a memory.

		Further CR1000 Datalogger discloses a memory unit, CR1000 Datalogger recives, "The CR1000 has 2 Mbyte of FLASH memory for the Operating System, and 4 Mbytes of battery-backed SRAM for CPU usage, program storage, and data storage." *See* page 3. Further scada_sys_wht_ppr-2a_new disclose a memory unit, scada_sys_wht_ppr-2a_new recites, "To perform event data logging, systems require large amounts of available program and or user memory." *See* page 6.  **Feature** / **High Performance RTU** / **PLC** Temperature: -40° to +70° C / -20° CPU word size – clock rate: 32 bit – 200 MHz / 16/3 RAM/Total memory: 4 MB/32 MB / 32 K On-board serial/Ethernet ports: 2/2/other options / Typi Remote application upload: Yes / No Remote software diagnostics: Yes / No Remote firmware download: Yes / No Encryption support: Yes / No Integrated radio support: Yes / No Store and forward standard feature: Yes / No Report by exception mode: Yes / No Integrated power supply options with battery charging: Yes / No
	[1f] one or more processors communicatively coupled to the communication module, the network interface, and the memory, wherein the memory stores instructions that when executed by the processors cause the processors to effectuate steps comprising:	Abdallah discloses that both local and main gateway nodes in the network include processor, memory, database, and network connection. ¶0051- 0056, FIG. 2. Abdallah discloses that monitoring devices are strategically located at several locations of the well site 100 to monitor parameters relating to the produced products and/or well site tools. ¶0051. The sensors include monitoring downhole and surface parameters of a well site, with a wide range of listed functionalities. ¶¶0053-0054, 0059. Abdallah further discloses that the well site monitoring devices include nodes with "output control interfaces coupled to well site tools such as valves 128, 138 for controlling at least some operations at the well site." ¶0051; ¶¶0035-36, FIG. 2. A POSITA would understand that Abdallah discloses the recited processor of the '909 Patent through its disclosure of processors in the local node, coupled to the well site monitoring device.

		A POSITA would understand that Abdallah discloses the recited instructions stored in memory of the '909 Patent through its disclosure of sensor nodes with output control interfaces coupled to the well site monitoring device, which receive commands over the network. *Id.* Thus, Abdallah discloses one or more processors coupled to the communication module network, interface, and memory-storing instructions for the site controller. Further CR1000 Datalogger discloses a processor coupled to communication module. *See* page 8. **CPU AND INTERFACE** PROCESSOR: Renesas H8S 2322 (16-bit CPU with 32-bit internal core) MEMORY: 2 Mbytes of Flash for operating system; 4 Mbytes of battery-backed SRAM for CPU usage, program storage and data storage. SERIAL INTERFACES: CS I/O port is used to interface with Campbell Scientific peripherals; RS-232 port is for computer or non-CSI modem connection. PARALLEL INTERFACE: 40-pin interface for attaching data storage or communication peripherals such as the CFM100 module BAUD RATES: Selectable from 300 bps to 115.2 kbps. ASCII protocol is one start bit, one stop bit, eight data bits, and no parity. CLOCK ACCURACY: ±3 min. per year Further scada_sys_wht_ppr-2a_new discloses a processor. Scada_sys_wht_ppr-2a_new recites, "CPU – RTUs require high processing capability to manage complex control tasks efficiently. For example, RTUs that contain a 200 MHz, 500 Million Instructions per Second (MIPS) CPU with multiple communication port support are optimal for performing simultaneous communications, networking, and control tasks." *See* page 5. Further TM 5-601 discloses a processor. TM 5-601 recites, "Processor: The processor module contains the microprocessor that performs control functions and computations, as well as the memory required to store the program.", "Input/Output (I/O): These modules provide the means of connecting the processor to the field devices." *See* page 3-5.

	[1g] receiving, via the network interface, from the command-center server, a plurality of commands encoded in a first protocol to control the fluid-handling devices from a user corresponding to one of the user accounts, different commands among the plurality of commands being directed to different fluid handling devices among the plurality of fluid-handling devices;	Abdallah discloses that the central gateway 202 is in communication with the sensor nodes. ¶0058. Abdallah further discloses that the monitoring network establishes "two-way communication with every node, including every remote node and every gateway node in the network." ¶0056. Abdallah also discloses that every node and gateway in the system are "individually addressable and can be in direct communication with each other and a third party communication device, such as a SCADA system through a mesh network." *Id*. A POSITA would understand that Abdallah discloses the recited receiving commands from the command center server encoded in a first protocol, a computer networking protocol, to control specific fluid handling devices of the '909 Patent through its disclosure of networked individually addressable nodes for controlling operation of well site components. Thus, Abdallah discloses receiving, via the network interface, from the command-center server, a plurality of commands encoded in a first protocol to control the fluid-handling devices from a user corresponding to one of the user accounts. Further TM 5-601 discloses receiving "Control action for each system or subsystem takes place in the local controller, but the central operator station has complete visibility of the status of all systems and the input and output data in each controller, as well as the ability to intervene in the control logic of the local controllers if necessary." *See* page 3-2, Fig. 3-3.

		 *Figure 3-3. Distributed control system architecture* Further 64utah-SCADA discloses receiving from the command center server about controlling the site based on the user command using the site controller. 64utah-SCADA recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 2. 64utah-recites, "The CR1000 uses a Campbell SDM-CD8S dc device controller to control pumps and valves, with each town controlling the valves to allow or disallow the water flowing to the other." *See* page 2.
	[1h] for at least some of the plurality of commands, determining a plurality of different target states of a given one of the fluid-handling devices over time, wherein the respective site-master controller is operative to maintain control of the fluid handling devices in the	Abdallah discloses monitoring devices strategically located at several locations of the well site 100 to monitor parameters relating to the produced products and/or well site tools. ¶0051. The sensors include monitoring downhole and surface parameters of a well site, with a wide range of listed functionalities. ¶¶0053-0054, 0059. Abdallah further discloses the well site monitoring devices include nodes with "output control interfaces coupled to well site tools such as valves 128, 138 for

	absence of a network connection to the command-center server;	controlling at least some operations at the well site." ¶0051; ¶¶0035-36, FIG. 2. Abdallah discloses determining different target states, including selecting a real-time transmission mode when an input signal change rate is less than a predetermined value and selecting a buffered data transmission mode when the signal change rate is greater than or equal to the predetermined value; and transmitting the data in the selected transmission mode from a wireless oil field environment. ¶0010, ¶0045, 0047. A POSITA would understand that the number of parameters corresponds to a plurality of different target states. A POSITA would further understand that the "sensing a signal change rate for an input signal from an oil field apparatus; selecting a real-time transmission mode when the signal change rate is less than a predetermined value" described in Abdallah determines a plurality of different target states of a given one of the fluid-handling devices over time in the absence of a network connection to the command-center server. *Id.* Thus, Abdallah discloses determining a plurality of different target states of a given one of the fluid- handling devices over time. Abdallah also discloses that every node and gateway in the system are "individually addressable and can be in direct communication with each other and a third party communication device, such as a SCADA system through a mesh network." ¶0056. A POSITA would understand that the local node controller controlling at least some operations at an individually addressable well site requires determining from a set of target states parameters that are used to control the operations at the well site without active communications with the command server. Thus, Abdallah discloses determining a plurality of different target states of a given one of the fluid-handling devices over time, where the local node device is operative to maintain control in the

		absence of a network connection to the central communication device gateway.
	[1i] translating the plurality of commands into translated commands encoded in a plurality of protocols different from the first protocol, each translated command being translated into a protocol among the plurality of protocols suitable for a fluid-handling device to which the respective command is directed, the at least some of the translated command being operative to cause a local controller of the given fluid- handling device to drive the given fluid-handling device to the plurality of different target states, the local controller being responsive to the translated commands and feedback from the given fluid-handling device indicative of whether the given fluid-handling device is in a targeted state; and	Abdallah discloses the translating of the plurality of commands into translated commands encoded in a plurality of protocols different from the first protocol of the '909 Patent. The claimed device in Abdallah is "configured as a protocol translator to change the received information from the first communication protocol to the second communication protocol." Abstract, ¶¶0008-0009 ("translating the received data from the first communication protocol to a second communication protocol"); Claim 12. For example, Abdallah discloses FIG. 3 is a non-limiting example of anode gateway 300. ¶0051. The gateway 300 communicates with other nodes and devices as described above and shown in FIG. 2 using one or more protocols. ¶0097. Abdallah discloses Modbus RTU serial protocol, SNMP, Modbus Universal Plug and Play, as well as other proprietary protocols. *Id.*; FIG. 6, ¶¶0098 ("the gateway 300 may further include a protocol translator 306"); 0209. Abdallah further discloses in Figure 6 that the node sends a response related to the command back to the user. FIG. 6; ¶¶107, 209.

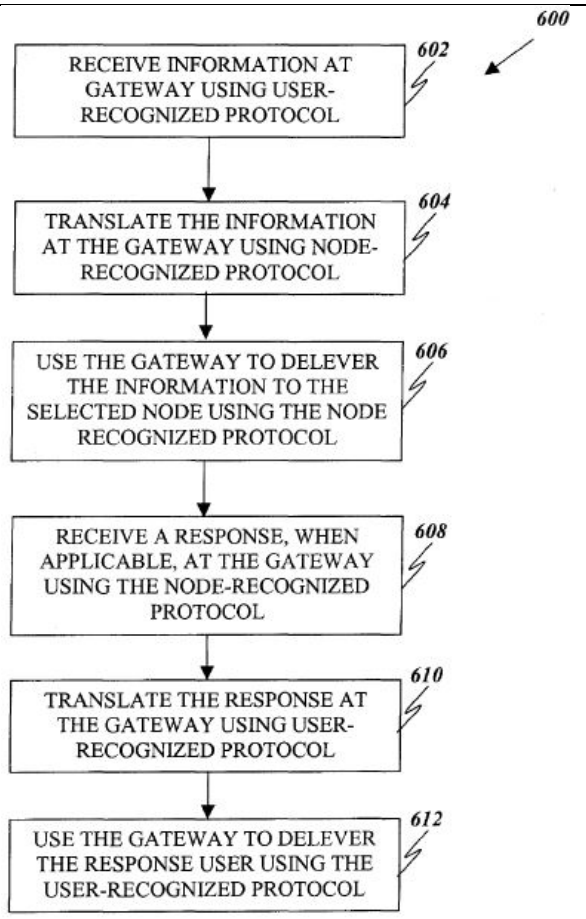


FIG. 6

A POSITA would understand that Abdallah discloses the local controller being responsive to the translated commands and providing feedback from the fluid- handling device indicative of whether the given fluid-handling device is in a targeted state.

Abdallah discloses Figures 7 and 8 show illustrative data structures used for data communication and protocol translation in different particular illustrative embodiments. ¶0102; FIG. 7; FIG. 8;

A POSITA would understand that the use of different protocols by the gateway 300 to communicate with other nodes and devices requires the protocols must be translated for communication between the nodes and disparate devices. Thus, Abdallah discloses translating the plurality of commands into translated commands encoded in a

		plurality of protocols different from the first protocol.
	[1j] sending the translated commands to respective local controllers of the respective fluid-handling devices to which the respective commands are directed.	Abdallah discloses that the translated commands described in Element 1[i] above are sent to the fluid handling device. *See, e.g.*, ¶¶0008-0009 ("translating the received data from the first communication protocol to a second communication protocol"); Claim 12. Abdallah discloses that the signal transmission functionality circuit 312 may be coupled to the controller 302 and the communication interface 310 via a radio transceiver 318. ¶0098; ¶0097. FIG. 6. of Abdallah further discloses that the gateway is used to deliver the translated responses using the user-recognized protocol. ¶0209; FIG. 6.

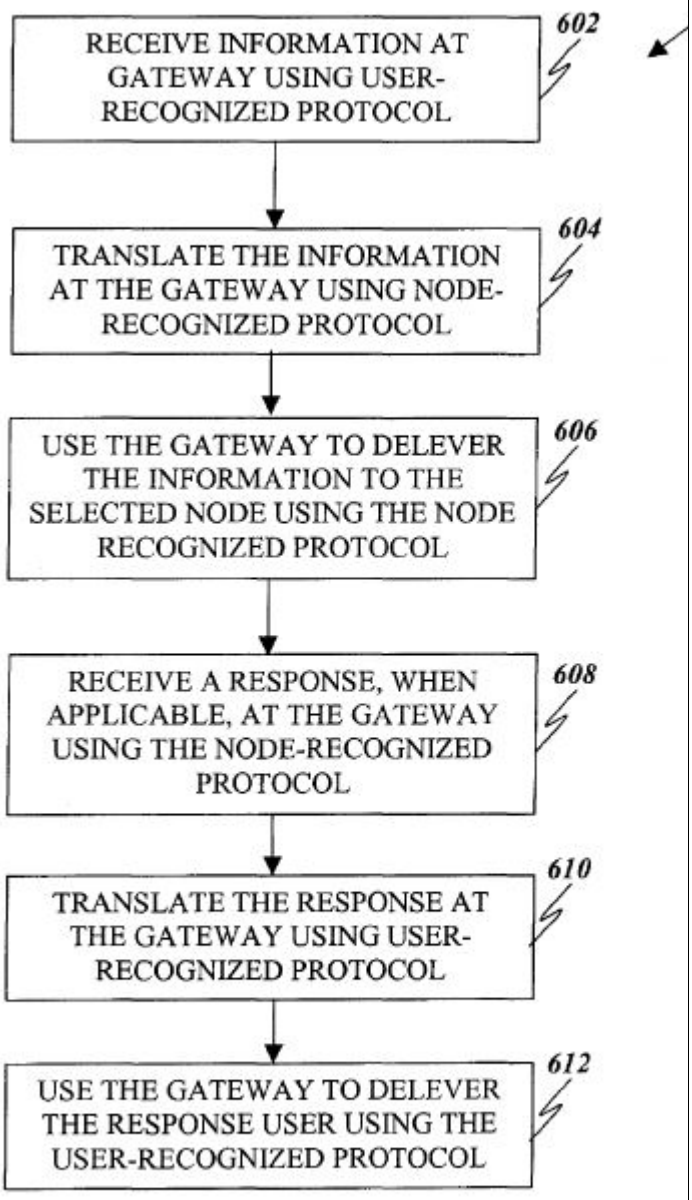


FIG. 6

A POSITA would understand that Abdallah discloses sending the translated commands to respective local controllers for fluid handling devices. Thus, Abdallah discloses sending the translated commands to respective local controllers of the respective fluid-handling devices.

Abdallah, therefore, anticipates, or renders obvious to a POSITA Claim 1.

2.	The system of Claim 1, wherein the memory also stores instructions that when executed by the processors cause the processors to effectuate steps comprising: receiving, from the fluid-handling device, sensor data indicative of the operation of the fluid-handling device obtained by sensors of the fluid-handling device; and sending, to a remote data store, the received sensor data.	Further 64utah-SCADA discloses receiving sensory data and send it to the central serve. 64utah-SCADA recites, "The systems connect with numerous sensors via a Campbell multiplexer to monitor parameters such as flow and pressure from water sources into tanks, flow and pressure from tanks into the towns, tank level, and flood conditions at the building housing the system." *See* page 2. 64utah-SCADA further recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 2. Further CR1000 Datalogger, discloses memory to store instruction. CR1000 Datalogger recites, "The module measures sensors, drives direct communications and telecommunications, reduces data, controls external devices, and stores data and programs in on-board, non-volatile storage." *See* page 2. Further scada_sys_wht_ppr-2a_new discloses a memory to store instruction. Scada_sys_wht_ppr-2a_new recites, "RTUs require high processing capability to manage complex control tasks efficiently. For example, RTUs that contain a 200 MHz, 500 Million Instructions per Second (MIPS) CPU with multiple communication port support are optimal for performing simultaneous communications, networking, and control tasks." *See* page 5. Further TM 5-601 discloses the aspect of memory. TM 5-601 recites, "The processor module contains the microprocessor that performs control functions and computations, as well as the memory required to store the program.", "These modules provide the means of connecting the processor to the field devices", "Communications modules are available for a wide range of industry-standard communication network connections. These allow digital data transfer between PLCs and to other systems within the facility." *See* page 3-5.

3.	The system of Claim 2, comprising the remote data store and a web-server, wherein the web-server is operative to perform steps comprising: receiving, from a user device, a password corresponding to a selected one of the user accounts; receiving, from the user device, a request for a data indicative of the operation of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station coupled to the fluid-handling device of the selected one of the user accounts; retrieving, from the data store, data responsive to the request from the user device; and sending, to the user device, the retrieved data for presentation to the user.	64utah-SCADA, discloses a remote system to receive data. 64utah-SCADA recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 2. Further Brochure-VTScada-FeaturesByVersion, discloses a server for user to control the site, Brochure-VTScada-FeaturesByVersion recites, "This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* page 4. Brochure-VTScada-FeaturesByVersion further recites, "This optional feature, introduced in 10, allows authorized users to see changes made on all servers, roll back to previous versions and merge versions together." *See* page 4.
4.	The system of Claim 3, wherein the request is a request for data indicative of an amount of oil or other types of fluid extracted from, or injected into, an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station to which the fluid-handling device is coupled, and wherein the retrieved data comprises data indicative of the amount of oil, produced fluid, or flowback fluid.	64utah-SCADA, discloses receiving data. 64utah-SCADA recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 4. Further Brochure-VTScada-FeaturesByVersion, discloses about receiving data. Brochure-VTScada-FeaturesByVersion recites, "This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* page 4. Further TM 5-601, discloses receiving data. TM 5-601 recites, "Distributed control system architecture (figure 3-3) offers the best features of both local

		control and centralized control… Control action for each system or subsystem takes place in the local controller, but the central operator station has complete visibility of the status of all systems and the input and output data in each controller, as well as the ability to intervene in the control logic of the local controllers if necessary." *See* page 3-2.
5.	The system of Claim 3, wherein the request is a request to view alarms issued by a fluid-handling device among the plurality of fluid handling devices, and wherein the retrieved data comprises data indicative of the alarms.	64utah-SCADA, Brochure-VTScada-FeaturesByVersion discloses Claim 5 for the reasons discussed above for Claim 4 and incorporated herein.
6.	The system of Claim 3, wherein the retrieved data comprises messages provided to the web server regarding attempts to address the alarms.	64utah-SCADA, Brochure-VTScada-FeaturesByVersion discloses Claim 6 for the reasons discussed above for Claim 4 and incorporated herein.
7.	The system of Claim 2, comprising the remote data store and a web-server, wherein the web-server is operative to perform steps comprising: receiving, from a user device, the command to change the state of the fluid-handling device; and determining a network address of the network interface of the respective site master controller; and sending the command to the network interface.	64utah-SCADA, Brochure-VTScada-FeaturesByVersion discloses Claim 7 for the reasons discussed above for Claim 4 and incorporated herein.
8.	The system of Claim 1, wherein at least some of the fluid- handling devices comprise a pump, and wherein the plurality of commands comprise a command to change the speed of the pump.	64utah-SCADA discloses controlling the pump, 64utah-SCADA recites, "The CR1000 uses a Campbell SDM-CD8S dc device controller to control pumps and valves, with each town controlling the valves to allow or disallow the water flowing to the other." "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms." *See* page 2.

		Further CR1000 Datalogger discloses controlling pump, CR1000 Datalogger recites, "Alarm and pump actuation are controlled through digital I/O ports that operate external relay drivers". *See* page 7.
14.	The system of Claim 1, comprising one of the following coupled to the fluid-handling devices: an oil well, a saltwater disposal well, a carbon-capture well, or a pump station.	64utah-SCADA, CR1000 Datalogger discloses Claim 14 for the reasons discussed above for Claim 8 and incorporated herein.
19.	The system of Claim 1, wherein the system is operative to provide web-based control and monitoring of oil and gas wells to multiple account holders corresponding to the user accounts.	64utah-SCADA, Brochure-VTScada-FeaturesByVersion, discloses Claim 19 for the reasons discussed above for Claim element 1a and incorporated herein.

Exhibit B-1

Invalidity Claim Chart for U.S. Patent No. 9,342,078 ("the 078 patent")

In view of

US 8,887,901 ("Almadi")

The asserted claims of '078 patent are anticipated and/or rendered obvious by Almadi as identified in Defendant Preliminary Invalidity Contentions.

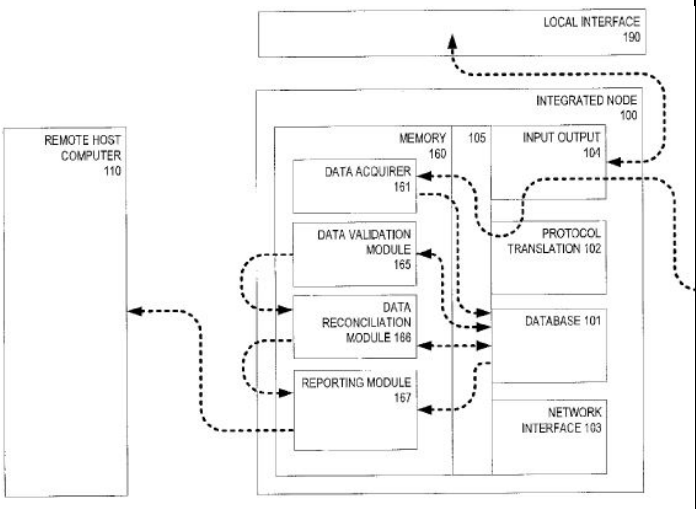
U.S. Patent No. 8,667,091 ("Almadi") was filed on July 22, 2011, published on April 5, 2012, and issued on March 4, 2014. Almadi is prior art under at least 35 U.S.C. 102(a).

The citations to portions of any reference in this chart are exemplary only. Defendant will rely on the entirety of the reference cited in this chart, as well as any additional materials relevant to the reference identified through their ongoing investigation, to show that the asserted claims are invalid.

Claim#	Claim Language	Almadi
1.	[1.1] A method, comprising:	To the extent that the preamble is found to be limiting, Almadi discloses a method. Almadi discloses that the present invention relates to the control of, and acquisition of data from, remote and in-plant subsystems in automated industrial processes. Abstract; 1:18-22, 8:27-67. A POSITA would recognize that Almadi discloses a method. Therefore, Almadi discloses the method of the '078 Patent.
	[1.2] receiving, via a network interface, a plurality of user- directed instructions to control fluid-handling devices that monitor or control one or more fluids at an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station, the plurality of instructions being received encoded in a shared protocol;	Almadi discloses that its disclosed method serves intelligent fields for oil and gas, substations/power grid, and remote security. 13:20-25. Almadi discloses that integrated node 100 supports a local programming interface over a computer, accessible to a human user through remote host computer 110. 12:10-15. 12:55-59. More specifically, Almadi discloses integrated node 100 connected to remote host computer 110 or remote subsystems 120 by way of communication links 115 and 125. 11:31-35. Input/output unit 104 provides both serial and Ethernet interfaces over communication links 115 and 125. 13:51-14:9 (disclosing various communication protocols).

		A POSITA would understand that Almadi discloses the recited limitation through its disclosure of receiving commands i.e, instructions from a user through remote host 110, which connects through integrated node 100 to individually addressable remote subsystems 120 for controlling operation of well site components. Thus, Almadi discloses this claim element.
	[1.3] obtaining a target state of at least one of the fluid- handling devices based on at least some of the plurality of instructions, wherein obtaining a target state of at least one of the fluid-handling devices based on at least some of the plurality of instructions comprises:	Almadi discloses that modern field devices monitor and collect data, such as measurements of fluid pressure, temperature, or flow, reflective of the operations of the automated process. 1:28-57. Almadi further discloses that modern field devices may be termed "intelligent field devices," generally, in the sense that they may also incorporate more robust functionality, such as the ability to process data, self-monitor, self-regulate, self-calibrate, or provide early warning with respect to malfunctions or predictive maintenance. 1:18-57. Almadi discloses that remote subsystems 120 can include a variety of intelligent field systems. *See generally*, 12:27-59. Almadi discloses commands used by the local controller to drive the fluid handling device to a particular target state, e.g. "field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process is, for example, through motors and pumps." 1:45-49; *see also id.,* 25:26-37 ("switching a pump off if the flow is below certain limit or activating some bounds or streams based on some readings/conditions"); *id.* 12:27-59. A POSITA would understand that Almadi's disclosure of monitoring and collecting data, such as measurements of fluid pressure, temperature, or flow determines a plurality of different target states of a given one of the fluid-handling devices over time is the obtaining a target state of the fluid-handling devices based on a plurality of instructions as claimed in the '078 Patent.

		Thus, Almadi discloses this claim element.
	[1.4] after receiving the instructions, determining a plurality of different target states of at least one of the fluid-handling devices, the plurality of different states each corresponding to different times;	Almadi discloses field devices that monitor and collect data, such as measurements of fluid pressure, temperature, or flow, reflective of the operations of the automated process. 24:1-3; *see also* 1:28-57. Almadi discloses different states corresponding to different times through its disclosures related to the collection, storage, and retrieval of time-stamped process data. Abstract, FIG. 6, FIGS. 8-11; 4:30-34, 5:4-6:53, 7:26-34, 7:59-64, 8:6-45, 9:1-33, 15:38-16:50, 17:1-14, 17:29-35, 7:50-65, 19:8-14, 19:26-38, 21:23-27, 23:10-15. A POSITA would understand that Almadi's disclosure of monitoring and collecting time-stamped process data can be done automatically or manually at different times to determine a plurality of different target states corresponding to different times, as claimed in the '078 Patent. Thus, Almadi discloses after receiving the instructions, determining a plurality of different target states of at least one of the fluid-handling devices, the plurality of different states each corresponding to different times.
	[1.5] for each of the plurality of instructions, selecting a respective protocol or protocols from among a plurality of protocols different from the shared protocol, wherein the respective fluid-handling device or devices to which the respective instruction is directed are responsive to the selected respective protocol or protocols, wherein at least some of the selected protocols are different from one another;	Almadi discloses that integrated node 100 can further include a protocol translator or translation server 102 to translate communications with each of the remote subsystems 120 according to various messaging protocols for communication with fluid handling devices. 14:10-17, FIG. 1B; *see also*, 11:35-41, Claim 4. Almadi discloses protocols different from the shared protocol, above. *Compare, e.g.*, 14:10-17, Claim 4, *with* 13:51-14:9 (disclosing computer networking communication protocols). A POSITA would further understand from Almadi's disclosure of a protocol translator to translate communications with each of the remote sub-systems and its disclosure of various protocols is the selecting of a protocol from a plurality of instructions from a plurality of different protocols claimed in the '078 Patent. Thus, Almadi discloses this claim element.

	[1.6] after determining the plurality of different target states, translating each received instructions into one or more translated instructions encoded in the selected respective protocol or protocols, the one or more translated instructions including the determined plurality of different target states; and	Almadi discloses after determining the plurality of different target states, translating each received instructions into one or more translated instructions encoded in the selected respective protocol or protocols through its disclosure that that integrated node 100 can further include a protocol translator or translation server 102 to translate communications with each of the remote subsystems 120 according to any one or more of a plurality of messaging protocols (as can be shown with reference to the arrows connecting protocol translator or translation server 102 and the plurality of remote subsystems 120). 14:10-17, FIG. 1B; *see also*, 11:35-41. Almadi discloses the one or more translated instructions including the determined plurality of different target states through its disclosure that the protocol translator or translation server 102 can be configurable, such as being configured by a user, for example through a configuration tool interface, to support communications according to various protocols, including various protocols over serial and Ethernet physical interfaces, such as Serial Modbus, Modbus over IP (Internet Protocol), Highway Addressable Remote Transducer (HART) Protocol, Foundation Fieldbus, Distributed Network Protocol (DNP), IEC 61850, ISA100.11a, Wireless HART, ZigBee, and Ethernet/IP (Ethernet Industrial Protocol), including supporting subsystems data exchange. 14:17-28; *see also* FIG. 2D.  *FIG. 2D*

		Almadi discloses translated commands used by the local controller to drive the fluid handling device to a particular target state, e.g., "field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps." 1:45-49; *see also id.*, 25:26-37 ("switching a pump off if the flow is below certain limit or activating some bounds or streams based on some readings/conditions"). A POSITA would understand that the use of different protocols by the protocol translator requires that the protocols be translated and that the translated instructions include the determined plurality of different target states as claimed in the '078 Patent. Thus, Almadi discloses this claim limitation.
	[1.7] sending each translated instructions to at least the fluid- handling device to which the respective translated instruction is directed, wherein at least some of the translated instructions are effective to cause the at least one of the fluid-handling devices to attempt to achieve the target state	Almadi discloses that integrated node 100 includes a protocol translator or translation server 102 to translate communications with each of the remote subsystems 120 according to any one or more of a plurality of messaging protocols. 14:10-17, FIG. 1B; *see also*, 11:35-41. Almadi discloses sending translated commands to the local controller to drive the fluid handling device to a particular target state, e.g. "field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps." 1:45-49; *see also* 25:26-37 ("switching a pump off if the flow is below certain limit or activating some bounds or streams based on some readings/conditions"), 9:54-62. A POSITA would understand that Almadi's disclosures of a protocol translator and a network interface for routing connection between a host and remote subsystems as the sending the translated commands effective to cause the fluid handling device to attempt to achieve the target state, as claimed in the '078 Patent. Thus, Almadi discloses this limitation of the '078 Patent.

		Claim 1 is anticipated by Almadi or would be obvious to a POSITA in view of Almadi.
2.	[2.1] The method of claim 1, wherein selecting a respective protocol or protocols comprises: parsing, from at least one of the received instructions an identifier of one of the fluid- handling devices; and	Almadi discloses parsing, from at least one of the received instructions and identifier of one of the fluid-handling devices through its disclosure "[m]odeling objects included at the configuration interface include, for example, objects to identify routing and process streams between plants and different numbers and types of process units, such as tanks, crude switches, and other process units." 24:43-48. A POSITA would understand that modeling objects to identify routing and process streams parses an identifier of one of the fluid-handling devices. Thus, Almadi discloses this claim element.
	[2.2] based on the parsed identifier, retrieving from memory one or more records, including an identifier of at least one selected respective protocol and an identifier of a bus to which the identified fluid-handling device is communicatively coupled.	Almadi discloses retrieving from memory one or more records, including an identifier of at least one selected respective protocol through its disclosure that any of the measurements or values can be output by storing to a storage medium such as memory 160 or database 101, by transmitting to remote host computer 110, or by transmitting to any other computer or interface in communication with the integrated node 100 over the input/output unit, such as the local interface 190. 27:2- 10. Almadi discloses an identifier of a bus to which the identified fluid-handling device is communicatively coupled through its disclosure of "the configuration interface" that allows a user "to identify routing and process streams between plants and different numbers and types of process units, such as tanks, crude switches, and other process units . . ." 24:43-48. A POSITA would recognize from Almadi's disclosure that modeling objects to identify process stream and process limits is the identifying a respective protocol and bus identifier to which a fluid-handling device is coupled of the '078 Patent. Further, a POSITA would understand that Almadi discloses a record retrieved based on the parsed identifier, retrieving from memory that identifies a respective protocol and a bus to which the identified

		fluid-handling device is communicatively coupled, as recited in the '078 Patent, through Almadi's disclosure of a storage medium, that identifies each of the routing and process streams. 120. Thus, Almadi discloses this claim element. Thus, Claim 2 is anticipated by Almadi or would be obvious to a POSITA in view of Almadi.
3.	The method of claim 2, wherein sending each translated instructions to at least the fluid-handling device to which the respective instruction is directed comprises: sending an address of the identified fluid-handling device on the identified bus in association with at least some of the translated instructions.	Almadi discloses sending each translated instructions to the fluid-handling device through its disclosure that integrated node 100 includes a protocol translator or translation server 102 to translate communications with remote subsystems 120 according to designated messaging protocols. 14:10-17, FIG. 1B; *see also*, 11:35-41. Almadi discloses sending an address for a fluid-handling device on a bus with the translated instructions through its disclosure that its disclosure "[m]odeling objects included at the configuration interface include, for example, objects to identify routing and process streams between plants and different numbers and types of process units, such as tanks, crude switches, and other process units." 24:43-48; *see also* 11:35-41, 14:10-17, FIG. 1B. Almadi also discloses that network communication links 125 may include, a logical bus. 13:25-30. A POSITA would understand that Almadi's disclosure of network communication links and modeling objects that include routing and process streams is the sending an address of a fluid-handling device or a bus with at least some of the translated instructions on the identified bus. Thus, Claim 3 is anticipated by Almadi or would be obvious to a POSITA in view of Almadi.
4.	[4.1] The method of claim 2, wherein sending each translated instructions to at least the fluid-handling device to which the respective instruction is directed comprises: providing at least some of	Almadi discloses sending each translated instruction to the fluid-handling device through its disclosure that integrated node 100 includes a protocol translator or translation server 102 to translate communications with remote subsystems 120 according to designated messaging protocols. 14:10-17, FIG. 1B; *see also id.*, 11:35-41.

	the translated instructions to a link-layer device connected to the identified bus; and	A POSITA would understand that link-layer devices communicate over a physical link. Almadi discloses providing at least some of the translated instructions to a link-layer device connected to the identified bus through its disclosure of protocols over serial and Ethernet physical interfaces and busses. 14:19-22. Almadi also discloses a network switch including a network bridge for processing and routing functions at the data link layer (Layer 2) of the Open System Interconnection ("OSI) Reference Model or any known Layer 3 switch or router or any known multi-layer Switch for processing and routing data at the data link or network layers. 12:64-13:3. A POSITA would understand that the multi-layer switch of Almadi is a link layer device, as recited in the '078 Patent. Thus, Almadi discloses this claim element.
	[4.2] encoding the translated instructions with the link-layer device in accordance with the physical medium by which the identified bus is implemented.	Almadi discloses encoding the translated instructions with the link-layer device in accordance with the physical medium by which the identified bus is implemented through its disclosure that the translated instructions to a link-layer device connect it to the identified bus through serial and Ethernet physical interfaces and busses. 14:19-22. Almadi also discloses a network switch including a network bridge for processing and routing functions at the data link layer. 12:64-66. A POSITA would understand from Almadi's disclosure that the network switch encodes translated instructions and that because it is a link layer device, it operates in both the physical and data link layers. Thus, Claim 4 is anticipated by Almadi or would be obvious to a POSITA in view of Almadi.
5.	[5.1] The method of claim 2, wherein sending each translated instruction to at least the fluid-handling device to which the respective instruction is directed comprises:	Almadi discloses providing at least some of the translated instructions to a digital-to-analog converter connected to the identified bus. Almadi discloses analog inputs, analog outputs, digital inputs, digital outputs, and pulse inputs. 13:64-66. Almadi also discloses that the protocol translator is adapted to support multiple analog and digital

	providing at least some of the translated instructions to a digital-to-analog converter connected to the identified bus; and	communication protocols: serial Modbus, Modbus over Internet protocol (IP), highway addressable remote transducer protocol (HART), distributed network protocol (DNP), IEC61850 (International Electrotechnical Commission Standard), the International Society of Automation (ISA) SP100 protocol, and Ethernet/IP (Industrial Protocol). 14:22-27. Almadi also discloses that the integrated node supports a plurality of connection types, protocol types, and communication speed rates. 14:28-32. A POSITA would understand that Almadi's disclosure of analog and digital inputs and outputs, a network interface, and a protocol translator is the providing translated instructions to a digital-to-analog convertor as claimed in the '078 Patent. Thus, Almadi discloses this claim element.
	[5.2] sending the at least some of the translated instructions to the identified fluid-handling device with the digital-to-analog converter.	Almadi discloses sending translated instructions to the identified fluid- handling device with a digital-to-analog converter through its disclosure of analog inputs, analog outputs, digital inputs, digital outputs, and pulse inputs. 13:64-66, Claim 4. Almadi also discloses that the protocol translator is adapted to support multiple analog and digital communication protocols: serial Modbus, Modbus over Internet protocol (IP), highway addressable remote transducer protocol (HART), distributed network protocol (DNP), IEC61850 (International Electrotechnical Commission Standard), the International Society of Automation (ISA) SP100 protocol, and Ethernet/IP (Industrial Protocol). 14:22-27). Almadi also discloses that the integrated node supports a plurality of connection types, protocol types, and communication speed rates. 14:28- 32. A POSITA would understand from Almadi's disclosure of digital and analog outputs, communication protocols and a network interface is the sending translated instructions with a digital-to-analog converter as claimed in the '078 Patent. Thus, Almadi discloses this claim element.

		Claim 5 is anticipated by Almadi or would be obvious to a POSITA in view of Almadi.
6.	The method of claim 1, wherein: the at least some of the translated instructions are effective to cause the at least one of the fluid-handling devices to attempt to achieve the plurality of different target states at the different times.	Almadi discloses that modern field devices monitor and collect data, such as measurements of fluid pressure, temperature, or flow, reflective of the operations of the automated process. 1:28-57. Almadi further discloses that modern field devices may be termed "intelligent field devices," generally, in the sense that they may also incorporate more robust functionality, such as the ability to process data, self-monitor, self-regulate, self-calibrate, or provide early warning with respect to malfunctions or predictive maintenance. 1:18-57. Almadi discloses that remote subsystems 120 can include a variety of intelligent field systems. *See generally*, 12:27-59. Almadi discloses that integrated node 100 can further include a protocol translator or translation server 102 to translate communications with each of the remote subsystems 120 according to various messaging protocols for communication with fluid handling devices. 14:10-17, FIG. 1B; *see also*, 11:35-41, Claim 4. Almadi discloses commands used by the local controller to drive the fluid handling device to a particular target state, e.g. "field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps." 1:45-49; *see also* 25:26-37 ("switching a pump off if the flow is below certain limit or activating some bounds or streams based on some readings/conditions"); *see also* 12:27-59. A POSITA would understand that Almadi's disclosure of monitoring and collecting data, such as measurements of fluid pressure, temperature, or flow determines a plurality of different target states of a given one of the fluid-handling devices over time is the obtaining a target state of the fluid-handling devices based on a plurality of instructions, as claimed in the '078 Patent.

		A POSITA would understand that Almadi's disclosure explains that the system will attempt to drive the fluid-handling device into a plurality of different target states at different times based on limits, readings, or conditions measured by the system, i.e. at different times, as claimed in the '078 Patent. Claim 6 is anticipated by Almadi or would be obvious to a POSITA in view of Almadi.
7.	The method of claim 6, comprising: losing a network connection by which at least some of the plurality of user- directed instructions are received; and after losing the network connection, continuing to cause the at least one of the fluid-handling devices to attempt to achieve the plurality of different target state at the different times and continuing to execute instructions among the plurality of received instructions received prior to losing the network connection before entering an automatic mode.	Almadi discloses that modern field devices monitor and collect data, such as measurements of fluid pressure, temperature, or flow, reflective of the operations of the automated process. 1:28-57. Almadi further discloses that modern field devices may be termed "intelligent field devices," generally, in the sense that they may also incorporate more robust functionality, such as the ability to process data, self-monitor, self-regulate, self-calibrate, or provide early warning with respect to malfunctions or predictive maintenance. 1:18-57. Almadi discloses that remote subsystems 120 can include a variety of intelligent field systems. *See generally*, 12:27-59. A POSITA would understand that Almadi's disclosure of monitoring and collecting data, such as measurements of fluid pressure, temperature, or flow determines a plurality of different target states of a given one of the fluid-handling devices over time as claimed in the '078 Patent. A POSITA would further understand from Almadi's disclosure that "intelligent field devices" process data, self-monitor, self-regulate, self-calibrate, etc., means that intelligent field devices maintain control of the fluid handling devices without requiring network connectivity to a command center server as claimed in the '078 Patent. A POSITA would understand from the above that Almadi's disclosure of detecting a communication failure and instructing the integrated mode to retrieve a data file or a plurality of data files is the continuing to execute instructions received prior to

		the loss of network connection claimed in the '078 Patent. Claim 7 is anticipated by Almadi or would be obvious to a POSITA in view of Almadi.
8.	The method of claim 6, wherein the plurality of different states ramp up or ramp down a motor speed of a motor of the at least one of the fluid-handling devices.	Almadi discloses that remote subsystems 120 can include a variety of intelligent field systems. *See generally*, 12:27-59. More specifically, Almadi discloses commands used by the local controller to drive the fluid handling device to a particular target state, e.g. "field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps." 1:45-49; *see also id.*, 25:26-37 ("switching a pump off if the flow is below certain limit or activating some bounds or streams based on some readings/conditions"); *see also id.,* 12:27-59. A POSITA could understand that Almadi's disclosure of the use of control data by intelligent equipment devices includes the ramping up or down the speed of a motor where the signal to ramp up or ramp down is the control data and the motor is an intelligent equipment device. Claim 8 is anticipated by Almadi or would be obvious to a POSITA in view of Almadi.
11.	The method of claim 1, wherein at least some of the received instructions identify an automatic mode in which a collection of target states are computed to operate within process constraints.	Almadi discloses that modern field devices monitor and collect data, such as measurements of fluid pressure, temperature, or flow, reflective of the operations of the automated process. 1:28-57. Almadi further discloses that modern field devices may be termed "intelligent field devices," generally, in the sense that they may also incorporate more robust functionality, such as the ability to process data, self-monitor, self-regulate, self-calibrate, or provide early warning with respect to malfunctions or predictive maintenance. 1:18-57. Almadi discloses that remote subsystems 120 can include a variety of intelligent field systems. *See generally*, 12:27-59. More specifically, Almadi discloses commands used by the local controller to drive the fluid handling device to a particular target

		state, e.g. "field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps." 1:45-49; *see also id.*, 25:26-37 ("switching a pump off if the flow is below certain limit or activating some bounds or streams based on some readings/conditions"); *id.,* 12:27-59. A POSITA would understand from Almadi's disclosure that received instructions identify an automatic mode in which a collection of target states are computed to operate within process constraints, as claimed in the '078 Patent. Claim 11 is anticipated by Almadi or would be obvious to a POSITA in view of Almadi.
12.	The method of claim 1, wherein at least some of the received instructions correspond to a manual mode in which an individual one of the fluid-handling devices is remotely controlled by a user.	Almadi discloses that integrated node 100 supports a local programming interface over a computer, such as through a computer terminal having one or more input devices and one or more display devices that are accessible to a human user (not pictured) or, for example, by using the remote host computer 110. 12:10-19. Almadi also discloses that integrated node 100 supports proportional- integral-derivative control (PID), closed-loop control, open-loop control, and logic and sequence functions. *Id*. A POSITA would understand that closed-loop control requires direct control by a user turning on or off designated functions. A POSITA would understand from Almadi that receiving instructions corresponds to a manual mode in which an individual one of the fluid-handling devices is remotely controlled by a user. Claim 12 is anticipated by Almadi or would be obvious to a POSITA in view of Almadi.
13.	[13.1] The method of claim 1, comprising: before sending at least one of the translated instructions, accessing a constraint value stored in memory;	Almadi discloses claim element 13.1. Almadi discloses that before sending at least one of the translated instructions, accessing a constraint value stored in memory through its disclosure that upon receiving the time-stamped process data from a remote subsystem, the system determines whether the time-stamped process data constitutes an

		exception responsive to preselected exception criteria. 5:17-39; 17:1-18, 17:29-37, 23:5-40, FIG. 8-9. A POSITA would understand Almadi's disclosure of the determining of the pre-defined exception criteria is the accessing of a constraint value before sending the translated instructions as claimed in the '078 Patent. Thus, Almadi discloses this claim element.
	[13.2] determining that the at least one of the translated instructions will not violate the constraint value; and	Almadi discloses determining the translated instructions will not violate the constraint value through its disclosure upon receiving the time-stamped process data from a remote subsystem, the system determines whether the time-stamped process data constitutes an exception responsive to preselected exception criteria. 17-39; 17:1-18, 17:29-37, 23:5-40, FIG. 8-9. A POSITA would understand that Almadi's disclosure of determining whether the time-stamped process data constitutes an exception responsive to the preselected exception criteria is determining whether at least one of the translated instructions will violate a constraint value claimed in the '078 Patent. Thus, Almadi discloses this claim element.
	[13.3] in response to the determination, sending the at least one of the translated instructions.	Almadi discloses sending the translated instructions through its disclosure that the system provides instructions to, upon receiving the time-stamped process data from a remote subsystem, determine whether the time-stamped process data constitutes an exception responsive to preselected exception criteria. 17- 39; 17:1-18, 17:29-37, 23:5-40, FIG. 8-9. Depending on the criteria check result, the system takes further action to report the exception and remove or replace an out-of- bounds measurement. *Id*. A POSITA would understand that Almadi's disclosure of providing instructions to process data from a remote subsystem is the sending the translated commands claimed in the '078 Patent. Thus, Almadi discloses this claim element, and as such anticipates Claim 13.

		Claim 13 is anticipated by Almadi or would be obvious to a POSITA in view of Almadi.
15.	The method of claim 1, wherein a given one of the fluid- handling devices comprises a proportional-integral- derivative controller, and wherein at least some of the translated instructions adjust a set point of the proportional-integral-derivative controller.	Almadi discloses the fluid-handling devices comprising a proportional- integral-derivative controller, and wherein at least some of the translated instructions adjust a set point of the proportional-integral-derivative controller through its disclosure of the integrated node 100 can further support proportional-integral- derivative control (PID) . . .” 12:15-17. A POSITA would understand that proportional-integral-derivative control (PID) is the proportional-integrated-derivative controller and that the processing of measurement data is the adjusting of a set point of the controller. Claim 15 is anticipated by Almadi or would be obvious to a POSITA in view of Almadi.
16.	[16.1] The method of claim 1, comprising: receiving, at a remote server system, via a network, user credentials from a user device;	Almadi discloses a system intended to serve in various networking operating environments, including, for example, intelligent fields for oil and gas, substations/power grid, and remote security, and can be utilized and can be extended for enterprise applications. 12:10-15, 12:48-59, 13:20-25. Almadi further discloses “[t]hose having skill in the art will appreciate various techniques to ensure no file access violations during the process of accessing the file, for example, by the remote host 300.” 16:65-67. A POSITA would understand that Almadi requires users of such systems would be required to input a username and password for accessing the remote host computer. Thus, Almadi discloses this claim element.
	[16.2] identifying, with the remote server system, an account based on the user credentials, the account including identifiers of the oil well, the petro water disposal or re- injection facility, or the petroleum	Almadi discloses that its disclosed method serves intelligent fields for oil and gas, substations/power grid, and remote security. 12:48-59, 13:20-25. Almadi discloses an identifier of a bus to which the identified fluid-handling device is communicatively coupled through its disclosure of “the configuration interface” that allows a user “to identify routing and process streams between plants and different numbers and types of process units, such as tanks,

	pumping station and at least one other facility;	crude switches, and other process units . . .” 24:43-48. A POSITA would further recognize from the above disclosure that Almadi discloses identifying an account associated with an oil well, the petro water disposal or re-injection facility, or the petroleum pumping station and at least one other facility through its disclosure of a secured network and chemical injection system. Therefore, Almadi discloses this limitation.
	[16.3] receiving from the user device, at the remote server system, a request corresponding to at least one of the received instructions, the request including an identifier of the oil well, the petro water disposal or reinjection facility, or the petroleum pumping station;	Almadi discloses that its disclosed method serves intelligent fields for oil and gas, substations/power grid, and remote security. 13:20-25. Almadi discloses that integrated node 100 supports a local programming interface over a computer, accessible to a human user through remote host computer 110. 12:10-15. 12:55-59. More specifically, Almadi discloses integrated node 100 connected to remote host computer 110 or remote subsystems 120 by way of communication links 115 and 125. 11:31-35. Input/output unit 104 provides both serial and Ethernet interfaces over communication links 115 and 125. 13:51-14:9 (disclosing various communication protocols). Almadi discloses an identifier of a bus to which the identified fluid-handling device is communicatively coupled through its disclosure of “the configuration interface” that allows a user “to identify routing and process streams between plants and different numbers and types of process units, such as tanks, crude switches, and other process units . . .” 24:43-48. A POSITA would recognize that Almadi discloses receiving a request corresponding to at least one received instruction as recited in the ‘078 Patent. Therefore, Almadi discloses this limitation.
	[16.4] identifying, with the remote server system, an Internet Protocol address at which the network interface is reachable based on the identifier of the oil well, the petro water	Almadi discloses an identifier of a bus to which the identified fluid-handling device is communicatively coupled through its disclosure of “the configuration interface” that allows a user “to identify routing and process streams between plants and different numbers and types of process units, such as tanks,

	disposal or re-injection facility, or the petroleum pumping station; and	crude switches, and other process units . . .” 24:43-48. A POSITA would recognize that Almadi discloses identifying an Internet Protocol address at which the network interface is reachable as recited in the ‘078 Patent. Therefore, Almadi discloses this limitation.
	[16.5] sending, from the remote server system, the at least one of the received instructions to the identified Internet Protocol address in response to the request.	Almadi discloses sending, with the server, the instructions via the internet protocol network address through its disclosure that the integrated node employs an Ethernet switch to support networking over multiple communication interfaces and transmit process data to a remote host server over TCP/IP (transmission control protocol and the internet protocol. 3:13-17; *see also*, FIGs 8-11. More specifically, Almadi discloses that integrated node 100 supports a local programming interface over a computer, accessible to a human user through remote host computer 110. 12:10-15. 12:55-59. More specifically, Almadi discloses integrated node 100 connected to remote host computer 110 or remote subsystems 120 by way of communication links 115 and 125. 11:31-35. Input/output unit 104 provides both serial and Ethernet interfaces over communication links 115 and 125. 13:51-14:9 (disclosing various communication protocols). A POSITA would recognize from the above disclosure that Almadi discloses sending the received instructions to the Internet protocol address of the facility. Therefore, Almadi discloses this limitation. Claim 16 is anticipated by Almadi or would be obvious to a POSITA in view of Almadi.
17.	The method of claim 16, wherein the user device is a smartphone executing a smartphone application that communicates with the remote server system via an application program interface.	Almadi discloses Claim 17. Almadi discloses the user device is a smartphone executing a smartphone application that communicates with the remote server system via an application program interface through its disclosure that the “integrated node 100 also supports a local programming interface over a computer, such as through computer terminal having one or more input devices and one or more display devices that are accessible to a human user (not

		pictured) or, for example, by using the remote host computer 110." 12:10-14. Almadi further discloses that "[a]s will be understood in the art, the configuration interface 190 may be implemented on a user-terminal computer and be configurable or operable by any number of peripheral devices for interacting with a user, such as a monitor, a keyboard, a mouse, a stylus, a printer, a touchscreen, a joystick, or any other known peripheral device in communication with the user-terminal computer." 24:37-43. A POSITA would understand that modern smartphones have the same capabilities for engaging with a user as described in Almadi for the user-terminal computer. A POSITA would understand that a user terminal computer could be a smartphone capable of executing a smartphone application. Thus, Almadi discloses claim 17. Claim 17 is anticipated by Almadi or would be obvious to a POSITA in view of Almadi.

Exhibit B-2

Invalidity Claim Chart for U.S. Patent No. 9,342,078 ("the 078 patent")

In view of

US 9,709,995 ("Gutierrez")

The asserted claims of '078 patent are anticipated and/or rendered obvious by Gutierrez as identified in Defendant Preliminary Invalidity Contentions.

U.S. Patent No. 9,709,995 ("Gutierrez") was filed on December 22, 2014, published on April 16, 2015 and issued on July 18, 2017. This application is a continuation of US patent application Ser. No. 12/794,898 filled on June 7, 2010. Gutierrez is prior art under at least 35 U.S.C. 102(a) and 35 U.S.C. 102(e).

The citations to portions of any reference in this chart are exemplary only. Defendant will rely on the entirety of the reference cited in this chart, as well as any additional materials relevant to the reference identified through their ongoing investigation, to show that the asserted claims are invalid.

Claim#	Claim Language	Gutierrez
1.	[1.1] A method, comprising:	To the extent that the preamble is found to be limiting, Gutierrez discloses a method. 1:54-2:8, 5:32-36, Claims 1-8. A POSITA would recognize that Gutierrez discloses a method.
	[1.2] receiving, via a network interface, a plurality of user- directed instructions to control fluid-handling devices that monitor or control one or more fluids at an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station, the plurality of instructions being received encoded in a shared protocol;	Gutierrez discloses a remote computing system with a graphical user interface (GUI); a sensor coupled with a hydrocarbon transmission system; and a chemical injection system. 2:26-29. Gutierrez discloses that chemical injection system 100 may be utilized in a hydrocarbon production system, such as, for example, a field or area having one or more hydrocarbon (e.g., oil, natural gas) production sites. 6:55-7:2. Gutierrez discloses chemical injection system 100 that includes a pump 105 mechanically coupled to a driver, such as a motor 110; a motor controller 115; and a controller 130. 6:46-49. Controller 130 provides microprocessor-based control of the motor controller 115 and thus motor 110 and pump 105. 8:15-19. Controller 130 includes a communication module 140 . . . data acquisition, data storage, and a processor 150. 8:19-21; *see also id.*, 8:39-9:3.

		Gutierrez discloses receiving, via a network interface, a plurality of user- directed instructions to control fluid-handling devices through its disclosure that the production sites are uniquely addressable by the network connection through individualized control systems for "each" facility. 6:28-35; 10:22-24, 10:34-38, 10:43-59 ("data may be wirelessly transmitted directly to each chemical injection system . . . some or all of the processing of data and command generation may occur at the remote control center 220 rather than each chemical injection system 220."). A POSITA would recognize from the above disclosures that Gutierrez discloses receiving a plurality of user-directed instructions to control fluid-handling devices as recited in the '078 Patent. Therefore, Gutierrez discloses this limitation.
	[1.3] obtaining a target state of at least one of the fluid- handling devices based on at least some of the plurality of instructions, wherein obtaining a target state of at least one of the fluid-handling devices based on at least some of the plurality of instructions comprises:	Gutierrez discloses a server receiving values for operational parameters of the transmission system based on a command received from a user, as well as transmitting commands based on one or more operational parameters to adjust control parameters in the system, such as the speed of a motor. 3:40-45, 5:58-67, 6:1-10, 6:13-23, 6:24-44, 9:21-25, 9:55-64, 10:27-30, 10:39-43, 11:18-26, 13:9-26. Gutierrez discloses the command is received in association with a record stored on a datastore through its disclosure that the memory may also include any other appropriate data such as data classes or object interfaces, and software sub-applications or sub-systems. 8:50-52. Gutierrez discloses receiving, with a server, a command comprising a target value of a fluid-handling device from a computing device via a control interface through its disclosure that a graphical user interface receives the commands, and sends them to the fluid-handling system. 11:16-33 ("the system 300 includes a computer 305 displaying a graphical user interface (GUI) 315, one or more remote chemical injection systems 310"), 13:9-26. Gutierrez discloses that the production sites are unique, disclosing separate control systems for "each system." 6:28-35; 10:22-24, 10:34-38, 10:43-

		59 (“data may be wirelessly transmitted directly to each chemical injection system . . . some or all of the processing of data and command generation may occur at the remote control center 220 rather than each chemical injection system 220.”), 11:55- 61 (“each computer 305 may monitor, receive data from, and/or generate commands transmitted to a single chemical injection system 310 or multiple chemical injection systems 310.”), 11:62-12:3, 13:10-26 (“a user or operator may utilize the GUI 315 to control one or more components of the chemical injection system 310”); Claim 1. A POSITA would recognize from the above disclosures that Gutierrez discloses obtaining a target state of at least some of the plurality of instructions the addresses for facilities as recited in the ‘078 Patent. Therefore, Gutierrez discloses this limitation.
	[1.4] after receiving the instructions, determining a plurality of different target states of at least one of the fluid-handling devices, the plurality of different states each corresponding to different times;	Gutierrez discloses sending, with the server, the target value to the network address via the network through its disclosure that the user computing device interfaces with the fluid handling system to send instructions to control the actuators of the fluid handling system. 11:16-33 (“the system 300 includes a computer 305 displaying a graphical user interface (GUI) 315, one or more remote chemical injection systems 310”), 13:9-26 (“a user or operator may utilize the GUI 315 to control one or more components of the chemical injection system 310 based on data received from the system 310 and displayed on the GUI 315. (“The computer 305 and/or a user operating the computer 305 may then issue commands to one or more of the chemical injection systems 310. Such commands may include a command to stop injecting chemical additive into the pipeline and/or a command to inject a specified amount of chemical additive into the pipeline.”). Gutierrez discloses transmitting commands based on one or more operational parameters, over time as the operational parameters develop, to adjust control parameters in the system, such as the speed of a motor. 3:40-45, 5:58-67, 6:1-10, 6:13-23, 6:24-44, 9:21-25, 9:55-64, 10:27-30, 10:39-43, 11:18-26, 13:9-26.

		A POSITA would recognize from the above disclosures that Gutierrez discloses determining a plurality of target states of at least one fluid-handling device where the different target states correspond to different times as recited in the '078 Patent. Therefore, Gutierrez discloses this limitation.
	[1.5] for each of the plurality of instructions, selecting a respective protocol or protocols from among a plurality of protocols different from the shared protocol, wherein the respective fluid-handling device or devices to which the respective instruction is directed are responsive to the selected respective protocol or protocols, wherein at least some of the selected protocols are different from one another;	Gutierrez discloses a translation module that converts communication protocol messages into the communication protocol for fluid control actuation devices. 2:18-25, 41-47, 4:7-14, 8:19-21, 23-31, 9:34-64 ("translation module 145 receives data communicated in a particular communication protocol to the system 100 via the communication bus 155 and/or wireless antenna 160 and, when necessary, translates such data to a secondary communication protocol understood by the motor controller 115 or other components of the system 100."). Gutierrez discloses many different protocols that fluid handling devices would be responsive to, such as RS-232, RS-485 (Modbus or EIA-485), RS-422 (or EIA- 422), TCP/IP, Fieldbus, DeviceNet, and Profibus. 9:41-46. A POSITA would recognize from the above disclosures that Gutierrez discloses selecting a protocol or protocols from the plurality of protocols as recited in the '078 Patent. Therefore, Gutierrez discloses this limitation.
	[1.6] after determining the plurality of different target states, translating each received instructions into one or more translated instructions encoded in the selected respective protocol or protocols, the one or more translated instructions including the determined plurality of different target states; and	Gutierrez discloses a translation module that converts communication protocol messages into the communication protocol for fluid control actuation devices. 2:18-25, 41-47, 4:7-14, 8:19-21, 23-31, 9:34-64 ("translation module 145 receives data communicated in a particular communication protocol to the system 100 via the communication bus 155 and/or wireless antenna 160 and, when necessary, translates such data to a secondary communication protocol understood by the motor controller 115 or other components of the system 100."). A POSITA would recognize from the above disclosures that Gutierrez discloses translating the

		receiver instructions into translated instructions encoded in a respective protocol or protocols as recited in the '078 Patent. Therefore, Gutierrez discloses this limitation.
	[1.7] sending each translated instructions to at least the fluid- handling device to which the respective translated instruction is directed, wherein at least some of the translated instructions are effective to cause the at least one of the fluid-handling devices to attempt to achieve the target state	Gutierrez discloses a translation module that converts communication protocol messages into the communication protocol and sends the translated messages to the respective fluid control actuation devices. 2:18-25, 41-47, 4:7-14, 8:19-21, 23-31, 9:34-64 ("translation module 145 receives data communicated in a particular communication protocol to the system 100 via the communication bus 155 and/or wireless antenna 160 and, when necessary, translates such data to a secondary communication protocol understood by the motor controller 115 or other components of the system 100."). A POSITA would recognize that Gutierrez discloses the control interfaces on a user computer device is the sending commands to control fluid handling system actuators in an attempt to achieve the target state, as recited in the '078 Patent. Therefore, Gutierrez discloses this limitation. Claim 1 is anticipated by Gutierrez or would be obvious to a POSITA in view of Gutierrez.
2.	[2.1] The method of claim 1, wherein selecting a respective protocol or protocols comprises: parsing, from at least one of the received instructions an identifier of one of the fluid- handling devices; and	Gutierrez discloses parsing, from at least one of the received instructions, an identifier of one of the fluid-handling devices through its disclosure that the production sites are uniquely addressable by the network connection through individualized control systems for "each" fluid-handling device. 6:28-35; 10:22-24, 10:34-38, 10:43-59 ("data may be wirelessly transmitted directly to each chemical injection system . . . some or all of the processing of data and command generation may occur at the remote control center 220 rather than each individual chemical injection system 220."). A POSITA would recognize that Gutierrez discloses parsing an identifier of fluid-handling devices from the received instructions as recited in the '078 Patent. Therefore, Gutierrez discloses this limitation.
	[2.2] based on the parsed identifier, retrieving from	Gutierrez discloses retrieving from memory one or more records, including an identifier of at least one

	memory one or more records, including an identifier of at least one selected respective protocol and an identifier of a bus to which the identified fluid-handling device is communicatively coupled.	selected respective protocol through its disclosure of a memory (11:42-53) and a protocol identification through its disclosure that data may be sent to the controller 130 in many different protocols, such as RS- 232, RS-485 (Modbus or EIA-485), RS-422 (or EIA-422), TCP/IP, Fieldbus, DeviceNet, and Profibus. 9:41-44; Claim 1. Gutierrez discloses an identifier of a bus to which the identified fluid-handling device is communicatively coupled through its disclosure that in some embodiments, the controller is communicably coupled (e.g., wirelessly, via wired communication, or a combination thereof) to one or more communication stations 320. In some embodiments, data may be transmitted between the communication station 320 and the chemical injection system 310 via a particular communication protocol (e.g., RS- 232, RS-485 (Modbus or EIA-485), RS-422 (or EIA-422), TCP/ IP, Fieldbus, DeviceNet, and Profibus, to name but a few) and over a certain communication form (e.g., cellular, RF, satellite, or other type of communication form). 12:29- 39; Claim 1. A POSITA would recognize that Gutierrez discloses the retrieving from memory records that include protocol and bus identifiers as recited in the '078 Patent. Therefore, Gutierrez discloses this limitation. Claim 2 is anticipated by Gutierrez or would be obvious to a POSITA in view of Gutierrez.
6.	The method of claim 1, wherein: the at least some of the translated instructions are effective to cause the at least one of the fluid-handling devices to attempt to achieve the plurality of different target states at the different times.	Gutierrez discloses a translation module that converts communication protocol messages into the communication protocol and sends the translated messages to the respective fluid control actuation devices. 2:18-25, 41-47, 4:7-14, 8:19-21, 23-31, 9:34-64 ("translation module 145 receives data communicated in a particular communication protocol to the system 100 via the communication bus 155 and/or wireless antenna 160 and, when necessary, translates such data to a secondary communication protocol understood by the motor controller 115 or other components of the system 100.").

		Gutierrez discloses a server receiving values for operational parameters of the transmission system based on a command received from a user, as well as transmitting commands based on one or more operational parameters to adjust control parameters in the system, such as the speed of a motor, in an attempt to achieve the target state. 3:40-45, 5:58-67, 6:1-10, 6:13-23, 6:24-44, 9:21 25, 9:55-64, 10:27-30, 10:39-43, 11:18-26, 13:9-26. A POSITA would recognize that Gutierrez discloses causing the fluid- handling devices to attempt to achieve a plurality of target states as recited in the '078 Patent. Claim 6 is anticipated by Gutierrez or would be obvious to a POSITA in view of Gutierrez.
16.	[16.1] The method of claim 1, comprising: receiving, at a remote server system, via a network, user credentials from a user device;	Gutierrez discloses receiving, at a remote server system, via a network, user credentials from a user device through its disclosure that the base transceiver 325 may communicate with the computer 305 over a communications network 330, which is an enterprise or secured network, as well as a VPN (virtual private network) between computer 305 and other computing devices communicably coupled to the base transceiver 325. 12:53-64. A POSITA would recognize Gutierrez's disclosure of a secured network and a VPN that user credentials are required to access a user device. Thus, Gutierrez discloses this claim element.
	[16.2] identifying, with the remote server system, an account based on the user credentials, the account including identifiers of the oil well, the petro water disposal or re- injection facility, or the petroleum pumping station and at least one other facility;	Gutierrez discloses a remote computing system with a graphical user interface (GUI); a sensor coupled with a hydrocarbon transmission system; and a chemical injection system. 2:26-29, 11:38-42 ("reference to the computer 305 includes any processor-based computing device that is operable to manipulate, display, receive, and/or transmit data, such as data associated with a well site, hydrocarbon piping system, or other hydrocarbon production facility."). Gutierrez discloses that computer 305 is a server. 11:34-37. Gutierrez discloses a remote computing system with a graphical user interface (GUI); a sensor coupled with a hydrocarbon transmission system; and a

		chemical injection system. 2:26-29. Gutierrez discloses that chemical injection system 100 may be utilized in a hydrocarbon production system, such as, for example, a field or area having one or more hydrocarbon (e.g., oil, natural gas) production sites. 6:55-7:2. =Gutierrez discloses chemical injection system 100 that includes a pump 105 mechanically coupled to a driver, such as a motor 110; a motor controller 115; and a controller 130. 6:46-49. Controller 130 provides microprocessor-based control of the motor controller 115 and thus motor 110 and pump 105. 8:15-19. Controller 130 includes a communication module 140 . . . data acquisition, data storage, and a processor 150. 8:19- 21; *see also id.*, 8:39-9:3. A POSITA would further recognize from the above disclosure that Gutierrez discloses identifying an account associated with an oil well, the petro water disposal or re-injection facility, or the petroleum pumping station and at least one other facility through its disclosure of a secured network and chemical injection system. Therefore, Gutierrez discloses this limitation.
	[16.3] receiving from the user device, at the remote server system, a request corresponding to at least one of the received instructions, the request including an identifier of the oil well, the petro water disposal or reinjection facility, or the petroleum pumping station;	Gutierrez discloses a graphical user interface that receives the commands and sends them to the fluid handling system. 11:16-33 ("the system 300 includes a computer 305 displaying a graphical user interface (GUI) 315, one or more remote chemical injection systems 310"), 13:9-26 ("a user or operator may utilize the GUI 315 to control one or more components of the chemical injection system 310 . . . The computer 305 and/or a user operating the computer 305 may then issue commands to one or more of the chemical injection systems 310. Such commands may include a command to stop injecting chemical additive into the pipeline and/or a command to inject a specified amount of chemical additive into the pipeline."). Gutierrez discloses a graphical user interface that receives the commands and sends them to the fluid handling system. 11:16-33 ("the system 300 includes a computer 305 displaying a graphical user interface (GUI) 315, one or more remote chemical injection systems 310"), 13:9-26.

		Gutierrez discloses that the production sites are unique, disclosing separate control systems for "each." 6:28-35; 10:22-24, 10:34-38, 10:43-59 ("data may be wirelessly transmitted directly to each chemical injection system . . . some or all of the processing of data and command generation may occur at the remote control center 220 rather than each individual chemical injection system 220."), 11:55-61 ("each computer 305 may monitor, receive data from, and/or generate commands transmitted to a single chemical injection system 310 or multiple chemical injection systems 310."), 11:62-12:3, 13:10-26; Claim 1. A POSITA would recognize that Gutierrez discloses receiving with the user interface module a user command to actuate an actuator of the fluid handling system, as recited in the '078 Patent. A POSITA would recognize that Gutierrez discloses identifying an address in the datastore corresponding to the facility at which the actuator is located, as recited in the '078 Patent because the user controls "each" component of the chemical injection system with the disclosed GUI. A POSITA would recognize that Gutierrez discloses receiving a request corresponding to at least one received instruction as recited in the '078 Patent. Therefore, Gutierrez discloses this limitation.
	[16.4] identifying, with the remote server system, an Internet Protocol address at which the network interface is reachable based on the identifier of the oil well, the petro water disposal or re-injection facility, or the petroleum pumping station; and	Gutierrez discloses that the production sites are unique, disclosing separate control systems for "each." 6:28-35; 10:22-24, 10:34-38, 10:43-59 ("data may be wirelessly transmitted directly to each chemical injection system . . . some or all of the processing of data and command generation may occur at the remote control center 220 rather than each individual chemical injection system 220."), 11:55-61 ("each computer 305 may monitor, receive data from, and/or generate commands transmitted to a single chemical injection system 310 or multiple chemical injection systems 310."), 11:62-12:3, 13:10-26; Claim 1.

		Gutierrez discloses communications between components of the disclose system through the internet. 12:55-64. A POSITA would recognize that Gutierrez discloses identifying an Internet Protocol address at which the network interface is reachable as recited in the '078 Patent. Therefore, Gutierrez discloses this limitation.
	[16.5] sending, from the remote server system, the at least one of the received instructions to the identified Internet Protocol address in response to the request.	Gutierrez discloses user computing device interfaces with the fluid handling system to send instructions to control the actuators of the fluid handling system. 11:16-33 ("the system 300 includes a computer 305 displaying a graphical user interface (GUI) 315, one or more remote chemical injection systems 310"), 13:9-26 ("a user or operator may utilize the GUI 315 to control one or more components of the chemical injection system 310 . . . a user operating the computer 305 may then issue commands to one or more of the chemical injection systems 310. Such commands may include a command to stop injecting chemical additive into the pipeline and/or a command to inject a specified amount of chemical additive into the pipeline."). A POSITA would recognize from the above disclosure that Gutierrez discloses sending the received instructions to the Internet protocol. Thus, Gutierrez discloses this claim element. Claim 16 is anticipated by Gutierrez or would be obvious to a POSITA in view of Gutierrez.
17.	The method of claim 16, wherein the user device is a smartphone executing a smartphone application that communicates with the remote server system via an application program interface.	Gutierrez discloses that the user or operator connects to the controller 130 to receive feedback data (e.g., operational data of the motor 110, pump 105, or any other component of the system 100) without regard to a particular protocol understood by the user's device (i.e., computer, laptop, PDA, cell phone). 9:65-64. A POSITA would understand that a cell phone adapted to connect to controller 130 would be a smartphone capable of executing a smartphone application. Claim 17 is anticipated by Gutierrez or would be obvious to a POSITA in view of Gutierrez.

18.	The method of claim 16, wherein receiving from the user device the request corresponding to the at least one of the received instructions comprises: receiving the request from a web interface in a web browser executing on the user device.	Gutierrez discloses that the communications network 330 may be all or a portion of an enterprise or secured network; a VPN merely between computer 305 and other computing devices communicably coupled to the base transceiver 325; one or more local area networks (LANs), radio access networks (RANs), metropolitan area networks (MANs), wide area networks (WANs), all or a portion of the global computer network known as the Internet. 12:55-64; Gutierrez also discloses a remote computing system with a graphical user interface (GUI) to connect to the system. 2:26-29. A POSITA would understand that connecting to the network through the internet would require a web interface in a web browser executing on the user device. A POSITA would understand that a web browser executing on the user device is a graphical user interface (GUI). Claim 18 is anticipated by Gutierrez or would be obvious to a POSITA in view of Gutierrez.
19.	The method of claim 1, comprising: producing oil or gas; disposing of petro water; or re-injecting petro water.	Gutierrez discloses producing oil or gas; disposing of petro water; or re- injecting petro water through its disclosure that sensor readings of fluidic pressure, fluidic storage level, and percentage of water content in the fluidic system. 1:18-32 ("Conduit systems that carry and/or transport one or more fluids may utilize injection systems to insert other fluids (e.g., additives, inhibitors, or otherwise) into the conduit system. Hydrocarbon systems that transport hydrocarbon fluids, such as oil and/or gas or other fluids, often receive injected fluids to, for example, control corrosion within the conduit or pipeline; prevent paraffin deposition; and break emulsions in the transported hydrocarbon fluids. The injected fluids may also be used for water removal or separation from hydrocarbon gasses or liquids. In some instances, a chemical injector may be associated with a well site or other hydrocarbon production facility to inject chemical additives into a pipeline fluidly coupled at the wellsite with a wellbore producing hydrocarbons."), 13:27-49 ("provides information related to . . . fluidic pressure

		of fluid flowing through the pipeline and/or from chemical reservoir; fluidic storage level of the chemical reservoir; . . . and a percentage water content of fluid flowing through the pipeline.”). A POSITA would recognize from the above disclosure of a chemical injection system that Gutierrez discloses producing oil or gas; disposing of petro water or reinjecting petro water. Claim 19 is anticipated by Gutierrez, or would be obvious to a POSITA in view of Gutierrez.

Exhibit B-3

Invalidity Claim Chart for U.S. Patent No. 9,342,078 ("the 078 patent")

In view of

SCADA: Supervisory Control and Data Acquisition, 4th Edition ("SCADA")

The asserted claims of '078 patent are anticipated and/or rendered obvious by SCADA: Supervisory Control and Data Acquisition, 4th Edition as identified in Defendant Preliminary Invalidity Contentions.

SCADA: Supervisory Control and Data Acquisition, 4th Edition ("SCADA") published in 2010. SCADA is prior art under at least 35 U.S.C. 102(a).

The citations to portions of any reference in this chart are exemplary only. Defendant will rely on the entirety of the reference cited in this chart, as well as any additional materials relevant to the reference identified through their ongoing investigation, to show that the asserted claims are invalid.

Claim#	Claim Language	SCADA
1.	[1.1] A method, comprising:	To the extent that the preamble is found to be limiting, SCADA discloses a method for remotely controlling a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station. SCADA discloses that "the technology called SCADA has developed over the last forty years (since about the mid-1960's). It is a collection of separate technologies, including process instrumentation, various communication methods, and computer applications." SCADA at Preface. A POSITA would recognize that SCADA discloses a method. Therefore, SCADA discloses the method.
	[1.2] receiving, via a network interface, a plurality of user- directed instructions to control fluid-handling devices that monitor or control one or more fluids at an oil well, a petro water disposal or re-	SCADA discloses receiving, via a network interface, a plurality of user- directed instructions to control fluid-handling devices through its disclosure of the major elements of a SCADA system: "At the center is the operator, who interfaces with the system through some form of input/output (I/O) device[, which] in turn communicates with the master terminal unit (MTU) [that communicates with] one or

	injection facility, or a petroleum pumping station, the plurality of instructions being received encoded in a shared protocol;	more remote terminal units (RTUs), each of which communicates with sensors or actuators at the process" site. SCADA at 12, Figure 2-1. SCADA discloses that "[M]odern RTUs are essentially microcomputers with special equipment at one end to interface with the long-range communications link and with special equipment at the other end to interface with the sensors, actuators, and calculators in the process." SCADA at 92-93. SCADA discloses that "The RTU outputs an electrical signal that . . . is received by a transducer . . . to open or close the valve by an amount proportional to the current output by the RTU." SCADA at 73. A POSITA would recognize from the above disclosures that SCADA discloses instructions to control fluid-handling devices that monitor or control one or more fluids at an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station, as recited in the '078 Patent. A POSITA would recognize from the above disclosures that SCADA discloses receiving a plurality of user-directed instructions to control fluid-handling devices as recited in the '078 Patent. Therefore, Gutierrez discloses this limitation.
	[1.3] obtaining a target state of at least one of the fluid- handling devices based on at least some of the plurality of instructions, wherein obtaining a target state of at least one of the fluid-handling devices based on at least some of the plurality of instructions comprises:	SCADA discloses that "the signal would be more likely to act as the remote set point of a PID (proportional/integral/derivative) controller," and that output from the controller would control a valve, a louver, a machine speed, or any number of parameters that could be described by an analog value between 0 and 100 percent." SCADA at 100-01. A POSITA would understand that SCADA's disclosure of a signal acting as a set point and the serial transmission of bits for each pulse output is the obtaining a target state of the fluid-handling devices based on a plurality of instructions as claimed in the '078 Patent. Thus, SCADA discloses this claim element.

	[1.4] after receiving the instructions, determining a plurality of different target states of at least one of the fluid-handling devices, the plurality of different states each corresponding to different times;	SCADA discloses that the signal is used "as the remote set point of a PID (proportional/integral/derivative) controller, and the output from the controller would control a valve, a louver, a machine speed, or any number of parameters that could be described by an analog value between 0 and 100 percent" and "the pulse control method…allows a stepper motor to be incremented or decremented by a specified number of steps. SCADA at 100-01. A POSITA would readily understand that SCADA's disclosure of the set point signal and analysis of the controller output is the determining a plurality of different target states corresponding to different times claimed in the '078 Patent. Thus, SCADA discloses this claim element.
	[1.5] for each of the plurality of instructions, selecting a respective protocol or protocols from among a plurality of protocols different from the shared protocol, wherein the respective fluid-handling device or devices to which the respective instruction is directed are responsive to the selected respective protocol or protocols, wherein at least some of the selected protocols are different from one another;	SCADA discloses that "[M]odern RTUs are essentially microcomputers with special equipment at one end to interface with the long-range communications link and with special equipment at the other end to interface with the sensors, actuators, and calculators in the process." SCADA at 92-93. SCADA also discloses "there are several languages that can be used between field instruments and RTUs." SCADA at 71 (describing physical wire communication). SCADA further discloses translators "called transducers in the process control industry...[that] change the language from electrical current (I) to air pressure (P)." SCADA at 72-73. A POSITA would further understand from SCADA's disclosure of a protocol driver to translate communications with each of the RTUs and its disclosure of various protocol languages is the selecting of a protocol from a plurality of instructions from a plurality of different protocols claimed in the '078 Patent. Thus, SCADA discloses this claim element.
	[1.6] after determining the plurality of different target states, translating each received instructions into one or more translated instructions encoded in the	As shown above for element 1.4, and incorporated herein in its entirety, SCADA discloses determining the plurality of different target states. SCADA also discloses "there are several languages that can be used between field instruments and

	selected respective protocol or protocols, the one or more translated instructions including the determined plurality of different target states; and	RTUs." SCADA at 71 (describing physical wire communication). SCADA further discloses translators "called transducers in the process control industry...[that] change the language from electrical current (I) to air pressure (P)." SCADA 4th, p.72-73. A POSITA would understand that the use of different protocols by the protocol driver requires that the protocols be translated (i.e., from electrical signals to control signals) and that the translated instructions include the determined plurality of different target states as claimed in the '078 Patent. Thus, SCADA discloses this claim limitation.
	[1.7] sending each translated instructions to at least the fluid- handling device to which the respective translated instruction is directed, wherein at least some of the translated instructions are effective to cause the at least one of the fluid-handling devices to attempt to achieve the target state	As shown above for element 1.4, and incorporated herein in its entirety, SCADA discloses attempting to achieve the target state. SCADA discloses that at "the center is the operator, who interfaces with the system through some form of input/output (I/O) device[, which] in turn communicates with the master terminal unit (MTU) [that communicates with] one or more remote terminal units (RTUs), each of which communicates with sensors or actuators at the process" site. SCADA at 12, FIG. 2-1. SCADA discloses that "[M]odern RTUs are essentially microcomputers with special equipment at one end to interface with the long-range communications link and with special equipment at the other end to interface with the sensors, actuators, and calculators in the process." SCADA at 92-93. SCADA discloses that "The RTU outputs an electrical signal that . . . is received by a transducer . . . to open or close the valve by an amount proportional to the current output by the RTU." SCADA at 73. A POSITA would understand that SCADA's disclosures of a protocol translator and a network interface for routing connection between a host and remote subsystems are the sending the translated commands as claimed in the '078 Patent. Thus, SCADA discloses this claim element.

		Claim 1 is anticipated by SCADA or would be obvious to a POSITA in view of SCADA.
11.	The method of claim 1, wherein at least some of the received instructions identify an automatic mode in which a collection of target states are computed to operate within process constraints.	SCADA discloses at least some of the received instructions identify an automatic mode in which a collection of target states are computed to operate within process constraints through its disclosure that "automatic control happens when a system senses that a process variable has changed and modifies a control parameter without bringing a human operator into the decision. An example in an electric power transmission system is the automatic arming of a local load-shedding device to protect a transmission line from overloading only under very specific conditions that could be detected by the SCADA system." SCADA at 199. A POSITA would understand from SCADA's disclosure automatic control is the automatic mode in which a collection of target states is computed as claimed in the '078 Patent. Claim 11 is anticipated by SCADA or would be obvious to a POSITA in view of SCADA.
12.	The method of claim 1, wherein at least some of the received instructions correspond to a manual mode in which an individual one of the fluid-handling devices is remotely controlled by a user.	SCADA discloses that the received instructions correspond to a manual mode in which an individual one of the fluid-handling devices is remotely controlled by a user through its disclosure that remote control occurs when a decision to modify a control parameter is effected at a significant distance from the process. SCADA at 199. A POSITA would understand from the above SCADA disclosures that the on- demand time modification of control parameters is the manual mode in which an individual fluid-handling device is controlled by a user. Claim 12 is anticipated by SCADA or would be obvious to a POSITA in view of SCADA.

Exhibit C-1

Invalidity Claim Chart for U.S. Patent No. 9898014 ("the 014 patent")

In view of

US 7,424,399 (Kahn)

The asserted claims of '014 patent are anticipated and/or rendered obvious by Kahn as identified in Defendant' Preliminary Invalidity Contentions.

U.S. Patent No. 7,424,399 ("Kahn") was filed on June 09, 2006, published on March 01, 2007 and issued on September 09, 2008. Kahn is prior art under at least 35 U.S.C. 102(a).

The citations to portions of any reference in this chart are exemplary only. Defendant will rely on the entirety of the reference cited in this chart, as well as any additional materials relevant to the reference identified through their ongoing investigation, to show that the asserted claims are invalid.

Claim#	Claim Language	Kahn
1.	[1.1] A hosted, web-based, remote industrial monitoring and control system for geographically distributed facilities in oil and gas fields, the system comprising:	To the extent that the preamble is found to be limiting, Kahn discloses hosted, web-based, remote industrial monitoring and control system for geographically distributed facilities. *See*, *e.g.,* Abstract, 10:62-67; 14:35- 15:2, 15:62-16:32; 2:50-54, 25:5-12. Kahn discloses that its invention "can be used in conjunction with other fluids, such as natural gas." 17:67-18:2. A POSITA would recognize that Kahn discloses the recited system. Thus, Kahn discloses the recited system.
	[1.2] a computer-implemented datastore storing:	Kahn discloses a data collection network with centralized data collection points. *See, e.g*., 8:51-59, 9:53-58, 17:18-30, 18:48-52, 63-65, 19:5-23, 19:58-65, 23:27-31. Kahn discloses that the centralized data collection point is a server. 10:52-61, 23:27-31. Kahn discloses that servers are computers, i.e. include processors. 32:58-63. A POSITA would recognize that Kahn discloses storing records, with one or more processors through its disclosure of centralized data collection points. Therefore, Kahn discloses storing records, with one or more processors.

	[1.3] a plurality of accounts, each account corresponding to an entity operating one or more geographically distributed oil or gas facilities, the accounts associating different oil or gas facilities with different entities; and	Kahn discloses that centralized data collection points connect to sensor unit 110 at designated facilities from different entities, i.e. "accounts." *See, e.g.,* 16:40-18:52, 25:5-12. A hallmark of the distribution system in Kahn is the ability to identify the location of and communicate with the system's sensor units. 4:12-25, 11:2-15; *see also*, 10:8-13; 23:51-62. Kahn discloses a user interface showing data from geographically distributed fluid handling facilities from multiple different entities. Abstract, 2:50-54, 25:5-12. A POSITA would recognize that Kahn discloses a plurality of accounts, namely one or more geographically distributed fluid-handling facilities with different entities. Therefore, Kahn discloses the plurality of accounts recited in the '014 Patent.
	[1.4] network addresses by which industrial monitoring or control equipment at the facilities is accessible via cellular network connections, the monitoring or control equipment including sensors or actuators;	Kahn discloses that the production sites are unique, disclosing separate control systems for designated location. *See, e.g*., 16:40-18:52. For example, Sensor unit 110 can be located at any desired point in a fluid distribution system. *See, e.g*., 11:2-15. Kahn discloses a system with Sensor unit 110 that includes multiple sensors (e.g., first sensor 111A and second sensor 111B) and a communication unit that connects via a network to centralized data collection points. *See, e.g*., 5:62- 6:16, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn discloses monitoring and control equipment including one or more actuators configured to manipulate fluid flow at respective fluid-handling facilities. *See*, e.g., 10:62-67; *see also id*., 14:35-15:2 ("one or more actuators"), 15:62-16:32 (describing an actuator for each sensor 111). A POSITA would recognize that Kahn discloses the addresses for facilities accessible by the network, as well as the monitoring and control equipment as recited in the '014 Patent. Therefore, Kahn discloses this limitation of the '014 Patent.
	[1.5] a computer-implemented facility-	Kahn discloses a facility interface module, Sensor unit 110, including a processor that connects via a

	interface module or modules configured to obtain data from the sensors at the facilities and send commands to the actuators at the facilities via the cellular network connections; and	network to centralized data collection points. *See, e.g.*, 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities. *See, e.g.*, 10:62-67; *see also* 14:35-15:2, 15:62-16:32. A POSITA would recognize that Kahn discloses the facility interface module as recited in the '014 Patent. Therefore, Kahn discloses this limitation of the '014 Patent.
	[1.6] a computer-implemented web-interface module or modules configured to send instructions to present control interfaces in web browsers executing on user computing devices logged in to the accounts and to receive commands to control actuators from the user computing devices,	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system's sensors. Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8-25, 29:5-37. Kahn discloses that users log into the system on respective user computing devices. *See, e.g.*, 2:50-45, 25:5-12, 28:35-37, 30:45-49. Kahn discloses a variety of users and entities having different levels of authorized access. 25:48-26:67, *see also id.*, 2:50-60, 19:58-65, 21:50-22:44, 22:62-23:50, 24:44-25:2, 25:5-12, 27:39-28:7. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities, to facilitate the measurement of data requested through the graphical user interface. *See, e.g.*, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. A POSITA would recognize that Kahn discloses the web interface module, as recited in the '014 Patent. Therefore, Kahn discloses this limitation of the '014 Patent.
	[1.7] wherein the system is configured to receive, with the web-interface module or modules, a user command to actuate an actuator entered via a presented control interface,	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system's sensors. Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8-25, 29:5-37. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured

	identify a network address in the datastore corresponding to a facility at which the actuator is located, and send instructions with the facility-interface module or modules to the facility to actuate the actuator, and	to manipulate fluid flow at respective fluid- handling facilities and to facilitate the measurement of data requested through the graphical user interface. *See, e.g.*, 10:62-67; *see also id*., 14:35-15:2, 15:62-16:32. Kahn discloses that the production sites are unique, disclosing separate control systems for designated facility locations. *See, e.g.*, 16:40-18:52. For example, Sensor unit 110 can be located at any desired point in a fluid distribution system. *See, e.g.*, 11:2-15. A hallmark of the distribution system in Kahn is the ability to identify the location of and communicate with the system's sensor units. 4:12-25; *see also id*., 10:8-13; 23:51-62. A POSITA would recognize that Kahn discloses receiving with the user interface module a user command to actuate an actuator of the fluid handling system, as recited in the '014 Patent. A POSITA would recognize that Kahn discloses identifying an address in the datastore corresponding to the facility at which the actuator is located, as recited in the '014 Patent, because the disclosed GUI enables the user to control a designated component of the system. A POSITA would recognize that Kahn discloses sending instructions to the facility interface module to actuate the fluid handling system's actuator, as recited in the '014 Patent. Therefore, Kahn discloses this limitation of the '014 Patent.
	[1.8] wherein: the plurality of accounts include a first account, a second account, a third account, and a fourth account;	Kahn discloses a plurality of accounts, i.e., geographically distributed facilities for the transport of fluids, as shown above for element 1.3, and incorporated herein. Kahn discloses an "authorized account A" for "a first entity" "to access aspects of first fluid test data." 25:48-26:67. Kahn further discloses an "authorized account B" for "a second entity" "to access aspects of second fluid test data." The "first and second entities can control access to date generated by their respective sensors." Thus, "separate entities provide

		their fluid test data to the computer system 4 controlled by the service provider (an entity different from the first and second entities), and the first and second entities can control access to data generated by their respective sensors." Entities also "grant authorization to visualize [data] generated by them to others beyond themselves, such as government health organizations or security organizations such as the Department of Homeland Security." A POSITA would recognize Kahn discloses a plurality of accounts, as recited in the '014 Patent. Therefore, Kahn discloses this limitation of the '014 Patent.
	[1.9] the first account corresponds to a first group of oil or gas facilities, users of the first account being authorized to send commands to remotely control fluid handling devices at the first group of oil or gas facilities;	Kahn discloses a variety of users and entities having different levels of authorized access. 25:48-26:67, *see also id*., 2:50-60, 19:58-65, 21:50-22:44, 22:62-23:50, 24:44-25:2, 25:5-12, 27:39-28:7. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid-handling facilities. *See, e.g*., 10:62-67; *see also id*., 14:35-15:2, 15:62-16:32. A POSITA would recognize that Kahn discloses a plurality of accounts with varying degrees of access to designated systems, wherein a first group (authorized account A) has access to control a first group of fluid handling facilities, as recited in the '014 Patent. Therefore, Kahn discloses this limitation of the '014 Patent.
	[1.10] the second account corresponds to a second group of oil or gas facilities, the first group being different from the second group, users of the second account being authorized to send commands to remotely control fluid handling devices at the second group of oil or gas facilities;	As detailed above for element 1.9, and incorporated herein by reference, Kahn discloses a variety of users and entities having different levels of authorized access to data or control at respective fluid-handling facilities. A POSITA would recognize that Kahn discloses a plurality of accounts with varying degrees of access to designated systems, wherein a second group (authorized account B) has access to control a second group of fluid handling facilities, as recited in the '014 Patent. Therefore, Kahn discloses this limitation of the '014 Patent.
	[1.11] the third account corresponds to the first	Kahn discloses a variety of users and entities having different levels of authorized access. 25:48-26:67, *see*

	group of oil or gas facilities, users of the third account being authorized to view reports of data from fluid handling devices at the first group of oil or gas facilities; and	*also id*., 2:50-60, 19:58-65, 21:50- 22:44, 22:62-23:50, 24:44-25:2, 25:5-12, 27:39-28:7. A POSITA would recognize that Kahn discloses a plurality of accounts with varying degrees of access to designated systems, wherein a third group (service provider) has access to view data from a first group of fluid handling facilities, as recited in the '014 Patent. Therefore, Kahn discloses this limitation of the '014 Patent.
	[1.12] the fourth account corresponds to the second group of oil or gas facilities, users of the fourth account being authorized to view reports of data from fluid handling devices at the second group of oil or gas facilities.	As detailed above for element 1.11, and incorporated herein by reference, Kahn discloses a variety of users and entities having different levels of authorized access. A POSITA would recognize that Kahn discloses a plurality of accounts with varying degrees of access to designated systems, wherein a fourth group (government health or security organizations such as the Department of Homeland Security) has access to view data from a second group of fluid handling facilities, as recited in the '014 Patent. Therefore, Kahn discloses this limitation of the '014 Patent. Claim 1 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn.
4.	The system of claim 1, wherein the sensors include a leak detector at one of the facilities, and wherein the datastore includes a record associating the leak detector with the facility.	Kahn discloses a user interface showing data from geographically distributed fluid handling facilities from multiple different entities. Abstract, 2:50-54, 25:5-12. A hallmark of the distribution system in Kahn is the ability to identify the location of and communicate with the system's sensor units. 4:12-25, 11:2-15. Kahn's geographically distributed and uniquely identified sensors, e.g., detect leaks in the fluid handling facilities. 10:8-13 ("Physical events, such as a breakage of a pipe might be detected . . . thereby identifying the exact location or proximate location of the breakage."). A POSITA would recognize that Kahn discloses a leak detector at a fluid- handling facility.

		Thus, Claim 4 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn.
5.	[5.1] The system of claim 1, wherein: the web-interface module or modules comprises a web server; and	Kahn discloses a data collection network with centralized data collection points. *See, e.g.*, 8:51-59, 9:53-58, 17:18-30, 18:48-52, 63-65, 19:5-23, 19:58-65, 23:27-31. Kahn discloses that the centralized data collection point is a server. 10:52-61, 23:27-31. Kahn discloses that servers are computers, i.e. include processors. 32:58-63. A POSITA would recognize that Kahn discloses the web-interface module or modules comprises a web server. Therefore, Kahn discloses this limitation of the '014 Patent.
	[5.2] the facility-interface module or modules comprises a site server distinct from the web server.	Kahn discloses a system with Sensor unit 110 that connects via a network to centralized data collection points. *See, e.g.*, 5:62-6:2, 9:37-43, 10:18-67,13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn further discloses that the network of sensor units 110 can be configured to communicate with a central communication device, e.g., a server, and/or sensor unit 110 can communicate with each other as a distributed network. 10:54-56. A POSITA would recognize that Kahn discloses the facility-interface module or modules comprises a web server, as recited in the '014 Patent, because sensor unit 110 can communicate with each other in a distributed network with each sensor unit 110 operating as a server. Therefore, Kahn discloses this limitation of the '014 Patent. Claim 5 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn.
6.	[6.1] The system of claim 5, wherein: the web server communicates with user devices via a first network port of a computing device executing the web server; and	Kahn discloses that the centralized data collection points are a server using multiple communication components known in the art. 10:54-56, 23:29-30. A POSITA would recognize that Kahn discloses web server is configured to communicate with user devices via a first network port of a computing device executing the web server, as recited in the '014 Patent, because Kahn discloses that the server

		communicates using communication components known in the art that would include a first network port. Therefore, Kahn discloses this limitation of the '014 Patent.
	[6.2] the site server communicates with facilities via a second network port of the computing device, the second network port being different from the first network port.	Kahn discloses that the sensor units 110 are a server using multiple communication components known in the art. 10:54-56, 23:29-30. A POSITA would recognize that Kahn discloses a site server configured to communicate via a second network port, as recited in the '014 Patent, because Kahn discloses that sensor units 110 communicate using communication components known in the art that would include a second network port. Therefore, Kahn discloses this limitation of the '014 Patent. Claim 6 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn.
7.	The system of claim 1, wherein: the data store stores subscription information associated with at least some of the accounts.	Kahn discloses that the sensor units 110 can be associated with subscription information, including access for authorities monitoring the fluids, reporting of particular detected events, or billing information. 22:12-44. A POSITA would recognize that Kahn discloses the data store is configured to store subscription information associated with at least some of the accounts, as recited in the '014 Patent. Therefore, Kahn discloses this limitation of the '014 Patent. Claim 7 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn.
8.	The system of claim 1, wherein the facility-interface module or modules comprise: means for interfacing with a plurality of site controllers associated with the facilities.	Kahn discloses a facility interface module, Sensor unit 110, including a processor that connects via a network to centralized data collection points. *See, e.g.*, 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid-handling facilities. See, e.g., 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32.

		A POSITA would recognize that Kahn discloses the facility-interface module or modules comprise: means for interfacing with a plurality of site controllers associated with the facilities as recited in the ’014 Patent. Therefore, Kahn discloses this limitation of the ’014 Patent. Claim 8 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn.
9.	The system of claim 1, wherein the web-interface module or modules comprise: means for sending instructions to present a control interface on the user devices.	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) that when activated by a user shows data from the system’s sensors. Abstract, 1:28-36, 2:50-3:2, 25:5- 25, 25:48-26:19, 28:8-25, 29:5-37. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid-handling facilities, to facilitate the measurement of data requested through the graphical user interface. *See, e.g.*, 10:62-67; *see also id*., 14:35-15:2, 15:62-16:32. A POSITA would recognize that Kahn discloses a GUI control interfaces on a user computer device for reviewing data from the system’s sensor or sending commands to control fluid handling system actuators, as recited in the ’014 Patent. Therefore, Kahn discloses this limitation of the ’014 Patent. Claim 9 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn.
10.	The system of claim 1, wherein the datastore stores accounts for more than one hundred facilities, and the web-interface module or modules are configured interface with more than one hundred user devices.	Kahn discloses “A computer system controlled by a service provider (e.g., Sensicore) is connected to one or more communication networks as well as the Internet using any suitable communications technologies and is equipped (programmed) with suitable software to be able to receive fluid test data from portable handheld sensor units 2a (via wireless tower 3) and/or wired or wireless stationary on-line sensor devices 2b via the communication network(s). The sensor units 2a and 2b can be equipped with a “confirm” capability as described elsewhere herein, if desired. Fluid test data can also be received by or uploaded to computer system 4 from other data systems or resources as will be described below”, 25:14-25.

		In addition, Kahn discloses "As will be described further herein, an authorized Account A (first user 5a) can be authorized by a first entity (e.g., a municipal water authority) to access aspects of first fluid test data from the computer system 4 via the Internet using a graphical computer interface at a computer operated by first user (Account A) ... Similarly, an authorized Account B (second user 5b) second user can be authorized by a second entity (e.g., an industrial plant or power utility) to access aspects of second fluid test data from the computer system 4 via the Internet using a graphical computer interface at a computer operated by the second user (Account B)."; 25:48-61. Thus, Kahn discloses that the computer system 4 stores data from the sensor units 2a and 2b. In addition, Kahn discloses that the computer system 4 enables the first user and the second user to access aspects of fluid test data from the computer system 4. A POSITA would consider it obvious to scale the processes and equipment having all the limitations of claim 10, without undue experimentation. Claim 10 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn.
11.	The system of claim 1, wherein the facility-interface module or modules are configured to send pull requests to facilities to retrieve data buffered at the facilities.	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system's sensors. Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8-25, 29:5-37. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities, and to facilitate the measurement of data requested by the user through the graphical user interface, i.e. in a pull request. *See, e.g.*, 10:62- 67; *see also id.*, 14:35-15:2, 15:62-16:32. A POSITA would recognize that Kahn discloses the facility-interface module or modules are configured to send pull requests to facilities to retrieve data buffered at the facilities upon the request of a user, as recited in the '014 Patent.

		Claim 11 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn.
12.	The system of claim 1, comprising: a controller at one of the facilities communicatively coupled to an actuator or a sensor.	Kahn discloses a system with Sensor unit 110 that includes multiple sensors (e.g., first sensor 111A and second sensor 111B) and a communication unit that connects via a network to centralized data collection points. *See, e.g.*, 5:62- 6:16, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn discloses monitoring and control equipment including one or more actuators configured to manipulate fluid flow at respective fluid-handling facilities. *See, e.g.*, 10:62-67; *see also id.*, 14:35-15:2 ("one or more actuators"), 15:62-16:32 (describing an actuator for each sensor 111). A POSITA would recognize that Kahn discloses the addresses for facilities accessible by the network, as well as the monitoring and control equipment as recited in the '014 Patent. Therefore, Kahn discloses this limitation of the '014 Patent. Claim 12 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn.
13.	[13.1] The system of claim 12, wherein the system is configured to instantiate at least four of the following as distinct threads from one another:	A POSITA would recognize that Kahn discloses software applications written or described in any appropriate computer language including HTML, Java, and XML, among others. 28:8-26, *see* also 33:31-43. A POSITA would recognize that Kahn inherently discloses instantiation of threads, and the various thread implementations recited in Claim 13, through computer coding in computer languages such as Java. A POSITA would recognize that Kahn inherently discloses instantiation of threads, as recited in the '014 Patent, from its disclosure of software or applications written in then-current computer languages, including Java. Therefore, Kahn discloses this limitation of the '014 Patent.
	[13.2] a thread configured to sends and receive data requests;	Kahn discloses a data collection network with centralized data collection points. *See, e.g.*, 8:51-59,

		9:53-58, 17:18-30, 18:48-52, 63-65, 19:5-23, 19:58-65, 23:27-31. A POSITA would recognize that Kahn inherently discloses a thread configured to send and receive data requests, as recited in the '014 Patent, from its disclosure of software or applications written in then-current computer languages, including Java. Therefore, Kahn discloses this limitation of the '014 Patent.
	[13.3] a thread configured to synchronize other threads with updated information;	A POSITA would recognize that Kahn inherently discloses a thread configured to synchronize other threads with updated information, as recited in the '014 Patent, from its disclosure of software or applications written in then-current computer languages, including Java. Therefore, Kahn discloses this limitation of the '014 Patent.
	[13.4] a thread configured to set a target state of actuators;	Kahn discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow by setting a target state for actuators at respective fluid-handling facilities. *See, e.g.*, 8:3-11, 8:21-24, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32, 34:7-12. A POSITA would recognize that Kahn inherently discloses a thread configured to set a target state of actuators, as recited in the '014 Patent, from its disclosure of software or applications written in then-current computer languages, including Java. Therefore, Kahn discloses this limitation of the '014 Patent.
	[13.5] a thread configured to obtain updated sensor readings;	Kahn discloses a data collection network with centralized data collection points. *See, e.g.*, 8:51-59, 9:53-58, 17:18-30, 18:48-52, 63-65, 19:5-23, 19:58-65, 23:27-31. Kahn discloses that the centralized data collection points receive sensor information via a network from a facility interface module, Sensor unit 110. *See, e.g., id.*, 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. A POSITA would recognize that Kahn inherently discloses a thread configured to obtain updated sensor readings, as recited in the '014 Patent, from its disclosure of software or applications written in then-current computer languages, including Java.

		Therefore, Kahn discloses this limitation of the ’014 Patent.
	[13.6] a thread configured to process user interactions; and	A POSITA would recognize that Kahn inherently discloses a thread configured to process user interactions, as recited in the ’014 Patent, from it disclosure of software or applications written in then-current computer languages, including Java. Therefore, Kahn discloses this limitation of the ’014 Patent.
	[13.7] a thread that eliminates other threads upon detecting a problem with the eliminated threads.	A POSITA would recognize that Kahn inherently discloses a thread that eliminates other threads upon detecting a problem with the eliminated threads, as recited in the ’014 Patent, from its disclosure of software or applications written in then-current computer languages, including Java. Therefore, Kahn discloses this limitation of the ’014 Patent. Therefore, a POSITA would understand that Kahn inherently discloses the elements recited in Claim 13. Claim 13 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn.
14.	[14.1] The system of claim 12, wherein the system is configured to instantiate at least two of the following as distinct threads from one another:	A POSITA would recognize that Kahn discloses software applications written or described in any appropriate computer language including HTML, Java, and XML, among others 28:8-26, *see also id.*, 33:31-43. Kahn inherently discloses instantiating each and every one of specifically recited threads in elements 14.2-14.7, or this limitation would be obvious to a POSITA in view of Kahn, as discussed above for these elements in Claim 13 and incorporated herein. Therefore, a POSITA would understand that Kahn inherently discloses the elements recited in Claim 14. Claim 14 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn.
	[14.2] a thread configured to sends and receive data requests;	
	[14.3] a thread configured to synchronize other threads with updated information;	
	[14.4] a thread configured to set a target state of actuators;	
	[14.5] a thread configured to obtain updated sensor readings;	
	[14.6] a thread configured to process user interactions; and	
	[14.7] a thread that eliminates other threads upon detecting a problem	

	with the eliminated threads.	
15.	The system of claim 12, wherein the controller is communicatively coupled to the actuator or sensor via a private local area network.	Kahn discloses coupling the system's components, e.g. controller and senor units, with a private network. 10:18-48, 19:34-57. A POSITA would recognize that Kahn discloses communicating with a controller at one of the facilities to control and actuator or read from a sensor via a private local area network. Claim 15 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn.
16.	The system of claim 12, wherein controller is communicatively coupled to the actuator or sensor via a frame-based carrier-sense multiple access protocol with collision detection.	Kahn discloses coupling the system's components, e.g. controller and senor units, with a standard network including ethernet. 10:18-48, 19:34-57. A POSITA would recognize that Kahn discloses a frame-based carrier-sense multiple access protocol with collision detection because a POSITA would know that frame-based carrier-sense multiple access protocol with collision detection, as recited in the '014 Patent, is an Ethernet networking technology. A POSITA would recognize that Kahn discloses communicating with a controller at one of the facilities to control and actuator or read from a sensor via a private local area network that uses a frame-based carrier-sense multiple access protocol with collision detection. Claim 16 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn.
17.	The system of claim 12, wherein controller is configured to periodically push buffered data to the facility-interface module or modules.	Kahn discloses that data, such as chemical fingerprint information "downloaded into," i.e. pushed into, the sensor units, with intermittent updates available from the centralized data collection points. 9:48-10:7. A POSITA would recognize that Kahn discloses buffering data from sensors with the controller and pushing, with the controller, buffered data to the facility- interface module or modules. Claim 17 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn.

18.	The system of claim 12, comprising: means for ensuring at least some data is not lost if network access ceases intermittently.	Kahn discloses that data collection can run in real time, and can continuously, or intermittently (e.g., periodically at pre-set time intervals) monitor fluid quality, or upon inquiry, or operate based on stored data at the sensor sites 110A-110F, depending on the data storage and communication capabilities of the sensor units 110. 19:24-33; 29:47-50 ("If a wireless communication is not currently available, the measurement can be stored in the handheld unit until a wireless link is established."). A POSITA would recognize that Kahn discloses steps for ensuring at least some data is not lost if network access ceases intermittently because sensor units 110 include data storage and allow for intermittent transmission of data. Claim 18 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn.
21.	The system of claim 12, comprising: means for transmitting data to the facility-interface module or modules.	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system's sensors. Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8-25, 29:5-37. Kahn discloses a facility interface module, Sensor unit 110, including a processor that connects via a network to centralized data collection points. *See, e.g.*, 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid-handling facilities. *See, e.g.*, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. A POSITA would recognize that Kahn discloses the control interfaces on a user computer device sending commands to control fluid handling system actuators, as recited in the '014 Patent. Therefore, Kahn discloses this limitation of the '014 Patent. Claim 21 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn.
22.	The system of claim 12, comprising: means for	Kahn discloses verification of data collected based on a command. 29:40-50 ("The fluid test data associated with a given measurement can be initiated by a

	checking validity of a command.	suitable push-button stroke and/or navigating a suitable menu on the display of the sensor unit. When the measurement is completed it can be "accepted" by a suitable menu navigation and/or push button stroke. When accepted, the measurement result is automatically transmitted via wireless communication to the computer system 4 (*see* FIG. 5) along with the handheld sensor unit's unique identifier."); 32:10-17 ("some sources can be locked out, such that data from those sources is recorded but is not regarded as accepted data for general visualization, some sources can be flagged as needing approval before their data is accepted for general visualization, and some sources can be flagged as certified such that their data is accepted for visualization without approval.") A POSITA would recognize that Kahn discloses the means for checking validity of a command because Kahn discloses checking the validity of data resulting from a command, as recited in the '014 Patent. Therefore, Kahn discloses this limitation of the '014 Patent. Claim 22 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn.
23.	The system of claim 12, comprising: an oil or gas facility communicatively coupled to the controller.	Kahn discloses hosted, web-based, remote industrial monitoring and control system for geographically distributed facilities. *See, e.g.*, Abstract, 10:62- 67; 14:35-15:2, 15:62-16:32; 2:50-54, 25:5-12. Kahn discloses that its invention "can be used in conjunction with other fluids, such as natural gas." 17:67-18:2. A POSITA would recognize that Kahn discloses an oil or gas facility communicatively coupled to the controller. Thus, Kahn discloses the recited system. Claim 23 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn.

Exhibit C-2

Invalidity Claim Chart for U.S. Patent No. 9898014 ("the 014 patent")

In view of

US 7,424,399 (Kahn) alone or taken together with

US 9,709,995 (Gutierrez)

The asserted claims of '014 patent are anticipated and/or rendered obvious by Kahn alone or in combination with Gutierrez as identified in Defendant' Preliminary Invalidity Contentions.

U.S. Patent No. 7,424,399 ("Kahn") was filed on June 09, 2006, published on March 01, 2007 and issued on September 09, 2008. Kahn is prior art under at least 35 U.S.C. 102(a).

U.S. Patent No. 9,709,995 ("Gutierrez") was filed on December 22, 2014, published on April 16, 2015 and issued on July 18, 2017. This application is a continuation of U.S. patent application Ser. No. 12/794,898, filed on Jun. 7, 2010. Gutierrez is prior art under at least 35 U.S.C. 102(a) and 35 U.S.C. 102(e).

The citations to portions of any reference in this chart are exemplary only. Defendant will rely on the entirety of the reference cited in this chart, as well as any additional materials relevant to the reference identified through their ongoing investigation, to show that the asserted claims are invalid.

Claim#	Claim Language	Kahn and Gutierrez
1.	[1.1] A hosted, web-based, remote industrial monitoring and control system for geographically distributed facilities in oil and gas fields, the system comprising:	To the extent that the preamble is found to be limiting, Kahn discloses hosted, web-based, remote industrial monitoring and control system for geographically distributed facilities. *See*, *e.g.,* Abstract, 10:62-67; 14:35- 15:2, 15:62-16:32; 2:50-54, 25:5-12. Kahn discloses that its invention "can be used in conjunction with other fluids, such as natural gas." 17:67-18:2. A POSITA would recognize that Kahn discloses the recited system. Thus, Kahn discloses the recited system. To the extent that the preamble is found to be limiting, Gutierrez discloses hosted, web-based, remote industrial monitoring and control system for geographically distributed oil and gas fluid handling facilities. *See, e.g.*, Abstract, 1:14-50.

		A POSITA would recognize that Gutierrez discloses a hosted, web-based, remote industrial monitoring and control system for geographically distributed facilities in oil and gas fields. Thus, Gutierrez discloses the recited system.
	[1.2] a computer-implemented datastore storing:	Kahn discloses a data collection network with centralized data collection points. *See, e.g.*, 8:51-59, 9:53-58, 17:18-30, 18:48-52, 63-65, 19:5-23, 19:58-65, 23:27-31. Kahn discloses that the centralized data collection point is a server. 10:52-61, 23:27-31. Kahn discloses that servers are computers, i.e. include processors. 32:58-63. A POSITA would recognize that Kahn discloses storing records, with one or more processors through its disclosure of centralized data collection points. Therefore, Kahn discloses storing records, with one or more processors. Gutierrez discloses that chemical injection system 100 may be utilized in a hydrocarbon production system, such as, for example, a field or area having one or more hydrocarbon (e.g., oil, natural gas) production sites. 6:55-7:2. Chemical injection system 100 includes a pump 105 mechanically coupled to a driver, such as a motor 110; a motor controller 115; and a controller 130. 6:46-49. Controller 130 provides microprocessor-based control of the motor controller 115 and thus motor 110 and pump 105. 8:15-19. Controller 130 includes a communication module 140, data acquisition, data storage, and a processor 150. 8:19-21; *see also id.,* 8:39-9:3. A POSITA would recognize that Gutierrez discloses controller 130 which includes a processor and data storage for records related to hydrocarbon production facilities. Therefore, Gutierrez discloses this element of the ’014 Patent.
	[1.3] a plurality of accounts, each account corresponding to an entity operating one or more geographically distributed oil or gas facilities, the accounts associating different oil or gas	Kahn discloses that centralized data collection points connect to sensor unit 110 at designated facilities from different entities, i.e. “accounts.” *See, e.g.,* 16:40-18:52, 25:5-12. A hallmark of the distribution system in Kahn is the ability to identify the location of and communicate with the system’s sensor units. 4:12-25, 11:2-15; *see also*, 10:8-13; 23:51-62. Kahn discloses a user interface showing data from

	facilities with different entities; and	geographically distributed fluid handling facilities from multiple different entities. Abstract, 2:50-54, 25:5-12. A POSITA would recognize that Kahn discloses a plurality of accounts, namely one or more geographically distributed fluid-handling facilities with different entities. Therefore, Kahn discloses the plurality of accounts recited in the '014 Patent. Gutierrez discloses chemical injection system 100 in a hydrocarbon production system, such as, for example, a field or area having one or more hydrocarbon (e.g., oil, natural gas) production sites. 6:55-7:2; *see also id.,* 5:22-26; 6:24-27; 10:22-38. Gutierrez discloses that the production sites are unique, disclosing control systems for "each." 6:28-35; 10:22-24, 10:34-38, 10:43- 59 ("data may be wirelessly transmitted directly to each chemical injection system .. . some or all of the processing of data and command generation may occur at the remote control center 220 rather than each individual chemical injection system 220."), 11:55-61 ("each computer 305 may monitor, receive data from, and/or generate commands transmitted to a single chemical injection system 310 or multiple chemical injection systems 310."), 11:62-12:3, 13:10-26 ("a user or operator may utilize the GUI 315 to control one or more components of the chemical injection system 310"); Claim 1. Gutierrez discloses a hydrocarbon transmission system including one or more chemical injection systems for relative distances between production sites and pipeline monitoring locations to efficiently inject chemical additives into the system without waste. 5:22-31; *see also id.*, 3:49-4:4, 4:50-63, 6:24-44 ("a hydrocarbon transmission system includes a pipeline adapted to enclose a fluid transmitted from a plurality of hydrocarbon production sites to a processing site and a plurality of chemical injection systems"), 6:45-58, 10:22-24("System 200 includes one or more hydrocarbon production sites 215, each

		of which is fluidly coupled to a pipeline 205."), 11:37-42. A POSITA would recognize that Gutierrez discloses a plurality of accounts, namely geographically distributed fluid-handling facilities. A POSITA would further recognize from Gutierrez that the disclosed geographically distributed accounts associate fluid-handling facilities from different entities because Gutierrez discloses systems with multiple fluid-handling facilities, as well as geographically distributed systems with multiple types of fluid-handling facilities, including production sites and pipeline monitoring locations. *Id.* Therefore, Gutierrez discloses the plurality of accounts recited in the '014 Patent.
	[1.4] network addresses by which industrial monitoring or control equipment at the facilities is accessible via cellular network connections, the monitoring or control equipment including sensors or actuators;	Kahn discloses that the production sites are unique, disclosing separate control systems for designated location. *See, e.g.*, 16:40-18:52. For example, Sensor unit 110 can be located at any desired point in a fluid distribution system. *See, e.g.*, 11:2-15. Kahn discloses a system with Sensor unit 110 that includes multiple sensors (e.g., first sensor 111A and second sensor 111B) and a communication unit that connects via a network to centralized data collection points. *See, e.g.*, 5:62- 6:16, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn discloses monitoring and control equipment including one or more actuators configured to manipulate fluid flow at respective fluid-handling facilities. *See,* e.g., 10:62-67; *see also id.*, 14:35-15:2 ("one or more actuators"), 15:62-16:32 (describing an actuator for each sensor 111). A POSITA would recognize that Kahn discloses the addresses for facilities accessible by the network, as well as the monitoring and control equipment as recited in the '014 Patent. Therefore, Kahn discloses this limitation of the '014 Patent. Gutierrez discloses that the production sites are uniquely addressable by the network connection

		through individualized control systems for "each." 6:28-35; 10:22-24, 10:34-38, 10:43-59 ("data may be wirelessly transmitted directly to each chemical injection system . . . some or all of the processing of data and command generation may occur at the remote control center 220 rather than each individual chemical injection system 220."), 11:55-61 ("each computer 305 may monitor, receive data from, and/or generate commands transmitted to a single chemical injection system 310 or multiple chemical injection systems 310."), 11:62-12:3, 13:10-26 ("a user or operator may utilize the GUI 315 to control one or more components of the chemical injection system 310"); Claim 1. Gutierrez discloses that the production sites are uniquely addressable by the network connection through individualized control systems for "each." 6:28-35; 10:22-24, 10:34-38, 10:43-59 ("data may be wirelessly transmitted directly to each chemical injection system . . . some or all of the processing of data and command generation may occur at the remote control center 220 rather than each individual chemical injection system 220."), 11:55-61 ("each computer 305 may monitor, receive data from, and/or generate commands transmitted to a single chemical injection system 310 or multiple chemical injection systems 310."), 11:62-12:3, 13:10-26 ("a user or operator may utilize the GUI 315 to control one or more components of the chemical injection system 310"); Claim 1. Gutierrez discloses monitoring and control equipment including actuators configured to manipulate fluid flow at respective fluid-handling facilities. *See, e.g.*, 6:45-8:38 (describing chemical injection system with controllers for activating pumps to manipulate fluid flow), 9:54-10:16, 11:62-12:29, 13:23-26. Gutierrez discloses fluid-handling facilities having sets of both sensors and actuators. 6:45-7:2, 9:65-10:16, 10:17-11:4, 11:16-33, 11:55-61 ("each computer 305 may monitor, receive data from, and/or generate commands transmitted to a single chemical injection system 310 or multiple chemical injection systems 310"), 13:9-26.

		A POSITA would recognize that Gutierrez discloses the addresses for facilities, and the monitoring and control equipment as recited in the '014 Patent. Therefore, Gutierrez discloses this limitation of the '014 Patent.
	[1.5] a computer-implemented facility-interface module or modules configured to obtain data from the sensors at the facilities and send commands to the actuators at the facilities via the cellular network connections; and	Kahn discloses a facility interface module, Sensor unit 110, including a processor that connects via a network to centralized data collection points. *See, e.g.*, 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities. *See, e.g.*, 10:62-67; *see also* 14:35-15:2, 15:62-16:32. A POSITA would recognize that Kahn discloses the facility interface module as recited in the '014 Patent. Therefore, Kahn discloses this limitation of the '014 Patent. Gutierrez discloses fluid-handling facilities with computers or controllers that take data from sensors and send commands to actuators. 6:45-7:2, 8:16- 38 ("controller 130 includes a communication module 140 . . . and a processor 150. . . controller 130 receives inputs and/or instructions and commands from a remote source and, according to the commands, controls the operation and/or speed of the motor 110 and pump 105 to inject chemicals into the pipeline 120 . . . [and] receive[s] data representative of pipeline conditions, such as line pressure, amount of chemicals present in the pipeline 120, and motor operating conditions"), 9:65-10:16, 10:17- 11:4, 11:16-33, 11:55-61 ("each computer 305 may monitor, receive data from, and/or generate commands transmitted to a single chemical injection system 310 or multiple chemical injection systems 310"), 13:9-26. Gutierrez discloses that the controller connects wirelessly by cellular network connections. 12:30, 30:38-39.

		A POSITA would recognize that Gutierrez discloses obtaining data with a facility interface module, with a processor, data from the sensors at the facilities and sending commands to the actuators at the facilities by the network connections as recited in the ’014 Patent. Therefore, Gutierrez discloses this limitation of the ’014 Patent.
	[1.6] a computer-implemented web-interface module or modules configured to send instructions to present control interfaces in web browsers executing on user computing devices logged in to the accounts and to receive commands to control actuators from the user computing devices,	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system’s sensors. Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8-25, 29:5-37. Kahn discloses that users log into the system on respective user computing devices. *See, e.g.*, 2:50-45, 25:5-12, 28:35-37, 30:45-49. Kahn discloses a variety of users and entities having different levels of authorized access. 25:48-26:67, *see also id.*, 2:50-60, 19:58-65, 21:50-22:44, 22:62-23:50, 24:44-25:2, 25:5-12, 27:39-28:7. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities, to facilitate the measurement of data requested through the graphical user interface. *See, e.g.*, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. A POSITA would recognize that Kahn discloses the web interface module, as recited in the ’014 Patent. Therefore, Kahn discloses this limitation of the ’014 Patent. Gutierrez discloses a remote computing system with a graphical user interface (GUI); a sensor coupled with a hydrocarbon transmission system; and a chemical injection system. 2:26-29. Gutierrez discloses that the computer used to manage the remote facilities includes a processor. 11:38-42 (“reference to the computer 305 includes any processor-based computing device that is operable to manipulate, display, receive, and/or transmit data, such as data associated with a wellsite, hydrocarbon piping system, or other hydrocarbon production facility.”) Gutierrez discloses that the network used to communicate between devices in the system is an enterprise or secured network. 12:48-59.

		Gutierrez discloses user computing device that interfaces with the fluid handling system to sends instructions to control actuators of the fluid handling system. 11:16-33 ("the system 300 includes a computer 305 displaying a graphical user interface (GUI) 315, one or more remote chemical injection systems 310"), 13:9-26 ("a user or operator may utilize the GUI 315 to control one or more components of the chemical injection system 310 based on data received from the system 310 and displayed on the GUI 315. For example, each chemical injection system 310 may include a number of wireless sensor devices operable to detect one or more operational parameters of the hydrocarbon stream within the pipeline. For instance, the system 310 may detect the relative amount of chemical additives injected into the pipeline . . . the data is communicated to the computer 305 via the communication stations 320, base transceiver 325, and communications network 330, where it is then processed. The computer 305 and/or a user operating the computer 305 may then issue commands to one or more of the chemical injection systems 310 . . . includ[ing] a command to stop injecting chemical additive into the pipeline and/or a command to inject a specified amount of chemical additive into the pipeline."). A POSITA would recognize that Gutierrez discloses the control interfaces on a user computer device logged into by an authorized user sending commands to control fluid handling system actuators, as recited in the '014 Patent. Therefore, Gutierrez discloses this limitation of the '014 Patent.
	[1.7] wherein the system is configured to receive, with the web-interface module or modules, a user command to actuate an actuator entered via a presented control interface, identify a network address in the datastore corresponding to a facility at which the actuator is	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system's sensors. Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8-25, 29:5-37. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities and to facilitate the measurement of data requested through the graphical user interface. *See, e.g.*, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32.

	located, and send instructions with the facility-interface module or modules to the facility to actuate the actuator, and	Kahn discloses that the production sites are unique, disclosing separate control systems for designated facility locations. *See, e.g.*, 16:40-18:52. For example, Sensor unit 110 can be located at any desired point in a fluid distribution system. *See, e.g.*, 11:2-15. A hallmark of the distribution system in Kahn is the ability to identify the location of and communicate with the system's sensor units. 4:12-25; *see also id.*, 10:8-13; 23:51-62. A POSITA would recognize that Kahn discloses receiving with the user interface module a user command to actuate an actuator of the fluid handling system, as recited in the '014 Patent. A POSITA would recognize that Kahn discloses identifying an address in the datastore corresponding to the facility at which the actuator is located, as recited in the '014 Patent, because the disclosed GUI enables the user to control a designated component of the system. A POSITA would recognize that Kahn discloses sending instructions to the facility interface module to actuate the fluid handling system's actuator, as recited in the '014 Patent. Therefore, Kahn discloses this limitation of the '014 Patent. Gutierrez discloses a graphical user interface that receives the commands and sends them to the fluid handling system. 11:16-33 ("the system 300 includes a computer 305 displaying a graphical user interface (GUI) 315, one or more remote chemical injection systems 310"), 13:9-26 ("a user or operator may utilize the GUI 315 to control one or more components of the chemical injection system 310 . . . . The computer 305 and/or a user operating the computer 305 may then issue commands to one or more of the chemical injection systems 310. Such commands may include a command to stop injecting chemical additive into the pipeline and/or a command to inject a specified amount of chemical additive into the pipeline.").

		Gutierrez discloses a graphical user interface that receives the commands, and sends them to the fluid handling system. 11:16-33 (“the system 300 includes a computer 305 displaying a graphical user interface (GUI) 315, one or more remote chemical injection systems 310”), 13:9-26. Gutierrez discloses that the production sites are unique, disclosing separate control systems for “each.” 6:28-35; 10:22-24, 10:34-38, 10:43-59 (“data may be wirelessly transmitted directly to each chemical injection system . . . some or all of the processing of data and command generation may occur at the remote control center 220 rather than each individual chemical injection system 220.”), 11:55-61 (“each computer 305 may monitor, receive data from, and/or generate commands transmitted to a single chemical injection system 310 or multiple chemical injection systems 310.”), 11:62-12:3, 13:10-26; Claim 1. Gutierrez discloses user computing device interfaces with the fluid handling system to send instructions to control the actuators of the fluid handling system. 11:16-33 (“the system 300 includes a computer 305 displaying a graphical user interface (GUI) 315, one or more remote chemical injection systems 310”), 13:9-26 (“a user or operator may utilize the GUI 315 to control one or more components of the chemical injection system 310 . . . a user operating the computer 305 may then issue commands to one or more of the chemical injection systems 310. Such commands may include a command to stop injecting chemical additive into the pipeline and/or a command to inject a specified amount of chemical additive into the pipeline.”). A POSITA would recognize that Gutierrez discloses receiving with the user interface module a user command to actuate an actuator of the fluid handling system, as recited in the ’014 Patent. A POSITA would recognize that Gutierrez discloses identifying an address in the datastore corresponding to the facility at which the actuator is located, as

		recited in the '014 Patent because the user controls "each" component of the chemical injection system with the disclosed GUI. *Id.* A POSITA would recognize that Gutierrez discloses sending instructions to the facility interface module to actuate the fluid handling system's actuator, as recited in the '014 Patent. *Id.* Therefore, Gutierrez discloses this limitation of the '014 Patent.
	[1.8] wherein: the plurality of accounts include a first account, a second account, a third account, and a fourth account;	Kahn discloses a plurality of accounts, i.e., geographically distributed facilities for the transport of fluids, as shown above for element 1.3, and incorporated herein. Kahn discloses an "authorized account A" for "a first entity" "to access aspects of first fluid test data." 25:48-26:67. Kahn further discloses an "authorized account B" for "a second entity" "to access aspects of second fluid test data." The "first and second entities can control access to date generated by their respective sensors." Thus, "separate entities provide their fluid test data to the computer system 4 controlled by the service provider (an entity different from the first and second entities), and the first and second entities can control access to data generated by their respective sensors." Entities also "grant authorization to visualize [data] generated by them to others beyond themselves, such as government health organizations or security organizations such as the Department of Homeland Security." A POSITA would recognize Kahn discloses a plurality of accounts, as recited in the '014 Patent. Therefore, Kahn discloses this limitation of the '014 Patent. Kahn in view of Gutierrez renders obvious the disclosed plurality of accounts. Gutierrez discloses that its subject conduit systems carry and/or transport one or more fluids to insert other fluids (e.g., additives, inhibitors, or otherwise) into the conduit system, the carried fluids include hydrocarbon systems that transport hydrocarbon fluids, such as oil and/or gas or other fluids. 1:18-26.

		A POSITA would recognize that the recited plurality of accounts from the disclosure of Gutierrez, because the system described by Gutierrez requires multiple systems and operational components to transport fluids through the described conduit system, geographically distributed across the distance for monitoring and controlling fluids transported through the pipeline. A POSITA would recognize that Gutierrez's disclosure of geographically distributed and multiple types of operational components discloses multiple fluid handling facilities. *Id.* Thus, Gutierrez in combination with Kahn renders obvious the plurality of accounts recited in the '014 Patent. *Id.*
	[1.9] the first account corresponds to a first group of oil or gas facilities, users of the first account being authorized to send commands to remotely control fluid handling devices at the first group of oil or gas facilities;	Kahn discloses a variety of users and entities having different levels of authorized access. 25:48-26:67, *see also id*., 2:50-60, 19:58-65, 21:50-22:44, 22:62-23:50, 24:44-25:2, 25:5-12, 27:39-28:7. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid-handling facilities. *See, e.g*., 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. A POSITA would recognize that Kahn discloses a plurality of accounts with varying degrees of access to designated systems, wherein a first group (authorized account A) has access to control a first group of fluid handling facilities, as recited in the '014 Patent. Therefore, Kahn discloses this limitation of the '014 Patent. Kahn in view of Gutierrez renders obvious the disclosed first account with its users authorized to remotely control a first group of fluid handling devices. Gutierrez discloses users remotely controlling fluid handling devices, as discussed above for element 1.7 and incorporated herein.

		Gutierrez discloses that the network used to communicate in the disclosed methods is an enterprise or secured network. 12:48-59. A POSITA would recognize that enterprise or secured networks require individual users to login, and then users receive access only to designated systems, e.g. access to control a designated group of devices. A POSITA would recognize that the disclosure in Gutierrez matches the relevant disclosure in the '014 Patent. *Id.* A POSITA would recognize that Kahn and Gutierrez both disclose secure systems where users only have designated access to authorized data or system controls. *Id.* As discussed above for limitation 1.8 and incorporated herein, a POSITA would recognize that Kahn in view of Gutierrez renders obvious the disclosed plurality of accounts including accounts in a first group with access permitted for control of a first designated group of devices, as recited in the '014 Patent. *Id.* Therefore, Gutierrez in combination with Kahn renders obvious this limitation of the '014 Patent.
	[1.10] the second account corresponds to a second group of oil or gas facilities, the first group being different from the second group, users of the second account being authorized to send commands to remotely control fluid handling devices at the second group of oil or gas facilities;	Kahn in view of Gutierrez renders obvious the disclosed plurality of accounts with a second group of that plurality of accounts authorized to remotely control designated second fluid handling devices. A POSITA would recognize that Kahn and Gutierrez both disclose secure systems where users only have designated access to authorized data or system controls. As discussed above for limitation 1.9 and incorporated herein, a POSITA would recognize that Kahn in view of Gutierrez renders obvious a plurality of accounts including accounts in a second group with access permitted for control of a second designated group of devices, as recited in the '014 Patent. *Id.* Therefore, Gutierrez in combination with

		Kahn renders obvious this limitation of the ’014 Patent.
	[1.11] the third account corresponds to the first group of oil or gas facilities, users of the third account being authorized to view reports of data from fluid handling devices at the first group of oil or gas facilities; and	Kahn discloses a variety of users and entities having different levels of authorized access. 25:48-26:67*, see also id*., 2:50-60, 19:58-65, 21:50- 22:44, 22:62-23:50, 24:44-25:2, 25:5-12, 27:39-28:7. A POSITA would recognize that Kahn discloses a plurality of accounts with varying degrees of access to designated systems, wherein a third group (service provider) has access to view data from a first group of fluid handling facilities, as recited in the ’014 Patent. Therefore, Kahn discloses this limitation of the ’014 Patent. Kahn in view of Gutierrez renders obvious the disclosed plurality of accounts with a third group of that plurality of accounts authorized to remotely view data reports from designated first fluid handling devices. Gutierrez discloses users remotely viewing data from designated fluid handling devices. For example, Gutierrez discloses monitoring and control equipment including sensors configured to measure fluid handled at respective fluid- handling facilities. 9:4-13 (“one or more electronic sensors monitoring the pipeline”); 9:21-25 (“wireless sensors may detect various operations parameters of the pipeline 120, such as line pressure and/or chemical concentrate”), 10:7-16 (“a wireless pressure sensor”), 10:40-46, 13:12-17. Gutierrez discloses that the network used to communicate in the disclosed methods is an enterprise or secured network. 12:48-59. A POSITA would recognize that enterprise or secured networks require individual users to login, and then users receive access only to designated systems, e.g. access to view data reports for a designated group of devices. A POSITA would recognize that the disclosure in Gutierrez matches the relevant disclosure in the ’014 Patent. *Id*.

		A POSITA would recognize that Kahn and Gutierrez both disclose secure systems where users only have designated access to authorized data or system controls. *Id.* As discussed above for limitations 1.8-1.10 and incorporated herein, a POSITA would recognize that Kahn in view of Gutierrez renders obvious the disclosed plurality of accounts including accounts in a third group permitted access to view data reports for a first designated group of devices, as recited in the '014 Patent. *Id.* Therefore, Gutierrez in combination with Kahn renders obvious this limitation of the '014 Patent.
	[1.12] the fourth account corresponds to the second group of oil or gas facilities, users of the fourth account being authorized to view reports of data from fluid handling devices at the second group of oil or gas facilities.	Kahn in view of Gutierrez renders obvious the disclosed plurality of accounts with a fourth group of that plurality of accounts authorized to remotely view data reports from a designated second fluid handling devices. As discussed above for limitation 1.11 and incorporated herein, a POSITA would recognize that Kahn in view of Gutierrez renders obvious the disclosed plurality of accounts including accounts in a fourth group, as recited in the '014 Patent. Therefore, Gutierrez discloses this limitation of the '014 Patent. A POSITA would recognize that Kahn and Gutierrez both disclose secure systems where users only have designated access to authorized data or system controls. *Id.* A POSITA would recognize that Kahn in view of Gutierrez renders obvious the disclosed plurality of accounts including accounts in a fourth group permitted access to view data reports for a second designated group of devices, as recited in the '014 Patent. *Id.* Therefore, Gutierrez in combination with Kahn renders obvious this limitation of the '014 Patent. Claim 1 would be obvious to a POSITA over Kahn in view of Gutierrez.

2.	[2.1] The system of claim 1, wherein the sensors include a tank level sensor of a tank at one of the facilities, and wherein the datastore includes a record associating the tank with the facility, data from the tank being unavailable to users without an account associated with the tank, and wherein the accounts:	Gutierrez discloses level sensors for chemical reservoirs.12:65- 13:8 ("the GUI 315 may display a level of a chemical reservoir at the chemical injection system 310"). Gutierrez discloses sensor readings of fluidic pressure and fluidic storage level. 13:27-49 ("One or more of GUIs 400, 410, 420, and 430 may be displayed on the computer 305 in place of or in addition to GUI 315. . . GUI 400 provides information related to . . . fluidic pressure of fluid flowing through the pipeline and/or from chemical reservoir; fluidic storage level of the chemical reservoir"). Gutierrez discloses separate control systems for "each" system. 6:28-35; 10:22-24, 10:34-38, 10:43-59 ("data may be wirelessly transmitted directly to each chemical injection system . . . some or all of the processing of data and command generation may occur at the remote control center 220 rather than each individual chemical injection system 220."), 11:55-61 ("each computer 305 may monitor, receive data from, and/or generate commands transmitted to a single chemical injection system 310 or multiple chemical injection systems 310."), 11:62- 12:3, 13:10-26 ("a user or operator may utilize the GUI 315 to control one or more components of the chemical injection system 310"); Claim 1. Gutierrez discloses that the network used to communicate in the disclosed methods is an enterprise or secured network. 12:48-59. A POSITA would recognize that Gutierrez disclosure of a level sensor of fluid in a reservoir, would sense the level of fluid within a particular tank, as recited in the '014 Patent. A POSITA would recognize that Gutierrez discloses sensor readings associated with a specific facility sensor, such as on a tank within a given facility, as recited in the '871 Patent. *Id.* A POSITA would recognize that enterprise or secured networks require individual users to login, and that users receive access only to designated systems, e.g. data from a specific facility will be

		unavailable to users without an account associated with that facility. *Id.*
	[2.2] designate oil or gas facilities to which a given user is authorized to send the user command to actuate the actuator.	Gutierrez discloses users remotely controlling fluid handling devices, as discussed above for element 1.7 and incorporated herein. Gutierrez discloses separate control systems for "each" system. 6:28-35; 10:22-24, 10:34-38, 10:43-59 ("data may be wirelessly transmitted directly to each chemical injection system . . . some or all of the processing of data and command generation may occur at the remote control center 220 rather than each individual chemical injection system 220."), 11:55-61 ("each computer 305 may monitor, receive data from, and/or generate commands transmitted to a single chemical injection system 310 or multiple chemical injection systems 310."), 11:62- 12:3, 13:10-26 ("a user or operator may utilize the GUI 315 to control one or more components of the chemical injection system 310"); Claim 1. Gutierrez discloses that the network used to communicate in the disclosed methods is an enterprise or secured network. 12:48-59. A POSITA would recognize that enterprise or secured networks require individual users to login, and then users receive access only to designated systems, e.g. access to control a designated group of devices. A POSITA would recognize that Kahn and Gutierrez both disclose secure systems where users only have designated access to authorized data or system controls. *Id.* A POSITA would recognize that Kahn in view of Gutierrez renders obvious the designated oil or gas facilities to which a given user is authorized to send the user command to actuate the actuator, as recited in the '014 Patent. *Id.* Therefore, Gutierrez in combination with Kahn renders obvious this limitation of the '014 Patent. Claim 2 would be obvious to a POSITA over Kahn in view of Gutierrez.

3.	The system of claim 1, wherein the sensors include a level sensor of an oil/water separation tank at one of the facilities configured to indicate a level at which oil meets water, and wherein the datastore includes a record associating the tank with the facility.	Gutierrez discloses level sensors for chemical reservoirs. 12:65- 13:8 ("the GUI 315 may display a level of a chemical reservoir at the chemical injection system 310; power capacity and/or availability of a pump motor at the chemical injection system 310; one or more pump or pump motor characteristics (e.g., amps, current status, pressure, as well as other parameters)"). Gutierrez discloses sensor readings of fluidic pressure, fluidic storage level, and percentage of water content in the fluidic system. 13:27-49 ("One or more of GUIs 400, 410, 420, and 430 may be displayed on the computer 305 in place of or in addition to GUI 315. . . . GUI 400 provides information related to . . . fluidic pressure of fluid flowing through the pipeline and/or from chemical reservoir; fluidic storage level of the chemical reservoir; . . . and a percentage water content of fluid flowing through the pipeline."). A POSITA would recognize that Gutierrez disclosure of a level sensor of fluid in a reservoir, as well as information regarding the percentage of water in the fluidic system, constitutes a fluid level indicator for the oil/water partition level within a particular storage tank within a facility, as recited in the '871 Patent. Gutierrez discloses separate control systems for "each" system. 6:28-35; 10:22-24, 10:34-38, 10:43-59 ("data may be wirelessly transmitted directly to each chemical injection system . . . some or all of the processing of data and command generation may occur at the remote control center 220 rather than each individual chemical injection system 220."), 11:55-61 ("each computer 305 may monitor, receive data from, and/or generate commands transmitted to a single chemical injection system 310 or multiple chemical injection systems 310."), 11:62- 12:3, 13:10-26 ("a user or operator may utilize the GUI 315 to control one or more components of the chemical injection system 310"); Claim 1. A POSITA would recognize that Gutierrez discloses sensor readings associated with a specific facility

		sensor, such as on a tank within a given facility, as recited in the ’871 Patent. Claim 3 would be obvious to a POSITA over Kahn in view of Gutierrez.
4.	The system of claim 1, wherein the sensors include a leak detector at one of the facilities, and wherein the datastore includes a record associating the leak detector with the facility.	Kahn discloses a user interface showing data from geographically distributed fluid handling facilities from multiple different entities. Abstract, 2:50-54, 25:5-12. A hallmark of the distribution system in Kahn is the ability to identify the location of and communicate with the system’s sensor units. 4:12-25, 11:2-15. Kahn’s geographically distributed and uniquely identified sensors, e.g., detect leaks in the fluid handling facilities. 10:8-13 (“Physical events, such as a breakage of a pipe might be detected . . . thereby identifying the exact location or proximate location of the breakage.”). A POSITA would recognize that Kahn discloses a leak detector at a fluid- handling facility. Gutierrez discloses sensors for chemical reservoirs. 12:65-13:8 (“the GUI 315 may display a level of a chemical reservoir at the chemical injection system 310”), 13:27-49 (“GUI 400 provides information related to . . . fluidic pressure of fluid flowing through the pipeline and/or from chemical reservoir; fluidic storage level of the chemical reservoir”). Gutierrez discloses that when such sensed pressure falls below a minimum threshold, such as when a pipeline break occurs, the processor 150 may command the motor controller 115 to stop or reduce the speed of the motor 110 and pump 105 so that additional chemicals are not injected into the pipeline 120 and wasted. 10:11-16. A POSITA would recognize that Gutierrez disclosure of pressure sensors used to detect leaks or breaks discloses a leak detector at a given facility with a record associated with the leak detector as Gutierrez discloses follow up actions taken by its described system when a leak is detected, as recited in the ’014 Patent.

		Therefore, a POSITA would understand that Gutierrez discloses every element recited in Claim 4. *Id.* Claim 4 would be obvious to a POSITA over Kahn in view of Gutierrez.
	[5.1] The system of claim 1, wherein: the web-interface module or modules comprises a web server; and	Kahn discloses a data collection network with centralized data collection points. *See, e.g.*, 8:51-59, 9:53-58, 17:18-30, 18:48-52, 63-65, 19:5-23, 19:58-65, 23:27-31. Kahn discloses that the centralized data collection point is a server. 10:52-61, 23:27-31. Kahn discloses that servers are computers, i.e. include processors. 32:58-63. A POSITA would recognize that Kahn discloses the web-interface module or modules comprises a web server. Therefore, Kahn discloses this limitation of the '014 Patent. Gutierrez discloses a remote computing system with a graphical user interface (GUI); a sensor coupled with a hydrocarbon transmission system; and a chemical injection system. 2:26-29, 11:38-42 ("reference to the computer 305 includes any processor-based computing device that is operable to manipulate, display, receive, and/or transmit data, such as data associated with a wellsite, hydrocarbon piping system, or other hydrocarbon production facility."). Gutierrez discloses that computer 305 is a server. 11:34-37. A POSITA would recognize that Gutierrez discloses the web-interface module or modules comprise a web server, as recited in the '014 Patent. Therefore, Gutierrez discloses this limitation of the '014 Patent.
	[5.2] the facility-interface module or modules comprises a site server distinct from the web server	Kahn discloses a system with Sensor unit 110 that connects via a network to centralized data collection points. *See, e.g.*, 5:62-6:2, 9:37-43, 10:18-67,13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn further discloses that the network of sensor units 110 can be configured to communicate with a central communication device, e.g., a server, and/or sensor unit 110 can communicate with each other as a distributed network. 10:54-56.

		A POSITA would recognize that Kahn discloses the facility-interface module or modules comprises a web server, as recited in the '014 Patent, because sensor unit 110 can communicate with each other in a distributed network with each sensor unit 110 operating as a server. Therefore, Kahn discloses this limitation of the '014 Patent. Claim 5 would be obvious to a POSITA over Kahn in view of Gutierrez.
8.	The system of claim 1, wherein the facility-interface module or modules comprise: means for interfacing with a plurality of site controllers associated with the facilities.	Kahn discloses a facility interface module, Sensor unit 110, including a processor that connects via a network to centralized data collection points. *See, e.g.*, 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid-handling facilities. *See, e.g.,* 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. A POSITA would recognize that Kahn discloses the facility-interface module or modules comprise: means for interfacing with a plurality of site controllers associated with the facilities as recited in the '014 Patent. Therefore, Kahn discloses this limitation of the '014 Patent. Gutierrez discloses monitoring and control equipment including sensors configured to measure fluid handled at respective fluid-handling facilities. 9:4-13; 9:21-25, 10:7-16, 10:40-46, 13:12-17. Gutierrez discloses monitoring and control equipment including actuators configured to manipulate fluid flow at respective fluid-handling facilities. *See, e.g.*, 6:45-8:38 (describing chemical injection system with controllers for activating pumps to manipulate fluid flow), 9:54-10:16, 11:62-12:29, 13:23-26. Gutierrez discloses that the production sites are uniquely addressable by the network connection through individualized control systems for "each" facility. 6:28-35; 10:22-24, 10:34-38, 10:43-59, 11:55-61, 11:62-12:3, 13:10-26; Claim 1.

		A POSITA would recognize that Gutierrez discloses means for interfacing with a plurality of site controllers associated with the facilities, as recited in the ’014 Patent. Claim 8 would be obvious to a POSITA over Kahn in view of Gutierrez.
9.	The system of claim 1, wherein the web-interface module or modules comprise: means for sending instructions to present a control interface on the user devices.	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) that when activated by a user shows data from the system’s sensors. Abstract, 1:28-36, 2:50-3:2, 25:5- 25, 25:48-26:19, 28:8-25, 29:5-37. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid-handling facilities, to facilitate the measurement of data requested through the graphical user interface. *See, e.g.*, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. A POSITA would recognize that Kahn discloses a GUI control interfaces on a user computer device for reviewing data from the system’s sensor or sending commands to control fluid handling system actuators, as recited in the ’014 Patent. Therefore, Kahn discloses this limitation of the ’014 Patent. Gutierrez discloses a remote computing system where a user engages a graphical user interface (GUI) to access the capabilities of the system. 2:26-29. Gutierrez discloses that the user interacts with the GUI on a user computing device that interfaces with the fluid handling system to sends instructions to control actuators of the fluid handling system. 11:16-33, 13:9-26 (“a user or operator may utilize the GUI 315 to control one or more components of the chemical injection system 310”). A POSITA would recognize that Gutierrez discloses means for sending instructions to present a control interface on the user devices, as recited in the ’014 Patent. Therefore, Gutierrez discloses this limitation of the ’014 Patent. Claim 9 would be obvious to a POSITA over Kahn in view of Gutierrez.

10.	The system of claim 1, wherein the datastore stores accounts for more than one hundred facilities, and the web-interface module or modules are configured interface with more than one hundred user devices.	Kahn discloses "A computer system controlled by a service provider (e.g., Sensicore) is connected to one or more communication networks as well as the Internet using any suitable communications technologies and is equipped (programmed) with suitable software to be able to receive fluid test data from portable handheld sensor units 2a (via wireless tower 3) and/or wired or wireless stationary on-line sensor devices 2b via the communication network(s). The sensor units 2a and 2b can be equipped with a "confirm" capability as described elsewhere herein, if desired. Fluid test data can also be received by or uploaded to computer system 4 from other data systems or resources as will be described below", 25:14-25. In addition, Kahn discloses "As will be described further herein, an authorized Account A (first user 5a) can be authorized by a first entity (e.g., a municipal water authority) to access aspects of first fluid test data from the computer system 4 via the Internet using a graphical computer interface at a computer operated by first user (Account A) ... Similarly, an authorized Account B (second user 5b) second user can be authorized by a second entity (e.g., an industrial plant or power utility) to access aspects of second fluid test data from the computer system 4 via the Internet using a graphical computer interface at a computer operated by the second user (Account B)."; 25:48-61. Thus, Kahn discloses that the computer system 4 stores data from the sensor units 2a and 2b. In addition, Kahn discloses that the computer system 4 enables the first user and the second user to access aspects of fluid test data from the computer system 4. A POSITA would consider it obvious to scale the processes and equipment having all the limitations of claim 10, without undue experimentation. Gutierrez discloses "the remote control center 220 may merely monitor and/or store data wirelessly communicated directly to the chemical injection systems 210 from the monitoring module 225" 10:65-67 and 11:1.

		Further, Gutierrez discloses "In some embodiments, the computer 305 may be located at a remote monitoring station, such as the station 220. Further computer 305 may be one of several computers at the remote monitoring station, where each computer 305 may monitor, receive data from, and/or generate commands transmitted to a single chemical injection system 310 or multiple chemical injection systems 310.", 11:55-61. Furthermore, Gutierrez discloses "The computer 305 and/or a user operating the computer 305 may then issue commands to one or more of the chemical injection systems 310", 13:21-23. Thus, Gutierrez discloses that the remote control center 220 stores information associated with the multiple chemical injection systems 210. In addition, Gutierrez discloses that the computer 305 may be one of several computers at the remote control center 220, which allows the users to interact with the multiple chemical injection systems 310/210. Thus, Gutierrez discloses that the remote control center 220 can interface with multiple user devices. In addition, a POSITA would consider it obvious to scale the processes and equipment having all the limitations of claim 10, without undue experimentation.
12.	The system of claim 1, comprising: a controller at one of the facilities communicatively coupled to an actuator or a sensor.	Kahn discloses a system with Sensor unit 110 that includes multiple sensors (e.g., first sensor 111A and second sensor 111B) and a communication unit that connects via a network to centralized data collection points. *See, e.g.*, 5:62- 6:16, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn discloses monitoring and control equipment including one or more actuators configured to manipulate fluid flow at respective fluid-handling facilities. *See, e.g.*, 10:62-67; *see also id.*, 14:35-15:2 ("one or more actuators"), 15:62-16:32 (describing an actuator for each sensor 111). A POSITA would recognize that Kahn discloses the addresses for facilities accessible by the network, as well as the monitoring and control equipment as

		recited in the ’014 Patent. Therefore, Kahn discloses this limitation of the ’014 Patent. Gutierrez discloses fluid-handling facilities having sets of both sensors and actuators. 6:45-7:2, 9:65-10:16, 10:17-11:4, 11:16-33, 11:55-61, 13:9-26. Gutierrez discloses monitoring and control equipment including actuators configured to manipulate fluid flow at respective fluid-handling facilities. *See, e.g.*, 6:45-8:38 (describing chemical injection system with controllers for activating pumps to manipulate fluid flow), 9:54-10:16, 11:62-12:29, 13:23-26. Gutierrez discloses that the production sites are uniquely addressable by the network connection through individualized control systems for “each” facility. 6:28-35; 10:22-24, 10:34-38, 10:43-59, 11:55-61, 11:62-12:3, 13:10-26; Claim 1. A POSITA would recognize that Gutierrez discloses a controller at one of the facilities communicatively coupled to an actuator or a sensor as recited in the ’014 Patent. Therefore, Gutierrez discloses this limitation of the ’014 Patent. Claim 12 would be obvious to a POSITA over Kahn in view of Gutierrez.
13.	[13.1] The system of claim 12, wherein the system is configured to instantiate at least four of the following as distinct threads from one another:	A POSITA would recognize that Kahn discloses software applications written or described in any appropriate computer language including HTML, Java, and XML, among others. 28:8-26, *see* also 33:31-43. A POSITA would recognize that Kahn inherently discloses instantiation of threads, and the various thread implementations recited in Claim 13, through computer coding in computer languages such as Java. A POSITA would recognize that Kahn inherently discloses instantiation of threads, as recited in the ’014 Patent, from its disclosure of software or applications written in then-current computer languages, including Java. Therefore, Kahn discloses this limitation of the ’014 Patent.

		A POSITA would also recognize that Gutierrez discloses software applications written or described in any appropriate computer language including C, C++, Java, Visual Basic, assembler, Perl, any suitable version of 4GL, as well as others. 8:54-62, 11:50-54. A POSITA would recognize that Kahn and Gutierrez inherently disclose, or render obvious, instantiation of threads, and the various thread implementations recited in Claim 13, through computer coding in computer languages such as Java and C++.
	[13.2] a thread configured to sends and receive data requests;	Kahn discloses a data collection network with centralized data collection points. *See, e.g.*, 8:51-59, 9:53-58, 17:18-30, 18:48-52, 63-65, 19:5-23, 19:58-65, 23:27-31. A POSITA would recognize that Kahn inherently discloses a thread configured to send and receive data requests, as recited in the '014 Patent, from its disclosure of software or applications written in then-current computer languages, including Java. Therefore, Kahn discloses this limitation of the '014 Patent. A POSITA would also recognize that Gutierrez discloses software applications written or described in any appropriate computer language including C, C++, Java, Visual Basic, assembler, Perl, any suitable version of 4GL, as well as others. 8:54-62, 11:50-54. A POSITA would recognize that Kahn and Gutierrez inherently disclose, or render obvious, instantiation of threads, and the various thread implementations recited in Claim 13, through computer coding in computer languages such as Java and C++.
	[13.3] a thread configured to synchronize other threads with updated information;	A POSITA would recognize that Kahn inherently discloses a thread configured to synchronize other threads with updated information, as recited in the '014 Patent, from its disclosure of software or applications written in then-current computer languages, including Java. Therefore, Kahn discloses this limitation of the '014 Patent.

		A POSITA would also recognize that Gutierrez discloses software applications written or described in any appropriate computer language including C, C-++, Java, Visual Basic, assembler, Perl, any suitable version of 4GL, as well as others. 8:54-62, 11:50-54. A POSITA would recognize that Kahn and Gutierrez inherently disclose, or render obvious, instantiation of threads, and the various thread implementations recited in Claim 13, through computer coding in computer languages such as Java and C++.
	[13.4] a thread configured to set a target state of actuators;	Kahn discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow by setting a target state for actuators at respective fluid-handling facilities. *See, e.g.*, 8:3-11, 8:21-24, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32, 34:7-12. A POSITA would recognize that Kahn inherently discloses a thread configured to set a target state of actuators, as recited in the '014 Patent, from its disclosure of software or applications written in then-current computer languages, including Java. Therefore, Kahn discloses this limitation of the '014 Patent. A POSITA would also recognize that Gutierrez discloses software applications written or described in any appropriate computer language including C, C-++, Java, Visual Basic, assembler, Perl, any suitable version of 4GL, as well as others. 8:54-62, 11:50-54. A POSITA would recognize that Kahn and Gutierrez inherently disclose, or render obvious, instantiation of threads, and the various thread implementations recited in Claim 13, through computer coding in computer languages such as Java and C++.
	[13.5] a thread configured to obtain updated sensor readings;	Kahn discloses a data collection network with centralized data collection points. *See, e.g.*, 8:51-59, 9:53-58, 17:18-30, 18:48-52, 63-65, 19:5-23, 19:58-65, 23:27-31. Kahn discloses that the centralized data collection points receive sensor information via a network from a facility interface module, Sensor unit 110. *See, e.g., id.*, 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3.

		A POSITA would recognize that Kahn inherently discloses a thread configured to obtain updated sensor readings, as recited in the '014 Patent, from its disclosure of software or applications written in then-current computer languages, including Java. Therefore, Kahn discloses this limitation of the '014 Patent. A POSITA would also recognize that Gutierrez discloses software applications written or described in any appropriate computer language including C, C-++, Java, Visual Basic, assembler, Perl, any suitable version of 4GL, as well as others. 8:54-62, 11:50-54. A POSITA would recognize that Kahn and Gutierrez inherently disclose, or render obvious, instantiation of threads, and the various thread implementations recited in Claim 13, through computer coding in computer languages such as Java and C++.
	[13.6] a thread configured to process user interactions; and	A POSITA would recognize that Kahn inherently discloses a thread configured to process user interactions, as recited in the '014 Patent, from it disclosure of software or applications written in then-current computer languages, including Java. Therefore, Kahn discloses this limitation of the '014 Patent. A POSITA would also recognize that Gutierrez discloses software applications written or described in any appropriate computer language including C, C-++, Java, Visual Basic, assembler, Perl, any suitable version of 4GL, as well as others. 8:54-62, 11:50-54. A POSITA would recognize that Kahn and Gutierrez inherently disclose, or render obvious, instantiation of threads, and the various thread implementations recited in Claim 13, through computer coding in computer languages such as Java and C++.
	[13.7] a thread that eliminates other threads upon detecting a problem with the eliminated threads.	A POSITA would recognize that Kahn inherently discloses a thread that eliminates other threads upon detecting a problem with the eliminated threads, as recited in the '014 Patent, from its disclosure of software or applications written in then-current computer languages, including Java. Therefore, Kahn discloses this limitation of the '014 Patent. Therefore,

		a POSITA would understand that Kahn inherently discloses the elements recited in Claim 13. A POSITA would also recognize that Gutierrez discloses software applications written or described in any appropriate computer language including C, C-++, Java, Visual Basic, assembler, Perl, any suitable version of 4GL, as well as others. 8:54-62, 11:50-54. A POSITA would recognize that Kahn and Gutierrez inherently disclose, or render obvious, instantiation of threads, and the various thread implementations recited in Claim 13, through computer coding in computer languages such as Java and C++.
14.	[14.1] The system of claim 12, wherein the system is configured to instantiate at least two of the following as distinct threads from one another:	A POSITA would recognize that Kahn and Gutierrez inherently disclose, or render obvious, instantiation of threads, and the various thread implementations recited in Claim 14, through computer coding in computer languages such as Java and C++. Claim 14 would be obvious to a POSITA over Kahn in view of Gutierrez.
	[14.2] a thread configured to sends and receive data requests;	
	[14.3] a thread configured to synchronize other threads with updated information;	
	[14.4] a thread configured to set a target state of actuators;	
	[14.5] a thread configured to obtain updated sensor readings;	
	[14.6] a thread configured to process user interactions; and	
	[14.7] a thread that eliminates other threads upon detecting a problem with the eliminated threads.	
15.	The system of claim 12, wherein the controller is communicatively coupled to the actuator or sensor via	Kahn discloses coupling the system's components, e.g. controller and senor units, with a private network. 10:18-48, 19:34-57.

	a private local area network.	A POSITA would recognize that Kahn discloses communicating with a controller at one of the facilities to control and actuator or read from a sensor via a private local area network. Gutierrez discloses coupling the controller with the actuator and sensor via a local private area network, namely a "secured network" over one of several communications protocols including VPN, LAN, RAN, MAN, WAN or the internet. 12:26-64. A POSITA would recognize that Gutierrez discloses communicating with a controller at one of the facilities to control and actuator or read from a sensor via a private local area network. Claim 15 would be obvious to a POSITA over Kahn in view of Gutierrez.
16.	The system of claim 12, wherein controller is communicatively coupled to the actuator or sensor via a frame-based carrier-sense multiple access protocol with collision detection.	Kahn discloses coupling the system's components, e.g. controller and senor units, with a standard network including ethernet. 10:18-48, 19:34-57. A POSITA would recognize that Kahn discloses a frame-based carrier-sense multiple access protocol with collision detection because a POSITA would know that frame-based carrier-sense multiple access protocol with collision detection, as recited in the '014 Patent, is an Ethernet networking technology. A POSITA would recognize that Kahn discloses communicating with a controller at one of the facilities to control and actuator or read from a sensor via a private local area network that uses a frame-based carrier-sense multiple access protocol with collision detection. Gutierrez discloses coupling the controller with the actuator and sensor via a various ethernet protocols, including VPN, LAN, RAN, MAN, WAN or the internet. 12:26-64. A POSITA would recognize that Gutierrez discloses a frame-based carrier- sense multiple access protocol with collision detection because a POSITA would know that frame-based carrier-sense multiple access protocol with collision detection, as recited in the '014 Patent, is an Ethernet networking technology.

		Claim 16 would be obvious to a POSITA over Kahn in view of Gutierrez.
18.	The system of claim 12, comprising: means for ensuring at least some data is not lost if network access ceases intermittently.	Kahn discloses that data collection can run in real time, and can continuously, or intermittently (e.g., periodically at pre-set time intervals) monitor fluid quality, or upon inquiry, or operate based on stored data at the sensor sites 110A-110F, depending on the data storage and communication capabilities of the sensor units 110. 19:24-33; 29:47-50 ("If a wireless communication is not currently available, the measurement can be stored in the handheld unit until a wireless link is established."). A POSITA would recognize that Kahn discloses steps for ensuring at least some data is not lost if network access ceases intermittently because sensor units 110 include data storage and allow for intermittent transmission of data. Gutierrez discloses that Controller 130 is communicably coupled to the motor controller 115 and provides microprocessor-based control of the motor controller 115 and thus motor 110 and pump 105 . . . a communication module 140, a translation module 145, motor driver, data acquisition, data storage, and a processor 150. 8:16-21. A POSITA would recognize that Gutierrez discloses steps for ensuring at least some data is not lost if network access ceases intermittently, because controller 130 includes data storage. Claim 18 would be obvious to a POSITA over Kahn in view of Gutierrez.
19.	The system of claim 12, comprising: means for translating a command for an actuator from an input format to a format configured to effectuate changes in the actuator.	Gutierrez discloses a translation module that converts communication protocol messages into the communication protocol for fluid control actuation devices. 2:18-25, 41-47, 4:7-14, 8:19-21, 23-31, 9:34-64 ("translation module 145 receives data communicated in a particular communication protocol to the system 100 via the communication bus 155 and/or wireless antenna 160 and, when necessary, translates such data to a secondary communication protocol understood by the motor controller 115 or other components of the system 100.").

		A POSITA would recognize that Gutierrez discloses steps for translating a command for an actuator from an input format to a format configured to effectuate changes in the actuator. Claim 19 would be obvious to a POSITA over Kahn in view of Gutierrez.
20	The system of claim 19, comprising: means for executing control routines implicated by translated commands on an individual actuator or sensor.	Gutierrez discloses a translation module that converts communication protocol messages into the communication protocol for fluid control actuation devices. 2:18-25, 41-47, 4:7-14, 8:19-21, 23-31, 9:34-64. A POSITA would recognize that Gutierrez discloses steps for translating a command for an actuator from an input format to a format configured to effectuate changes in the actuator. Claim 20 would be obvious to a POSITA over Kahn in view of Gutierrez.
21.	The system of claim 12, comprising: means for transmitting data to the facility-interface module or modules.	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system's sensors. Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8-25, 29:5-37. Kahn discloses a facility interface module, Sensor unit 110, including a processor that connects via a network to centralized data collection points. *See, e.g.*, 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid-handling facilities. *See, e.g.*, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. A POSITA would recognize that Kahn discloses the control interfaces on a user computer device sending commands to control fluid handling system actuators, as recited in the '014 Patent. Therefore, Kahn discloses this limitation of the '014 Patent. Gutierrez discloses steps for interfacing with site controllers associated with facilities, as discussed

		above for Claims 1.5, and 1.6, and incorporated herein. A POSITA would recognize that Gutierrez discloses communicating with a controller at one of the facilities to control and actuator or read from a sensor, as recited in the '014 Patent. Claim 21 would be obvious to a POSITA over Kahn in view of Gutierrez.
23.	The system of claim 12, comprising: an oil or gas facility communicatively coupled to the controller.	Kahn discloses hosted, web-based, remote industrial monitoring and control system for geographically distributed facilities. *See, e.g.*, Abstract, 10:62- 67; 14:35-15:2, 15:62-16:32; 2:50-54, 25:5-12. Kahn discloses that its invention "can be used in conjunction with other fluids, such as natural gas." 17:67-18:2. A POSITA would recognize that Kahn discloses an oil or gas facility communicatively coupled to the controller. Thus, Kahn discloses the recited system. Gutierrez discloses chemical injection system 100 in a hydrocarbon production system, such as, for example, a field or area having one or more hydrocarbon (e.g., oil, natural gas) production sites. 6:55-7:2; *see also* 5:22-26; 6:24-27; 10:22-38. Gutierrez discloses chemical injection system 100 that includes a pump 105 mechanically coupled to a driver, such as a motor 110; a motor controller 115; and a controller 130. 6:46-49, 8:15-21; *see also* 8:39-9:3. A POSITA would recognize that Gutierrez discloses an oil or gas facility communicatively coupled to the controller, as recited in the '014 Patent. Therefore, Gutierrez discloses this element of the '014 Patent. Claim 23 would be obvious to a POSITA over Kahn in view of Gutierrez.

Exhibit C-3

Invalidity Claim Chart for U.S. Patent No. 9898014 ("the 014 patent")

In view of

US 7,424,399 (Kahn) alone or taken together with

US 9,709,995 (Gutierrez)

64utah-SCADA

Brochure-VTScada-FeaturesByVersion

sys_wht_ppr-2a_new

CR1000 Datalogger – Brochure

TM 5-601 Supervisory Control

The asserted claims of '014 patent are anticipated and/or rendered obvious by Kahn alone or in combination with Gutierrez, 64utah-SCADA, Brochure-VTScada-FeaturesByVersion, scada_sys_wht_ppr-2a_new, CR1000 Datalogger – Brochure, TM 5-601 Supervisory Control as identified in Defendant Preliminary Invalidity Contentions.

U.S. Patent No. 7,424,399 ("Kahn") was filed on June 09, 2006, published on March 01, 2007 and issued on September 09, 2008. Kahn is prior art under at least 35 U.S.C. 102(a).

U.S. Patent No. 9,709,995 ("Gutierrez") was filed on December 22, 2014, published on April 16, 2015 and issued on July 18, 2017. This application is a continuation of U.S. patent application Ser. No. 12/794,898, filed on Jun. 7, 2010. Gutierrez is prior art under at least 35 U.S.C. 102(a) and 35 U.S.C. 102(e).

64utah-SCADA was published in 2012. 64utah-SCADA is prior art under at least 35 U.S.C. 102(a).

Brochure-VTScada-FeaturesByVersion was published in 2016 (continuously updated since 2007). Brochure-VTScada-FeaturesByVersion is prior art under at least 35 U.S.C. 102(a).

scada_sys_wht_ppr-2a_new was published in 2007. scada_sys_wht_ppr-2a_new is prior art under at least 35 U.S.C. 102(a).

CR1000 Datalogger – Brochure was published in June 2004 and 2008. CR1000 Datalogger – Brochure is prior art under at least 35 U.S.C. 102(a).

TM 5-601 Supervisory Control was published on January 21, 2006. TM 5-601 Supervisory Control is prior art under at least 35 U.S.C. 102(a).

The citations to portions of any reference in this chart are exemplary only. Defendant will rely on the entirety of the reference cited in this chart, as well as any additional materials relevant to the

reference identified through their ongoing investigation, to show that the asserted claims are invalid.

Claim#	Claim Language	Kahn, Gutierrez, 64utah-SCADA, Brochure-VTScada-FeaturesByVersion, scada_sys_wht_ppr-2a_new, CR1000 Datalogger – Brochure, TM 5-601 Supervisory Control
1.	[1.1] A hosted, web-based, remote industrial monitoring and control system for geographically distributed facilities in oil and gas fields, the system comprising:	To the extent that the preamble is found to be limiting, Kahn discloses hosted, web-based, remote industrial monitoring and control system for geographically distributed facilities. *See*, *e.g.,* Abstract, 10:62-67; 14:35- 15:2, 15:62-16:32; 2:50-54, 25:5-12. Kahn discloses that its invention "can be used in conjunction with other fluids, such as natural gas." 17:67-18:2. A POSITA would recognize that Kahn discloses the recited system. Thus, Kahn discloses the recited system. To the extent that the preamble is found to be limiting, Gutierrez discloses hosted, web-based, remote industrial monitoring and control system for geographically distributed oil and gas fluid handling facilities. *See, e.g.*, Abstract, 1:14-50. A POSITA would recognize that Gutierrez discloses a hosted, web-based, remote industrial monitoring and control system for geographically distributed facilities in oil and gas fields. Thus, Gutierrez discloses the recited system. Further, Brochure-VTScada-FeaturesByVersion discloses a remote system for remote controlling on field system, Brochure-VTScada-FeaturesByVersion recites, "The simplest way to access your process from smart phones or tablets. This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* Brochure-VTScada-FeaturesByVersion, page 4. Further scada_sys_wht discloses a system for remote controlling. Scada_sys_wht, recites, "Remote monitoring and control of oil and gas production, pumping, and storage at refineries from both offshore platforms and onshore wells". *See* page 2. Scada_sys_wht further recites, "The RTU or PLC acquires the site data, which includes meter readings,

		pressure, voltage, or other equipment status, then performs local control and transfers the data to the central SCADA system."
	[1.2] a computer-implemented datastore storing:	Kahn discloses a data collection network with centralized data collection points. *See, e.g.*, 8:51-59, 9:53-58, 17:18-30, 18:48-52, 63-65, 19:5-23, 19:58-65, 23:27-31. Kahn discloses that the centralized data collection point is a server. 10:52-61, 23:27-31. Kahn discloses that servers are computers, i.e. include processors. 32:58-63. A POSITA would recognize that Kahn discloses storing records, with one or more processors through its disclosure of centralized data collection points. Therefore, Kahn discloses storing records, with one or more processors. Gutierrez discloses that chemical injection system 100 may be utilized in a hydrocarbon production system, such as, for example, a field or area having one or more hydrocarbon (e.g., oil, natural gas) production sites. 6:55-7:2. Chemical injection system 100 includes a pump 105 mechanically coupled to a driver, such as a motor 110; a motor controller 115; and a controller 130. 6:46-49. Controller 130 provides microprocessor-based control of the motor controller 115 and thus motor 110 and pump 105. 8:15-19. Controller 130 includes a communication module 140, data acquisition, data storage, and a processor 150. 8:19-21; *see also id.,* 8:39-9:3. A POSITA would recognize that Gutierrez discloses controller 130 which includes a processor and data storage for records related to hydrocarbon production facilities. Therefore, Gutierrez discloses this element of the '014 Patent. Further 64utah-SCADA discloses a datastore to control the site via user account, 64utah-SCADA recites "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* 64utah-SCADA, page 2. Further, Brochure-VTScada-FeaturesByVersion discloses datastore. Brochure-VTScada-FeaturesByVersion recites, "The simplest way to access your process from smart phones or tablets. This tactile browser-based interface allows you to

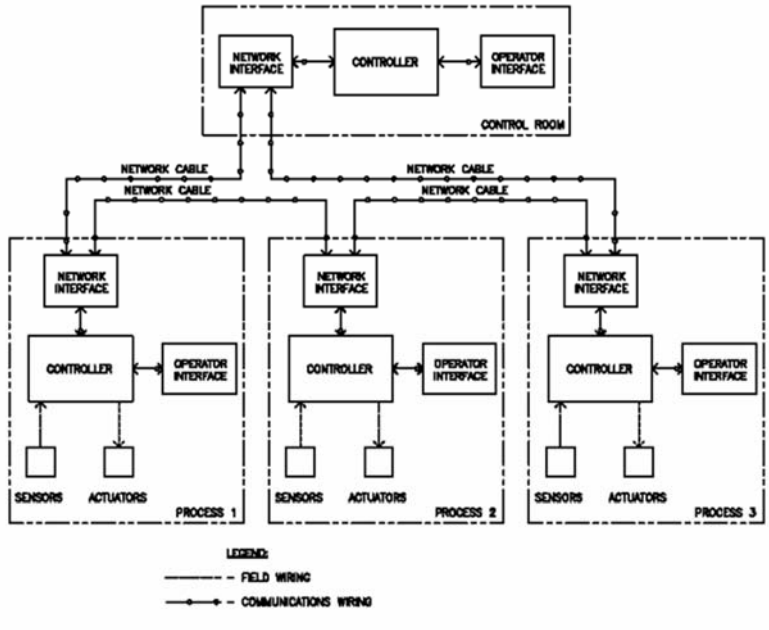
		securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* page 4. Further Brochure-VTScada-FeaturesByVersion discloses authorized user. Brochure-VTScada-FeaturesByVersion recites, "This optional feature, introduced in 10, allows authorized users to see changes made on all servers, roll back to previous versions and merge versions together." "New 'Roles' and 'Rules' allow you to finely tune what users can do and where while reducing configuration time. Rules are combinations of tags and privileges that vastly reduce the number of privileges required. Roles are pre-defined sets of rules that correspond to specific jobs (e.g., plant operator). To reduce duplication and ensure consistency, accounts can now be shared across applications. The security database scheme now employs military-grade encryption as does the security information exchanged between the VTScada Internet Client and Server. Accounts can also now be disabled following repeated failed log-in attempts." *See* Brochure-VTScada-FeaturesByVersion, page 4. A POSITA would recognize that Brochure-VTScada-FeaturesByVersion has a data store storing multiple account with each account having access to a set of equipment.
	[1.3] a plurality of accounts, each account corresponding to an entity operating one or more geographically distributed oil or gas facilities, the accounts associating different oil or gas facilities with different entities; and	Kahn discloses that centralized data collection points connect to sensor unit 110 at designated facilities from different entities, i.e. "accounts." *See, e.g.,* 16:40-18:52, 25:5-12. A hallmark of the distribution system in Kahn is the ability to identify the location of and communicate with the system's sensor units. 4:12-25, 11:2-15; *see also*, 10:8-13; 23:51-62. Kahn discloses a user interface showing data from geographically distributed fluid handling facilities from multiple different entities. Abstract, 2:50-54, 25:5-12. A POSITA would recognize that Kahn discloses a plurality of accounts, namely one or more geographically distributed fluid-handling facilities with different entities. Therefore, Kahn discloses the plurality of accounts recited in the '014 Patent. Gutierrez discloses chemical injection system 100 in a hydrocarbon production system, such as, for example, a field or area having one or more hydrocarbon (e.g., oil, natural gas) production sites. 6:55-7:2; *see also id.,* 5:22-26; 6:24-27; 10:22-38. Gutierrez discloses that the production sites are

		unique, disclosing control systems for "each." 6:28-35; 10:22-24, 10:34-38, 10:43- 59 ("data may be wirelessly transmitted directly to each chemical injection system .. . some or all of the processing of data and command generation may occur at the remote control center 220 rather than each individual chemical injection system 220."), 11:55-61 ("each computer 305 may monitor, receive data from, and/or generate commands transmitted to a single chemical injection system 310 or multiple chemical injection systems 310."), 11:62-12:3, 13:10-26 ("a user or operator may utilize the GUI 315 to control one or more components of the chemical injection system 310"); Claim 1. Gutierrez discloses a hydrocarbon transmission system including one or more chemical injection systems for relative distances between production sites and pipeline monitoring locations to efficiently inject chemical additives into the system without waste. 5:22-31; *see also id.*, 3:49-4:4, 4:50-63, 6:24-44 ("a hydrocarbon transmission system includes a pipeline adapted to enclose a fluid transmitted from a plurality of hydrocarbon production sites to a processing site and a plurality of chemical injection systems"), 6:45-58, 10:22-24("System 200 includes one or more hydrocarbon production sites 215, each of which is fluidly coupled to a pipeline 205."), 11:37-42. A POSITA would recognize that Gutierrez discloses a plurality of accounts, namely geographically distributed fluid-handling facilities. A POSITA would further recognize from Gutierrez that the disclosed geographically distributed accounts associate fluid-handling facilities from different entities because Gutierrez discloses systems with multiple fluid-handling facilities, as well as geographically distributed systems with multiple types of fluid-handling facilities, including production sites and pipeline monitoring locations. *Id.* Therefore, Gutierrez discloses the plurality of accounts recited in the '014 Patent. Further 64utah-SCADA discloses user account to control the site. 64utah-SCADA recites "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information

		and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* 64utah-SCADA, page 2. Further, Brochure-VTScada-FeaturesByVersion discloses user account to control the site. Brochure-VTScada-FeaturesByVersion recites, "The simplest way to access your process from smart phones or tablets. This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* page 4. Further Brochure-VTScada-FeaturesByVersion discloses authorized user. Brochure-VTScada-FeaturesByVersion recites, "This optional feature, introduced in 10, allows authorized users to see changes made on all servers, roll back to previous versions and merge versions together." "New 'Roles' and 'Rules' allow you to finely tune what users can do and where while reducing configuration time. Rules are combinations of tags and privileges that vastly reduce the number of privileges required. Roles are pre-defined sets of rules that correspond to specific jobs (e.g., plant operator). To reduce duplication and ensure consistency, accounts can now be shared across applications. The security database scheme now employs military-grade encryption as does the security information exchanged between the VTScada Internet Client and Server. Accounts can also now be disabled following repeated failed log-in attempts." *See* Brochure-VTScada-FeaturesByVersion, page 4. A POSITA would recognize that Brochure-VTScada-FeaturesByVersion has a data store storing multiple account with each account having access to a set of equipment.
	[1.4] network addresses by which industrial monitoring or control equipment at the facilities is accessible via cellular network connections, the monitoring or control equipment including sensors or actuators;	Kahn discloses that the production sites are unique, disclosing separate control systems for designated location. *See, e.g.*, 16:40-18:52. For example, Sensor unit 110 can be located at any desired point in a fluid distribution system. *See, e.g.*, 11:2-15. Kahn discloses a system with Sensor unit 110 that includes multiple sensors (e.g., first sensor 111A and second sensor 111B) and a communication unit that connects via a network to centralized data collection points. *See, e.g.*, 5:62- 6:16, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn discloses monitoring and control equipment including one or more actuators configured to manipulate fluid flow at respective fluid-handling facilities. *See,* e.g., 10:62-67; *see also id.*,

		14:35-15:2 (“one or more actuators”), 15:62-16:32 (describing an actuator for each sensor 111). A POSITA would recognize that Kahn discloses the addresses for facilities accessible by the network, as well as the monitoring and control equipment as recited in the ’014 Patent. Therefore, Kahn discloses this limitation of the ’014 Patent. Gutierrez discloses that the production sites are uniquely addressable by the network connection through individualized control systems for “each.” 6:28-35; 10:22-24, 10:34-38, 10:43-59 (“data may be wirelessly transmitted directly to each chemical injection system . . . some or all of the processing of data and command generation may occur at the remote control center 220 rather than each individual chemical injection system 220.”), 11:55-61 (“each computer 305 may monitor, receive data from, and/or generate commands transmitted to a single chemical injection system 310 or multiple chemical injection systems 310.”), 11:62-12:3, 13:10-26 (“a user or operator may utilize the GUI 315 to control one or more components of the chemical injection system 310”); Claim 1. Gutierrez discloses that the production sites are uniquely addressable by the network connection through individualized control systems for “each.” 6:28-35; 10:22-24, 10:34-38, 10:43-59 (“data may be wirelessly transmitted directly to each chemical injection system . . . some or all of the processing of data and command generation may occur at the remote control center 220 rather than each individual chemical injection system 220.”), 11:55-61 (“each computer 305 may monitor, receive data from, and/or generate commands transmitted to a single chemical injection system 310 or multiple chemical injection systems 310.”), 11:62-12:3, 13:10-26 (“a user or operator may utilize the GUI 315 to control one or more components of the chemical injection system 310”); Claim 1. Gutierrez discloses monitoring and control equipment including actuators configured to manipulate fluid flow at respective fluid-handling facilities. *See, e.g.*, 6:45-8:38 (describing chemical injection system with controllers for activating pumps to manipulate fluid flow), 9:54-10:16, 11:62-12:29, 13:23-26.

		Gutierrez discloses fluid-handling facilities having sets of both sensors and actuators. 6:45-7:2, 9:65-10:16, 10:17-11:4, 11:16-33, 11:55-61 ("each computer 305 may monitor, receive data from, and/or generate commands transmitted to a single chemical injection system 310 or multiple chemical injection systems 310"), 13:9-26. A POSITA would recognize that Gutierrez discloses the addresses for facilities, and the monitoring and control equipment as recited in the '014 Patent. Therefore, Gutierrez discloses this limitation of the '014 Patent. Further 64utah-SCADA discloses network to control the plurality of fluid handling device, 64utah-SCADA recites, "The systems connect with numerous sensors via a Campbell multiplexer to monitor parameters such as flow and pressure from water sources into tanks, flow and pressure from tanks into the towns, tank level… The CR1000 uses a Campbell SDM-CD8S dc device controller to control pumps and valves, with each town controlling the valves to allow or disallow the water flowing to the other." *See* page 2. 64utah-SCADA further recites, "LoggerNet and VTScada run on Windows 7 PCs and communicate with the CR1000 master unit over Ethernet connections." *See* page 2. Further scada_sys_wht discloses network communicating module and controlling plurality of fluid-handling devices. Scada_sys_wht recites "Remote monitoring and control of oil and gas production, pumping, and storage at refineries from both offshore platforms and onshore wells." "The RTU or PLC acquires the site data, which includes meter readings, pressure, voltage, or other equipment status, then performs local control and transfers the data to the central SCADA system." *See* page 2. Further TM 5-601, discloses a network interface at the site for receiving and sending data, TM 5-601 recites, "Input/Output (I/O): These modules provide the means of connecting the processor to the field devices." *See* page 3-5, Fig. 3-3.

		 *Figure 3-3. Distributed control system architecture*
	[1.5] a computer-implemented facility-interface module or modules configured to obtain data from the sensors at the facilities and send commands to the actuators at the facilities via the cellular network connections; and	Kahn discloses a facility interface module, Sensor unit 110, including a processor that connects via a network to centralized data collection points. *See, e.g.*, 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities. *See, e.g.*, 10:62-67; *see also* 14:35-15:2, 15:62-16:32. A POSITA would recognize that Kahn discloses the facility interface module as recited in the ’014 Patent. Therefore, Kahn discloses this limitation of the ’014 Patent. Gutierrez discloses fluid-handling facilities with computers or controllers that take data from sensors and send commands to actuators. 6:45-7:2, 8:16- 38 (“controller 130 includes a communication module 140 . . . and a processor 150. . . controller 130 receives inputs and/or instructions and commands from a remote source and, according to the commands, controls the operation and/or speed of the motor 110 and pump 105 to inject chemicals into the pipeline 120 . . . [and] receive[s] data representative of pipeline conditions, such as line pressure, amount of chemicals present in the

		pipeline 120, and motor operating conditions"), 9:65-10:16, 10:17- 11:4, 11:16-33, 11:55-61 ("each computer 305 may monitor, receive data from, and/or generate commands transmitted to a single chemical injection system 310 or multiple chemical injection systems 310"), 13:9-26. Gutierrez discloses that the controller connects wirelessly by cellular network connections. 12:30, 30:38-39. A POSITA would recognize that Gutierrez discloses obtaining data with a facility interface module, with a processor, data from the sensors at the facilities and sending commands to the actuators at the facilities by the network connections as recited in the '014 Patent. Therefore, Gutierrez discloses this limitation of the '014 Patent. Further 64utah-SCADA discloses receiving and sending from the command center server about controlling the site based on the site sensor. 64utah-SCADA recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* (Page 2). 64utah-SCADA recites, "The CR1000 uses a Campbell SDM-CD8S dc device controller to control pumps and valves, with each town controlling the valves to allow or disallow the water flowing to the other." *See* page 2. Further Brochure-VTScada-FeaturesByVersion, discloses about receiving data and sending commands. Brochure-VTScada-FeaturesByVersion recites, "This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* page 4.
	[1.6] a computer-implemented web-interface module or modules configured to send instructions to present control interfaces in web browsers executing on user computing devices logged in to the accounts and to receive commands to	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system's sensors. Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8-25, 29:5-37. Kahn discloses that users log into the system on respective user computing devices. *See, e.g.*, 2:50-45, 25:5-12, 28:35-37, 30:45-49. Kahn discloses a variety of users and entities having different levels of authorized access. 25:48-26:67, *see also id*., 2:50-60, 19:58-65, 21:50-22:44, 22:62-23:50, 24:44-25:2, 25:5-12, 27:39-28:7.

	control actuators from the user computing devices,	Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities, to facilitate the measurement of data requested through the graphical user interface. *See, e.g.*, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. A POSITA would recognize that Kahn discloses the web interface module, as recited in the '014 Patent. Therefore, Kahn discloses this limitation of the '014 Patent. Gutierrez discloses a remote computing system with a graphical user interface (GUI); a sensor coupled with a hydrocarbon transmission system; and a chemical injection system. 2:26-29. Gutierrez discloses that the computer used to manage the remote facilities includes a processor. 11:38-42 ("reference to the computer 305 includes any processor-based computing device that is operable to manipulate, display, receive, and/or transmit data, such as data associated with a wellsite, hydrocarbon piping system, or other hydrocarbon production facility.") Gutierrez discloses that the network used to communicate between devices in the system is an enterprise or secured network. 12:48-59. Gutierrez discloses user computing device that interfaces with the fluid handling system to sends instructions to control actuators of the fluid handling system. 11:16-33 ("the system 300 includes a computer 305 displaying a graphical user interface (GUI) 315, one or more remote chemical injection systems 310"), 13:9-26 ("a user or operator may utilize the GUI 315 to control one or more components of the chemical injection system 310 based on data received from the system 310 and displayed on the GUI 315. For example, each chemical injection system 310 may include a number of wireless sensor devices operable to detect one or more operational parameters of the hydrocarbon stream within the pipeline. For instance, the system 310 may detect the relative amount of chemical additives injected into the pipeline . . . the data is communicated to the computer 305 via the communication stations 320, base transceiver 325, and communications network 330, where it is then processed. The computer 305 and/or a user operating the computer 305 may then issue commands to one or more of the chemical injection systems 310 . . . includ[ing] a command to stop injecting chemical additive into the pipeline and/or a

		command to inject a specified amount of chemical additive into the pipeline."). A POSITA would recognize that Gutierrez discloses the control interfaces on a user computer device logged into by an authorized user sending commands to control fluid handling system actuators, as recited in the '014 Patent. Therefore, Gutierrez discloses this limitation of the '014 Patent. Further 64utah-SCADA discloses receiving and sending from the command center server about controlling the site based on the site sensor. 64utah-SCADA recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 2. 64utah-recites, "The CR1000 uses a Campbell SDM-CD8S dc device controller to control pumps and valves, with each town controlling the valves to allow or disallow the water flowing to the other." *See* page 2. Further Brochure-VTScada-FeaturesByVersion, discloses about receiving data and sending commands to a remote site. Brochure-VTScada-FeaturesByVersion recites, "This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* page 4.
	[1.7] wherein the system is configured to receive, with the web-interface module or modules, a user command to actuate an actuator entered via a presented control interface, identify a network address in the datastore corresponding to a facility at which the actuator is located, and send instructions with the facility-interface module or modules to	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system's sensors. Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8-25, 29:5-37. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities and to facilitate the measurement of data requested through the graphical user interface. *See, e.g.*, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. Kahn discloses that the production sites are unique, disclosing separate control systems for designated facility locations. *See, e.g.*, 16:40-18:52. For example, Sensor unit 110 can be located at any desired point in a fluid distribution system. *See, e.g.*, 11:2-15. A hallmark of the distribution system in Kahn is the ability to identify the location of and

	the facility to actuate the actuator, and	communicate with the system's sensor units. 4:12-25; *see also id*., 10:8-13; 23:51-62. A POSITA would recognize that Kahn discloses receiving with the user interface module a user command to actuate an actuator of the fluid handling system, as recited in the '014 Patent. A POSITA would recognize that Kahn discloses identifying an address in the datastore corresponding to the facility at which the actuator is located, as recited in the '014 Patent, because the disclosed GUI enables the user to control a designated component of the system. A POSITA would recognize that Kahn discloses sending instructions to the facility interface module to actuate the fluid handling system's actuator, as recited in the '014 Patent. Therefore, Kahn discloses this limitation of the '014 Patent. Gutierrez discloses a graphical user interface that receives the commands and sends them to the fluid handling system. 11:16-33 ("the system 300 includes a computer 305 displaying a graphical user interface (GUI) 315, one or more remote chemical injection systems 310"), 13:9-26 ("a user or operator may utilize the GUI 315 to control one or more components of the chemical injection system 310 . . . . The computer 305 and/or a user operating the computer 305 may then issue commands to one or more of the chemical injection systems 310. Such commands may include a command to stop injecting chemical additive into the pipeline and/or a command to inject a specified amount of chemical additive into the pipeline."). Gutierrez discloses a graphical user interface that receives the commands, and sends them to the fluid handling system. 11:16-33 ("the system 300 includes a computer 305 displaying a graphical user interface (GUI) 315, one or more remote chemical injection systems 310"), 13:9-26. Gutierrez discloses that the production sites are unique, disclosing separate control systems for "each." 6:28-35; 10:22-24, 10:34-38, 10:43-59 ("data may be wirelessly transmitted directly to each chemical injection system . . . some or all of the processing of data and command

		generation may occur at the remote control center 220 rather than each individual chemical injection system 220."), 11:55-61 ("each computer 305 may monitor, receive data from, and/or generate commands transmitted to a single chemical injection system 310 or multiple chemical injection systems 310."), 11:62-12:3, 13:10-26; Claim 1. Gutierrez discloses user computing device interfaces with the fluid handling system to send instructions to control the actuators of the fluid handling system. 11:16-33 ("the system 300 includes a computer 305 displaying a graphical user interface (GUI) 315, one or more remote chemical injection systems 310"), 13:9-26 ("a user or operator may utilize the GUI 315 to control one or more components of the chemical injection system 310 . . . a user operating the computer 305 may then issue commands to one or more of the chemical injection systems 310. Such commands may include a command to stop injecting chemical additive into the pipeline and/or a command to inject a specified amount of chemical additive into the pipeline."). A POSITA would recognize that Gutierrez discloses receiving with the user interface module a user command to actuate an actuator of the fluid handling system, as recited in the '014 Patent. A POSITA would recognize that Gutierrez discloses identifying an address in the datastore corresponding to the facility at which the actuator is located, as recited in the '014 Patent because the user controls "each" component of the chemical injection system with the disclosed GUI. *Id.* A POSITA would recognize that Gutierrez discloses sending instructions to the facility interface module to actuate the fluid handling system's actuator, as recited in the '014 Patent. *Id.* Therefore, Gutierrez discloses this limitation of the '014 Patent. Further 64utah-SCADA discloses receiving and sending from the command center server about controlling the site based on the site sensor. 64utah-SCADA recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 2.

		64utah-SCADA recites, "The CR1000 uses a Campbell SDM-CD8S dc device controller to control pumps and valves, with each town controlling the valves to allow or disallow the water flowing to the other." *See* page 2. Further Brochure-VTScada-FeaturesByVersion, discloses about receiving data and sending commands to a remote site. Brochure-VTScada-FeaturesByVersion recites, "This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* page 4.
	[1.8] wherein: the plurality of accounts include a first account, a second account, a third account, and a fourth account;	Kahn discloses a plurality of accounts, i.e., geographically distributed facilities for the transport of fluids, as shown above for element 1.3, and incorporated herein. Kahn discloses an "authorized account A" for "a first entity" "to access aspects of first fluid test data." 25:48-26:67. Kahn further discloses an "authorized account B" for "a second entity" "to access aspects of second fluid test data." The "first and second entities can control access to date generated by their respective sensors." Thus, "separate entities provide their fluid test data to the computer system 4 controlled by the service provider (an entity different from the first and second entities), and the first and second entities can control access to data generated by their respective sensors." Entities also "grant authorization to visualize [data] generated by them to others beyond themselves, such as government health organizations or security organizations such as the Department of Homeland Security." A POSITA would recognize Kahn discloses a plurality of accounts, as recited in the '014 Patent. Therefore, Kahn discloses this limitation of the '014 Patent. Kahn in view of Gutierrez renders obvious the disclosed plurality of accounts. Gutierrez discloses that its subject conduit systems carry and/or transport one or more fluids to insert other fluids (e.g., additives, inhibitors, or otherwise) into the conduit system, the carried fluids include hydrocarbon systems that transport hydrocarbon fluids, such as oil and/or gas or other fluids. 1:18-26. A POSITA would recognize that the recited plurality of accounts from the disclosure of Gutierrez, because the system described by Gutierrez requires multiple systems and operational components to transport fluids through the

		described conduit system, geographically distributed across the distance for monitoring and controlling fluids transported through the pipeline. A POSITA would recognize that Gutierrez's disclosure of geographically distributed and multiple types of operational components discloses multiple fluid handling facilities. *Id.* Thus, Gutierrez in combination with Kahn renders obvious the plurality of accounts recited in the '014 Patent. *Id.* Further, Brochure-VTScada-FeaturesByVersion discloses a command center with multiple user account. Brochure-VTScada-FeaturesByVersion recites, "The simplest way to access your process from smart phones or tablets. This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* page 4. Further Brochure-VTScada-FeaturesByVersion discloses authorized user. Brochure-VTScada-FeaturesByVersion recites, "This optional feature, introduced in 10, allows authorized users to see changes made on all servers, roll back to previous versions and merge versions together." "New 'Roles' and 'Rules' allow you to finely tune what users can do and where while reducing configuration time. Rules are combinations of tags and privileges that vastly reduce the number of privileges required. Roles are pre-defined sets of rules that correspond to specific jobs (e.g., plant operator). To reduce duplication and ensure consistency, accounts can now be shared across applications. The security database scheme now employs military-grade encryption as does the security information exchanged between the VTScada Internet Client and Server. Accounts can also now be disabled following repeated failed log-in attempts." *See* Brochure-VTScada-FeaturesByVersion, page 4. A POSITA would recognize that Brochure-VTScada-FeaturesByVersion has a data store storing multiple account with each account having access to a set of equipment.
	[1.9] the first account corresponds to a first group of oil or gas facilities, users of the first account being authorized to send commands to remotely	Kahn discloses a variety of users and entities having different levels of authorized access. 25:48-26:67, *see also id.*, 2:50-60, 19:58-65, 21:50-22:44, 22:62-23:50, 24:44-25:2, 25:5-12, 27:39-28:7. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid-

	control fluid handling devices at the first group of oil or gas facilities;	handling facilities. *See, e.g.*, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. A POSITA would recognize that Kahn discloses a plurality of accounts with varying degrees of access to designated systems, wherein a first group (authorized account A) has access to control a first group of fluid handling facilities, as recited in the '014 Patent. Therefore, Kahn discloses this limitation of the '014 Patent. Kahn in view of Gutierrez renders obvious the disclosed first account with its users authorized to remotely control a first group of fluid handling devices. Gutierrez discloses users remotely controlling fluid handling devices, as discussed above for element 1.7 and incorporated herein. Gutierrez discloses that the network used to communicate in the disclosed methods is an enterprise or secured network. 12:48-59. A POSITA would recognize that enterprise or secured networks require individual users to login, and then users receive access only to designated systems, e.g. access to control a designated group of devices. A POSITA would recognize that the disclosure in Gutierrez matches the relevant disclosure in the '014 Patent. *Id.* A POSITA would recognize that Kahn and Gutierrez both disclose secure systems where users only have designated access to authorized data or system controls. *Id.* As discussed above for limitation 1.8 and incorporated herein, a POSITA would recognize that Kahn in view of Gutierrez renders obvious the disclosed plurality of accounts including accounts in a first group with access permitted for control of a first designated group of devices, as recited in the '014 Patent. *Id.* Therefore, Gutierrez in combination with Kahn renders obvious this limitation of the '014 Patent.
	[1.10] the second account corresponds to a second group of oil or gas facilities, the first group being	Kahn in view of Gutierrez renders obvious the disclosed plurality of accounts with a second group of that plurality of accounts authorized to remotely control designated second fluid handling devices.

	different from the second group, users of the second account being authorized to send commands to remotely control fluid handling devices at the second group of oil or gas facilities;	A POSITA would recognize that Kahn and Gutierrez both disclose secure systems where users only have designated access to authorized data or system controls. As discussed above for limitation 1.9 and incorporated herein, a POSITA would recognize that Kahn in view of Gutierrez renders obvious a plurality of accounts including accounts in a second group with access permitted for control of a second designated group of devices, as recited in the '014 Patent. *Id.* Therefore, Gutierrez in combination with Kahn renders obvious this limitation of the '014 Patent.
	[1.11] the third account corresponds to the first group of oil or gas facilities, users of the third account being authorized to view reports of data from fluid handling devices at the first group of oil or gas facilities; and	Kahn discloses a variety of users and entities having different levels of authorized access. 25:48-26:67*, see also id*., 2:50-60, 19:58-65, 21:50- 22:44, 22:62-23:50, 24:44-25:2, 25:5-12, 27:39-28:7. A POSITA would recognize that Kahn discloses a plurality of accounts with varying degrees of access to designated systems, wherein a third group (service provider) has access to view data from a first group of fluid handling facilities, as recited in the '014 Patent. Therefore, Kahn discloses this limitation of the '014 Patent. Kahn in view of Gutierrez renders obvious the disclosed plurality of accounts with a third group of that plurality of accounts authorized to remotely view data reports from designated first fluid handling devices. Gutierrez discloses users remotely viewing data from designated fluid handling devices. For example, Gutierrez discloses monitoring and control equipment including sensors configured to measure fluid handled at respective fluid- handling facilities. 9:4-13 ("one or more electronic sensors monitoring the pipeline"); 9:21-25 ("wireless sensors may detect various operations parameters of the pipeline 120, such as line pressure and/or chemical concentrate"), 10:7-16 ("a wireless pressure sensor"), 10:40-46, 13:12-17. Gutierrez discloses that the network used to communicate in the disclosed methods is an enterprise or secured network. 12:48-59. A POSITA would recognize that enterprise or secured networks require individual users to login, and then users receive access only to designated systems, e.g. access to view data reports for a designated group of devices. A

		POSITA would recognize that the disclosure in Gutierrez matches the relevant disclosure in the '014 Patent. *Id*. A POSITA would recognize that Kahn and Gutierrez both disclose secure systems where users only have designated access to authorized data or system controls. *Id.* As discussed above for limitations 1.8-1.10 and incorporated herein, a POSITA would recognize that Kahn in view of Gutierrez renders obvious the disclosed plurality of accounts including accounts in a third group permitted access to view data reports for a first designated group of devices, as recited in the '014 Patent. *Id.* Therefore, Gutierrez in combination with Kahn renders obvious this limitation of the '014 Patent.
	[1.12] the fourth account corresponds to the second group of oil or gas facilities, users of the fourth account being authorized to view reports of data from fluid handling devices at the second group of oil or gas facilities.	Kahn in view of Gutierrez renders obvious the disclosed plurality of accounts with a fourth group of that plurality of accounts authorized to remotely view data reports from a designated second fluid handling devices. As discussed above for limitation 1.11 and incorporated herein, a POSITA would recognize that Kahn in view of Gutierrez renders obvious the disclosed plurality of accounts including accounts in a fourth group, as recited in the '014 Patent. Therefore, Gutierrez discloses this limitation of the '014 Patent. A POSITA would recognize that Kahn and Gutierrez both disclose secure systems where users only have designated access to authorized data or system controls. *Id.* A POSITA would recognize that Kahn in view of Gutierrez renders obvious the disclosed plurality of accounts including accounts in a fourth group permitted access to view data reports for a second designated group of devices, as recited in the '014 Patent. *Id.* Therefore, Gutierrez in combination with Kahn renders obvious this limitation of the '014 Patent. Claim 1 would be obvious to a POSITA over Kahn in view of Gutierrez.
2.	[2.1] The system of claim 1, wherein the sensors include a tank level sensor of a tank at one of the facilities,	Gutierrez discloses level sensors for chemical reservoirs.12:65- 13:8 ("the GUI 315 may display a level of a chemical reservoir at the chemical injection system 310"). Gutierrez discloses sensor readings of fluidic pressure and fluidic storage level. 13:27-49 ("One or more of GUIs 400,

	and wherein the datastore includes a record associating the tank with the facility, data from the tank being unavailable to users without an account associated with the tank, and wherein the accounts:	410, 420, and 430 may be displayed on the computer 305 in place of or in addition to GUI 315. . . GUI 400 provides information related to . . . fluidic pressure of fluid flowing through the pipeline and/or from chemical reservoir; fluidic storage level of the chemical reservoir"). Gutierrez discloses separate control systems for "each" system. 6:28-35; 10:22-24, 10:34-38, 10:43-59 ("data may be wirelessly transmitted directly to each chemical injection system . . . some or all of the processing of data and command generation may occur at the remote control center 220 rather than each individual chemical injection system 220."), 11:55-61 ("each computer 305 may monitor, receive data from, and/or generate commands transmitted to a single chemical injection system 310 or multiple chemical injection systems 310."), 11:62- 12:3, 13:10-26 ("a user or operator may utilize the GUI 315 to control one or more components of the chemical injection system 310"); Claim 1. Gutierrez discloses that the network used to communicate in the disclosed methods is an enterprise or secured network. 12:48-59. A POSITA would recognize that Gutierrez disclosure of a level sensor of fluid in a reservoir, would sense the level of fluid within a particular tank, as recited in the '014 Patent. A POSITA would recognize that Gutierrez discloses sensor readings associated with a specific facility sensor, such as on a tank within a given facility, as recited in the '871 Patent. *Id.* A POSITA would recognize that enterprise or secured networks require individual users to login, and that users receive access only to designated systems, e.g. data from a specific facility will be unavailable to users without an account associated with that facility. *Id.* 64utah-SCADA, discloses store receiving data related to tank level. 64utah-SCADA recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 4.

		Further Brochure-VTScada-FeaturesByVersion, discloses store receiving data related to tank level. Brochure-VTScada-FeaturesByVersion recites, "This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* page 4.
	[2.2] designate oil or gas facilities to which a given user is authorized to send the user command to actuate the actuator.	Gutierrez discloses users remotely controlling fluid handling devices, as discussed above for element 1.7 and incorporated herein. Gutierrez discloses separate control systems for "each" system. 6:28-35; 10:22-24, 10:34-38, 10:43-59 ("data may be wirelessly transmitted directly to each chemical injection system . . . some or all of the processing of data and command generation may occur at the remote control center 220 rather than each individual chemical injection system 220."), 11:55-61 ("each computer 305 may monitor, receive data from, and/or generate commands transmitted to a single chemical injection system 310 or multiple chemical injection systems 310."), 11:62- 12:3, 13:10-26 ("a user or operator may utilize the GUI 315 to control one or more components of the chemical injection system 310"); Claim 1. Gutierrez discloses that the network used to communicate in the disclosed methods is an enterprise or secured network. 12:48-59. A POSITA would recognize that enterprise or secured networks require individual users to login, and then users receive access only to designated systems, e.g. access to control a designated group of devices. A POSITA would recognize that Kahn and Gutierrez both disclose secure systems where users only have designated access to authorized data or system controls. *Id.* A POSITA would recognize that Kahn in view of Gutierrez renders obvious the designated oil or gas facilities to which a given user is authorized to send the user command to actuate the actuator, as recited in the '014 Patent. *Id.* Therefore, Gutierrez in combination with Kahn renders obvious this limitation of the '014 Patent. Claim 2 would be obvious to a POSITA over Kahn in view of Gutierrez.

		64utah-SCADA, Brochure-VTScada-FeaturesByVersion discloses Claim feature [2.2] for the reasons discussed above for Claim element [2.1] and incorporated herein.
3.	The system of claim 1, wherein the sensors include a level sensor of an oil/water separation tank at one of the facilities configured to indicate a level at which oil meets water, and wherein the datastore includes a record associating the tank with the facility.	Gutierrez discloses level sensors for chemical reservoirs. 12:65- 13:8 ("the GUI 315 may display a level of a chemical reservoir at the chemical injection system 310; power capacity and/or availability of a pump motor at the chemical injection system 310; one or more pump or pump motor characteristics (e.g., amps, current status, pressure, as well as other parameters)"). Gutierrez discloses sensor readings of fluidic pressure, fluidic storage level, and percentage of water content in the fluidic system. 13:27-49 ("One or more of GUIs 400, 410, 420, and 430 may be displayed on the computer 305 in place of or in addition to GUI 315. . . . GUI 400 provides information related to . . . fluidic pressure of fluid flowing through the pipeline and/or from chemical reservoir; fluidic storage level of the chemical reservoir; . . . and a percentage water content of fluid flowing through the pipeline."). A POSITA would recognize that Gutierrez disclosure of a level sensor of fluid in a reservoir, as well as information regarding the percentage of water in the fluidic system, constitutes a fluid level indicator for the oil/water partition level within a particular storage tank within a facility, as recited in the '871 Patent. Gutierrez discloses separate control systems for "each" system. 6:28-35; 10:22-24, 10:34-38, 10:43-59 ("data may be wirelessly transmitted directly to each chemical injection system . . . some or all of the processing of data and command generation may occur at the remote control center 220 rather than each individual chemical injection system 220."), 11:55-61 ("each computer 305 may monitor, receive data from, and/or generate commands transmitted to a single chemical injection system 310 or multiple chemical injection systems 310."), 11:62- 12:3, 13:10-26 ("a user or operator may utilize the GUI 315 to control one or more components of the chemical injection system 310"); Claim 1. A POSITA would recognize that Gutierrez discloses sensor readings associated with a specific facility sensor, such as on a tank within a given facility, as recited in the '871 Patent.

		Claim 3 would be obvious to a POSITA over Kahn in view of Gutierrez. 64utah-SCADA discloses controlling the pump. 64utah-SCADA recites, "The CR1000 uses a Campbell SDM-CD8S dc device controller to control pumps and valves, with each town controlling the valves to allow or disallow the water flowing to the other." "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms." *See* page 2.
5	[5.1] The system of claim 1, wherein: the web-interface module or modules comprises a web server; and	Kahn discloses a data collection network with centralized data collection points. *See, e.g.*, 8:51-59, 9:53-58, 17:18-30, 18:48-52, 63-65, 19:5-23, 19:58-65, 23:27-31. Kahn discloses that the centralized data collection point is a server. 10:52-61, 23:27-31. Kahn discloses that servers are computers, i.e. include processors. 32:58-63. A POSITA would recognize that Kahn discloses the web-interface module or modules comprises a web server. Therefore, Kahn discloses this limitation of the '014 Patent. Gutierrez discloses a remote computing system with a graphical user interface (GUI); a sensor coupled with a hydrocarbon transmission system; and a chemical injection system. 2:26-29, 11:38-42 ("reference to the computer 305 includes any processor-based computing device that is operable to manipulate, display, receive, and/or transmit data, such as data associated with a wellsite, hydrocarbon piping system, or other hydrocarbon production facility."). Gutierrez discloses that computer 305 is a server. 11:34-37. A POSITA would recognize that Gutierrez discloses the web-interface module or modules comprise a web server, as recited in the '014 Patent. Therefore, Gutierrez discloses this limitation of the '014 Patent. 64utah-SCADA, discloses web interface module. 64utah-SCADA recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 4. Further Brochure-VTScada-FeaturesByVersion, discloses web interface module, Brochure-VTScada-

		FeaturesByVersion recites, "This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* page 4.
	[5.2] the facility-interface module or modules comprises a site server distinct from the web server	Kahn discloses a system with Sensor unit 110 that connects via a network to centralized data collection points. *See, e.g.*, 5:62-6:2, 9:37-43, 10:18-67,13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn further discloses that the network of sensor units 110 can be configured to communicate with a central communication device, e.g., a server, and/or sensor unit 110 can communicate with each other as a distributed network. 10:54-56. A POSITA would recognize that Kahn discloses the facility-interface module or modules comprises a web server, as recited in the '014 Patent, because sensor unit 110 can communicate with each other in a distributed network with each sensor unit 110 operating as a server. Therefore, Kahn discloses this limitation of the '014 Patent. Claim 5 would be obvious to a POSITA over Kahn in view of Gutierrez. 64utah-SCADA, discloses web server module. 64utah-SCADA recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 4. Further Brochure-VTScada-FeaturesByVersion, discloses web server module. Brochure-VTScada-FeaturesByVersion recites, "This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* page 4.
8.	The system of claim 1, wherein the facility-interface module or modules comprise: means for interfacing with a plurality of site	Kahn discloses a facility interface module, Sensor unit 110, including a processor that connects via a network to centralized data collection points. *See, e.g.*, 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn further discloses that sensor unit 110 includes communication equipment with

	controllers associated with the facilities.	actuators configured to manipulate fluid flow at respective fluid-handling facilities. *See, e.g.,* 10:62-67; *see also id*., 14:35-15:2, 15:62-16:32. A POSITA would recognize that Kahn discloses the facility-interface module or modules comprise: means for interfacing with a plurality of site controllers associated with the facilities as recited in the ’014 Patent. Therefore, Kahn discloses this limitation of the ’014 Patent. Gutierrez discloses monitoring and control equipment including sensors configured to measure fluid handled at respective fluid-handling facilities. 9:4-13; 9:21-25, 10:7-16, 10:40-46, 13:12-17. Gutierrez discloses monitoring and control equipment including actuators configured to manipulate fluid flow at respective fluid-handling facilities. *See, e.g.*, 6:45-8:38 (describing chemical injection system with controllers for activating pumps to manipulate fluid flow), 9:54-10:16, 11:62-12:29, 13:23-26. Gutierrez discloses that the production sites are uniquely addressable by the network connection through individualized control systems for “each” facility. 6:28-35; 10:22-24, 10:34-38, 10:43-59, 11:55-61, 11:62-12:3, 13:10-26; Claim 1. A POSITA would recognize that Gutierrez discloses means for interfacing with a plurality of site controllers associated with the facilities, as recited in the ’014 Patent. Claim 8 would be obvious to a POSITA over Kahn in view of Gutierrez. 64utah-SCADA, discloses web interface module. 64utah-SCADA recites, “VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall.” *See* page 4. Further Brochure-VTScada-FeaturesByVersion, discloses web interface module. Brochure-VTScada-FeaturesByVersion recites, “This tactile browser-based interface allows you to securely view and acknowledge

		alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* page 4.
9.	The system of claim 1, wherein the web-interface module or modules comprise: means for sending instructions to present a control interface on the user devices.	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) that when activated by a user shows data from the system's sensors. Abstract, 1:28-36, 2:50-3:2, 25:5- 25, 25:48-26:19, 28:8-25, 29:5-37. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid-handling facilities, to facilitate the measurement of data requested through the graphical user interface. *See, e.g.*, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. A POSITA would recognize that Kahn discloses a GUI control interfaces on a user computer device for reviewing data from the system's sensor or sending commands to control fluid handling system actuators, as recited in the '014 Patent. Therefore, Kahn discloses this limitation of the '014 Patent. Gutierrez discloses a remote computing system where a user engages a graphical user interface (GUI) to access the capabilities of the system. 2:26-29. Gutierrez discloses that the user interacts with the GUI on a user computing device that interfaces with the fluid handling system to sends instructions to control actuators of the fluid handling system. 11:16-33, 13:9-26 ("a user or operator may utilize the GUI 315 to control one or more components of the chemical injection system 310"). A POSITA would recognize that Gutierrez discloses means for sending instructions to present a control interface on the user devices, as recited in the '014 Patent. Therefore, Gutierrez discloses this limitation of the '014 Patent. Claim 9 would be obvious to a POSITA over Kahn in view of Gutierrez. 64utah-SCADA, discloses web interface for sending commands module. 64utah-SCADA recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 4.

		Further Brochure-VTScada-FeaturesByVersion, discloses web interface module. Brochure-VTScada-FeaturesByVersion recites, "This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* page 4.
12.	The system of claim 1, comprising: a controller at one of the facilities communicatively coupled to an actuator or a sensor.	Kahn discloses a system with Sensor unit 110 that includes multiple sensors (e.g., first sensor 111A and second sensor 111B) and a communication unit that connects via a network to centralized data collection points. *See, e.g.*, 5:62- 6:16, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn discloses monitoring and control equipment including one or more actuators configured to manipulate fluid flow at respective fluid-handling facilities. *See, e.g.*, 10:62-67; *see also id.*, 14:35-15:2 ("one or more actuators"), 15:62-16:32 (describing an actuator for each sensor 111). A POSITA would recognize that Kahn discloses the addresses for facilities accessible by the network, as well as the monitoring and control equipment as recited in the '014 Patent. Therefore, Kahn discloses this limitation of the '014 Patent. Gutierrez discloses fluid-handling facilities having sets of both sensors and actuators. 6:45-7:2, 9:65-10:16, 10:17-11:4, 11:16-33, 11:55-61, 13:9-26. Gutierrez discloses monitoring and control equipment including actuators configured to manipulate fluid flow at respective fluid-handling facilities. *See, e.g.*, 6:45-8:38 (describing chemical injection system with controllers for activating pumps to manipulate fluid flow), 9:54-10:16, 11:62-12:29, 13:23-26. Gutierrez discloses that the production sites are uniquely addressable by the network connection through individualized control systems for "each" facility. 6:28-35; 10:22-24, 10:34-38, 10:43-59, 11:55-61, 11:62-12:3, 13:10-26; Claim 1. A POSITA would recognize that Gutierrez discloses a controller at one of the facilities communicatively coupled to an actuator or a sensor as recited in the '014 Patent. Therefore, Gutierrez discloses this limitation of the '014 Patent.

		Claim 12 would be obvious to a POSITA over Kahn in view of Gutierrez. 64utah-SCADA, Brochure-VTScada-FeaturesByVersion discloses Claim 5 for the reasons discussed above for Claim element 1.4 and incorporated herein.
15.	The system of claim 12, wherein the controller is communicatively coupled to the actuator or sensor via a private local area network.	Kahn discloses coupling the system's components, e.g. controller and senor units, with a private network. 10:18-48, 19:34-57. A POSITA would recognize that Kahn discloses communicating with a controller at one of the facilities to control and actuator or read from a sensor via a private local area network. Gutierrez discloses coupling the controller with the actuator and sensor via a local private area network, namely a "secured network" over one of several communications protocols including VPN, LAN, RAN, MAN, WAN or the internet. 12:26-64. A POSITA would recognize that Gutierrez discloses communicating with a controller at one of the facilities to control and actuator or read from a sensor via a private local area network. Claim 15 would be obvious to a POSITA over Kahn in view of Gutierrez. 64utah-SCADA, discloses connected to a network. 64utah-SCADA recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 4.
21.	The system of claim 12, comprising: means for transmitting data to the facility-interface module or modules.	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system's sensors. Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8-25, 29:5-37. Kahn discloses a facility interface module, Sensor unit 110, including a processor that connects via a network to centralized data collection points. *See, e.g.*, 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn further discloses that sensor unit 110 includes communication equipment with

		actuators configured to manipulate fluid flow at respective fluid-handling facilities. *See, e.g.*, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. A POSITA would recognize that Kahn discloses the control interfaces on a user computer device sending commands to control fluid handling system actuators, as recited in the '014 Patent. Therefore, Kahn discloses this limitation of the '014 Patent. Gutierrez discloses steps for interfacing with site controllers associated with facilities, as discussed above for Claims 1.5, and 1.6, and incorporated herein. A POSITA would recognize that Gutierrez discloses communicating with a controller at one of the facilities to control and actuator or read from a sensor, as recited in the '014 Patent. Claim 21 would be obvious to a POSITA over Kahn in view of Gutierrez. 64utah-SCADA, discloses transmitting data. 64utah-SCADA recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 4. Further Brochure-VTScada-FeaturesByVersion, discloses transmitting data. Brochure-VTScada-FeaturesByVersion recites, "This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* page 4.
23.	The system of claim 12, comprising: an oil or gas facility communicatively coupled to the controller.	Kahn discloses hosted, web-based, remote industrial monitoring and control system for geographically distributed facilities. *See, e.g.*, Abstract, 10:62- 67; 14:35-15:2, 15:62-16:32; 2:50-54, 25:5-12. Kahn discloses that its invention "can be used in conjunction with other fluids, such as natural gas." 17:67-18:2. A POSITA would recognize that Kahn discloses an oil or gas facility communicatively coupled to the controller. Thus, Kahn discloses the recited system.

		Gutierrez discloses chemical injection system 100 in a hydrocarbon production system, such as, for example, a field or area having one or more hydrocarbon (e.g., oil, natural gas) production sites. 6:55-7:2; *see also* 5:22-26; 6:24-27; 10:22-38. Gutierrez discloses chemical injection system 100 that includes a pump 105 mechanically coupled to a driver, such as a motor 110; a motor controller 115; and a controller 130. 6:46-49, 8:15-21; *see also* 8:39-9:3. A POSITA would recognize that Gutierrez discloses an oil or gas facility communicatively coupled to the controller, as recited in the '014 Patent. Therefore, Gutierrez discloses this element of the '014 Patent. Claim 23 would be obvious to a POSITA over Kahn in view of Gutierrez. 64utah-SCADA discloses controlling site. 64utah-SCADA recites, "The CR1000 uses a Campbell SDM-CD8S dc device controller to control pumps and valves, with each town controlling the valves to allow or disallow the water flowing to the other.", "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms." *See* page 2. Further CR1000 Datalogger discloses controlling site. CR1000 Datalogger recites, "Alarm and pump actuation are controlled through digital I/O ports that operate external relay drivers". *See* page 7.

Exhibit D-1

Invalidity Claim Chart for U.S. Patent No. 10,488,871 ("the 871 patent")

In view of

US 7,424,399 (Kahn)

The asserted claims of '871 patent are anticipated and/or rendered obvious by Kahn as identified in Defendant' Preliminary Invalidity Contentions.

U.S. Patent No. 7,424,399 ("Kahn") was filed on June 09, 2006, published on March 01, 2007 and issued on September 09, 2008. Kahn is prior art under at least 35 U.S.C. 102(a).

The citations to portions of any reference in this chart are exemplary only. Defendant will rely on the entirety of the reference cited in this chart, as well as any additional materials relevant to the reference identified through their ongoing investigation, to show that the asserted claims are invalid.

Claim#	Claim Language	Kahn
18.	[18.1] A method, comprising:	To the extent that the preamble is found to be limiting, Kahn discloses a method. 1:28-36, Claim 1. A POSITA would recognize that Kahn discloses a method. Therefore, Kahn discloses a method.
	[18.2] storing, with one or more processors, records comprising:	Kahn discloses a data collection network with centralized data collection points. 8:51-59, 9:53-58, 17:18-30, 18:48-52, 63-65, 19:5-23, 19:58-65, 23:27-31. Kahn discloses that the centralized data collection point is a server. 10:52-61, 23:27-31. Kahn discloses that servers are computers, i.e. include processors. 32:58-63. A POSITA would recognize that Kahn discloses storing records, with one or more processors through its disclosure of centralized data collection points. Therefore, Kahn discloses storing records, with one or more processors.
	[18.3] a plurality of accounts, each account corresponding to an entity operating one or more geographically distributed fluid-handling facilities, the accounts associating different fluid-handling	Kahn discloses that centralized data collection points connect to sensor unit 110 at designated facilities from different entities, i.e. "accounts." 16:40- 18:52, 25:5-12. A hallmark of the distribution system in Kahn is the ability to identify the location of and communicate with the system's sensor units. 4:12-25, 11:2-15; *see also* 10:8-13 ("Physical events, such as a breakage of a pipe might be detected

	facilities with different entities; and	through a pattern of sensor units 110 reporting readings that deviate from historic norms, for example, reduced water pressure compared to historic norms, thereby identifying the exact location or proximate location of the breakage."); 23:51-62. Kahn discloses a user interface showing data from geographically distributed fluid handling facilities from multiple different entities. Abstract, 2:50-54, 25:5-12. A POSITA would recognize that Kahn discloses a plurality of accounts, namely one or more geographically distributed fluid-handling facilities with different entities. Therefore, Kahn discloses the plurality of accounts limitation.
	[18.4] addresses by which industrial monitoring or control equipment at the facilities is accessible via network connections, the monitoring or control equipment including sensors configured to measure fluid handled at respective fluid-handling facilities and actuators configured to manipulate fluid flow at respective fluid-handling facilities, at least some of the fluid-handling facilities including both a plurality of the sensors and a plurality of the actuators;	Kahn discloses a system with Sensor unit 110 that includes multiple sensors (e.g., first sensor 111A and second sensor 111B) a communication unit that connects via a network to centralized data collection points. 5:62-6:16, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. A hallmark of the distribution system in Kahn is the ability to identify the location of and communicate with the system's individual sensor units. 4:12-25, 11:2-15; *see also* 10:8-13; 23:51-62. Kahn discloses that the production sites are unique, disclosing separate control systems for designated location. 16:40-18:52. For example, Sensor unit 110 can be located at any desired point in a fluid distribution system. 11:2-15. Kahn discloses monitoring and control equipment including one or more actuators configured to manipulate fluid flow at respective fluid-handling facilities. 10:62-67; *see also* 14:35-15:2 ("one or more actuators"), 15:62- 16:32 (describing an actuator for each sensor 111). A POSITA would recognize that Kahn discloses the addresses for facilities accessible by the network, as well as the monitoring and control equipment as recited in the '871 Patent. Therefore, Kahn discloses this limitation.

	[18.5] obtaining, with one or more processors implementing a facility-interface module or modules, data from the sensors at the facilities and send commands to the actuators at the facilities via the network connections; and	Kahn discloses a facility interface module, Sensor unit 110, including a processor that connects via a network to centralized data collection points. 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities. 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. A POSITA would recognize that Kahn discloses obtaining data with a facility interface module, with a processor, data from the sensors at the facilities and sending commands to the actuators at the facilities by the network connections as recited in the '871 Patent. Therefore, Kahn discloses this limitation.
	[18.6] sending, with one or more processors implementing a user-interface module or modules, respective instructions to present respective control interfaces on respective user- computing devices logged in to respective ones of the accounts and to receive respective commands to control respective actuators from the respective user computing devices;	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system's sensors. Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8-25, 29:5-37. Kahn discloses that users log into the system on respective user computing devices. 2:50-45, 25:5-12, 28:35-37, 30:45-49. Kahn discloses a variety of users and entities having different levels of authorized access. 25:48-26:67; *see also* 2:50-60, 19:58-65, 21:50-22:44, 22:62-23:50, 24:44-25:2, 25:5-12, 27:39-28:7. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities, and to facilitate the measurement of data requested through the graphical user interface. 10:62-67; *see also* 14:35-15:2, 15:62-16:32. A POSITA would recognize that Kahn discloses the control interfaces on a user computer device sending commands to control fluid handling system actuators, as recited in the '871 Patent. Therefore, Kahn discloses this limitation.

	[18.7] receiving, with the user-interface module or modules, a user command to actuate an actuator entered via a presented control interface;	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system's sensors. Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8-25, 29:5-37. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities, to facilitate the measurement of data requested through the graphical user interface. 10:62-67; *see also* 14:35-15:2, 15:62-16:32. A POSITA would recognize from the disclosure of Kahn that a user activates the actuator to achieve the disclosed action. Thus, a POSITA would recognize that Kahn discloses receiving with the user interface module a user command to actuate an actuator of the fluid handling system, as recited in the '871 Patent. *Id.* Therefore, Kahn discloses this limitation.
	[18.8] identifying, with one or more processors, in response to the user command, an address in the datastore corresponding to a facility at which the actuator is located; and	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system's sensors. Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8-25, 29:5-37. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities, to facilitate the measurement of data requested through the graphical user interface. 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. Kahn discloses that the production sites are unique, disclosing separate control systems for designated facility locations. 16:40-18:52. For example, Sensor unit 110 can be located at any desired point in a fluid distribution system. 11:2-15. A hallmark of the distribution system in Kahn is the ability to identify the location of and communicate with the system's sensor units. 4:12-25; *see also id.*, 10:8-13, 23:51-62. A POSITA would recognize that Kahn discloses identifying an address in the datastore corresponding to the facility at which the actuator is located, as

		recited in the '871 Patent because the disclosed GUI enables the user to control a designated component of the system. Therefore, Kahn discloses this limitation.
	[18.9] sending, with one or more processors, instructions with the facility-interface module or modules to the facility to actuate the actuator, wherein:	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system's sensors. Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8-25, 29:5-37. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities, to facilitate the measurement of data requested through the graphical user interface. 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. A POSITA would recognize that Kahn discloses sending instructions to the facility interface module to actuate the fluid handling system's actuator, as recited in the '871 Patent. Therefore, Kahn discloses this limitation.
	[18.10] the plurality of accounts include a first account, a second account, a third account, and a fourth account;	Kahn discloses a plurality of accounts, i.e., geographically distributed facilities for the transport of fluids, as shown above for element 18.3, and incorporated herein. Kahn discloses an "authorized account A" for "a first entity" "to access aspects of first fluid test data." 25:48-26:67. Kahn further discloses an "authorized account B" for "a second entity" "to access aspects of second fluid test data." *Id*. The "first and second entities can control access to date generated by their respective sensors." *Id*. Thus, "separate entities provide their fluid test data to the computer system 4 controlled by the service provider (an entity different from the first and second entities), and the first and second entities can control access to data generated by their respective sensors." *Id*. Entities also "grant authorization to visualize [data] generated by them to others beyond themselves, such as government health organizations or security organizations such as the Department of Homeland Security." *Id*.

		A POSITA would recognize that Kahn discloses a plurality of accounts as recited in the '871 Patent. Therefore, Kahn discloses this limitation.
	[18.11] the first account corresponds to a first group of fluid-handling facilities, one or more users of the first account being authorized to send commands to remotely control fluid handling devices at the first group of fluid- handling facilities;	Kahn discloses a variety of users and entities having different levels of authorized access. 25:48-26:67, *see also id.*, 2:50-60, 19:58-65, 21:50-22:44, 22:62-23:50, 24:44-25:2, 25:5-12, 27:39-28:7. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid-handling facilities. 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. A POSITA would recognize that Kahn discloses a plurality of accounts with varying degrees of access to designated systems, wherein a first group (authorized account A) has access to control a first group of fluid handling facilities, as recited in the '871 Patent. Therefore, Kahn discloses this limitation.
	[18.12] the second account corresponds to a second group of fluid-handling facilities, the first group being different from the second group, one or more users of the second account being authorized to send commands to remotely control fluid handling devices at the second group of fluid- handling facilities;	Kahn discloses a variety of users and entities having different levels of authorized access. 25:48-26:67; *see also id.*, 2:50-60, 19:58-65, 21:50-22:44, 22:62-23:50, 24:44-25:2, 25:5-12, 27:39-28:7. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid-handling facilities. 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. A POSITA would recognize that Kahn discloses a plurality of accounts with varying degrees of access to designated systems, wherein a second group (authorized account B) has access to control a second group of fluid handling facilities, as recited in the '871 Patent. Therefore, Kahn discloses this limitation.
	[18.13] the third account corresponds to the first group of fluid-handling facilities, one or more users of the of the third account being authorized to view reports of data from fluid	Kahn discloses a variety of users and entities having different levels of authorized access. 25:48-26:67; *see also* 2:50-60, 19:58-65, 21:50-22:44, 22:62-23:50, 24:44-25:2, 25:5-12, 27:39-28:7. A POSITA would recognize that Kahn discloses a plurality of accounts with varying degrees of access

	handling devices at the first group of fluid-handling facilities; and	to designated systems, wherein a third group (service provider) has access to view data from a first group of fluid handling facilities, as recited in the '871 Patent. Therefore, Kahn discloses this limitation.
	[18.14] the fourth account corresponds to the second group of fluid-handling facilities, one or more users of the of the fourth account being authorized to view reports of data from fluid handling devices at the second group of fluid-handling facilities	Kahn discloses a variety of users and entities having different levels of authorized access. 25:48-26:67; *see also*, 2:50-60, 19:58-65, 21:50-22:44, 22:62-23:50, 24:44-25:2, 25:5-12, 27:39-28:7. A POSITA would recognize that Kahn discloses a plurality of accounts with varying degrees of access to designated systems, wherein a fourth group (government health or security organizations such as the Department of Homeland Security) has access to view data from a second group of fluid handling facilities. Therefore, Kahn discloses this limitation. As such, Claim 18 is anticipated by Kahn or would be obvious to a POSITA in view of Kahn.
22.	[22.1] The method of claim 18, wherein: the user-interface module or modules comprises a web server; and	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system's sensors. Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8-25, 29:5-37. Kahn discloses that Sensor unit 110 connects via a network to centralized data collection points. 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn discloses that the centralized data collection points are a server. 10:54-56, 23:29-30. A POSITA would recognize that Kahn discloses the user-interface module or modules comprises a web server, as recited in the '871 Patent, because the recited centralized data collection points operate as a server. Therefore, Kahn discloses this limitation.
	[22.2] the facility-interface module or modules comprises a site server distinct from the web server;	Kahn discloses a system with Sensor unit 110 that connects via a network to centralized data collection points. 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn further discloses that the network of sensor units 110 can be configured to

		communicate with a central communication device, e.g., a server, and/or sensor unit 110 can communicate with each other as a distributed network. 10:54-56. A POSITA would recognize that Kahn discloses the facility-interface module or modules comprises a web server, as recited in the '871 Patent, because sensor unit 110 can communicate with each other in a distributed network with each sensor unit 110 operating as a server. Therefore, Kahn discloses this limitation.
	[22.3] the web server is configured to communicate with user devices via a first network port of a computing device executing the web server;	Kahn discloses that the centralized data collection points are a server using communication components known in the art. 10:54-56, 23:29-30. A POSITA would recognize that Kahn discloses web server is configured to communicate with user devices via a first network port of a computing device executing the web server because Kahn discloses that the server communicates using communication components known in the art that would include a first network port. Therefore, Kahn discloses this limitation.
	[22.4] the site server is configured to communicate with facilities via a second network port of the computing device, the second network port being different from the first network port; and	Kahn discloses that the sensor units 110 are a server using communication components known in the art. 10:54-56, 23:29-30. A POSITA would recognize that Kahn discloses site server configured to communicate via a second network port, as recited in the '871 Patent, because Kahn discloses that sensor units 110 communicate using communication components known in the art that would include a second network port. Therefore, Kahn discloses this limitation.
	[22.5] the data store is configured to store subscription information associated with at least some of the accounts.	Kahn discloses the data store is configured to store subscription information associated with at least some of the accounts. Kahn discloses that the sensor units 110 can be associated with subscription information, including user and account information for authorities monitoring the fluids, reporting of particular detected events, or billing information. 22:12-44. A POSITA would recognize that Kahn discloses the data store is configured to store subscription

		information associated with at least some of the accounts, as recited in the '871 Patent. Therefore, Kahn discloses this limitation. Therefore, a POSITA would understand that Kahn discloses the elements recited in Claim 22. Claim 22 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn.
23.	[23.1] The method of claim 18, comprising: steps for interfacing with a plurality of site controllers associated with the facilities; and	Kahn discloses a system with Sensor unit 110 that connects via a network to centralized data collection points. 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn further discloses that the network of sensor units 110 can be configured to communicate with a central communication device, e.g., a server, and/or sensor unit 110 can communicate with each other as a distributed network. 10:54-56. A POSITA would recognize that Kahn discloses steps for interfacing with a plurality of site controllers associated with the facilities, as recited in the '871 Patent, because sensor unit 110 can communicate with each other in a distributed network with each sensor unit 110. Therefore, Kahn discloses this limitation.
	[23.2] steps for sending instructions to present a control interface on the user devices.	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system's sensors. Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8-25, 29:5-37. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities, to facilitate the measurement of data requested through the graphical user interface. 10:62-67; *see also id.,* 14:35-15:2, 15:62-16:32. A POSITA would recognize that Kahn discloses steps for sending instructions to present a control interface on the user devices, as recited in the '871 Patent. Therefore, Kahn discloses this limitation. Therefore, a POSITA would understand that Kahn discloses the elements recited in Claim 23. As such,

		Claim 23 is anticipated by Kahn or would be obvious to a POSITA in view of Kahn.
24.	The method of claim 18, wherein the datastore stores accounts for more than one thousand facilities, and the user-interface module or modules are configured interface with more than one thousand user devices.	Kahn discloses "A computer system controlled by a service provider (e.g., Sensicore) is connected to one or more communication networks as well as the Internet using any suitable communications technologies and is equipped (programmed) with suitable software to be able to receive fluid test data from portable handheld sensor units 2a (via wireless tower 3) and/or wired or wireless stationary on-line sensor devices 2b via the communication network(s). The sensor units 2a and 2b can be equipped with a "confirm" capability as described elsewhere herein, if desired. Fluid test data can also be received by or uploaded to computer system 4 from other data systems or resources as will be described below", 25:14-25. In addition, Kahn discloses "As will be described further herein, an authorized Account A (first user 5a) can be authorized by a first entity (e.g., a municipal water authority) to access aspects of first fluid test data from the computer system 4 via the Internet using a graphical computer interface at a computer operated by first user (Account A) ... Similarly, an authorized Account B (second user 5b) second user can be authorized by a second entity (e.g., an industrial plant or power utility) to access aspects of second fluid test data from the computer system 4 via the Internet using a graphical computer interface at a computer operated by the second user (Account B)."; 25:48-61. Thus, Kahn discloses that the computer system 4 stores data from the sensor units 2a and 2b**.** In addition, Kahn discloses that the computer system 4 enables the first user and the second user to access aspects of fluid test data from the computer system 4. A POSITA would consider it obvious to scale the processes and equipment having all the limitations of claim 24, without undue experimentation. Therefore, a POSITA would understand that Kahn discloses the elements recited in Claim 24. As such, Claim 24 is anticipated by Kahn or would be obvious to a POSITA in view of Kahn.

25.	The method of claim 18, wherein the facility-interface module or modules are configured to send pull requests to facilities to retrieve data buffered at the facilities.	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system's sensors. Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8-25, 29:5-37. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities, to facilitate the measurement of data requested by the user through the graphical user interface. 10:62-67; *see also* 14:35-15:2, 15:62-16:32. A POSITA would recognize that Kahn discloses the facility-interface module or modules are configured to send pull requests to facilities to retrieve data buffered at the facilities because data will be transferred when requested by a user, as recited in the '871 Patent. As such, Claim 25 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn.
26.	[26.1] The method of claim 18, comprising instantiating at least three of the following as distinct threads from one another:	A POSITA would recognize that Kahn discloses software applications written or described in any appropriate computer language including HTML, Java, and XML, among others. 28:8-26, *see also id.*, 33:31-43. A POSITA would recognize that Kahn inherently discloses instantiation of threads, and the various thread implementations recited in Claim 26, through computer coding in computer languages such as Java. A POSITA would recognize that Kahn inherently discloses instantiation of threads, as recited in the '871 Patent, from its disclosure of software or applications written in then-current computer languages, including Java. Therefore, Kahn discloses this limitation.
		Kahn discloses a data collection network with centralized data collection points. 8:51-59, 9:53-58, 17:18-30, 18:48-52, 63-65, 19:5-23, 19:58-65, 23:27-31.

		A POSITA would recognize that Kahn inherently discloses a thread configured to send and receive data requests, as recited in the '871 Patent, from its disclosure of software or applications written in then-current computer languages, including Java. Therefore, Kahn discloses this limitation.
	[26.2] a thread configured to sends and receive data requests;	Kahn discloses a data collection network with centralized data collection points. 8:51-59, 9:53-58, 17:18-30, 18:48-52, 63-65, 19:5-23, 19:58-65, 23:27-31. A POSITA would recognize that Kahn inherently discloses a thread configured to send and receive data requests, as recited in the '871 Patent, from its disclosure of software or applications written in then-current computer languages, including Java. Therefore, Kahn discloses this limitation.
	[26.3] a thread configured to synchronize other threads with updated information;	A POSITA would recognize that Kahn inherently discloses a thread configured to synchronize other threads with updated information, as recited in the '871 Patent, from its disclosure of software or applications written in then-current computer languages, including Java. Therefore, Kahn discloses this limitation.
	[26.4] a thread configured to set a target state of actuators;	Kahn discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow by setting a target state for actuators at respective fluid-handling facilities. 8:3-11, 8:21-24, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32, 34:7-12. A POSITA would recognize that Kahn inherently discloses a thread configured to set a target state of actuators, as recited in the '871 Patent, from its disclosure of software or applications written in then-current computer languages, including Java. Therefore, Kahn discloses this limitation.
	[26.5] a thread configured to obtain updated sensor readings;	Kahn discloses a data collection network with centralized data collection points. 8:51-59, 9:53-58, 17:18-30, 18:48-52, 63-65, 19:5-23, 19:58-65, 23:27-31. Kahn discloses that the centralized data collection points receive sensor information via a network from a facility interface module, Sensor unit 110. 5:62-6:2, 9:37-43, 10:18-67, 13:46-52,

		17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. A POSITA would recognize that Kahn inherently discloses a thread configured to obtain updated sensor readings, as recited in the '871 Patent, from its disclosure of software or applications written in then-current computer languages, including Java. Therefore, Kahn discloses this limitation.
	[26.6] a thread configured to process user interactions; and	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system's sensors. Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8-25, 29:5-37. A POSITA would recognize that Kahn inherently discloses a thread configured to process user interactions, as recited in the '871 Patent, from its disclosure of software or applications written in then-current computer languages, including Java. Therefore, Kahn discloses this limitation.
	[26.7] a thread that eliminates other threads upon detecting a problem with the eliminated threads.	A POSITA would recognize that Kahn inherently discloses a thread that eliminates other threads upon detecting a problem with the eliminated threads, as recited in the '871 Patent, from its disclosure of software or applications written in then-current computer languages, including Java. Therefore, Kahn discloses this limitation. Therefore, a POSITA would understand that Kahn discloses the elements recited in Claim 26. As such, Claim 26 is anticipated by Kahn or would be obvious to a POSITA in view of Kahn.
27.	[27.1] The method of claim 18, comprising instantiating each and every of the following as distinct threads from one another:	A POSITA would recognize that Kahn inherently discloses a thread configured to obtain updated sensor readings, as recited in the '871 Patent, from its disclosure of software or applications written in then-current computer languages, including Java. Therefore, Kahn discloses this limitation. Kahn inherently discloses instantiating each and every of the following as distinct threads from one another, or this limitation would be obvious to a POSITA in view of Kahn, as discussed above for Claim 26 and incorporated herein.

	[27.2] a thread configured to send or receive data request;	Kahn inherently discloses a thread configured to send or receive data request, or this limitation would be obvious to a POSITA in view of Kahn, as discussed above for Claim 26, and incorporated herein.
	[27.3] a thread configured to synchronize other threads with updated information;	Kahn inherently discloses a thread configured to synchronize other threads with updated information, or this limitation would be obvious to a POSITA in view of Kahn, as discussed above for Claim 26, and incorporated herein.
	[27.4] a thread configured to set a target state of actuators;	Kahn inherently discloses a thread configured to set a target state of actuators, or this limitation would be obvious to a POSITA in view of Kahn, as discussed above for Claim 26 and incorporated herein.
	[27.5] a thread configured to obtain updated sensor readings;	Kahn inherently discloses a thread configured to obtain updated sensor readings, or this limitation would be obvious to a POSITA in view of Kahn, as discussed above for Claim 26 and incorporated herein.
	[27.6] a thread configured to process user interactions; and	Kahn inherently discloses a thread configured to process user interactions, or this limitation would be obvious to a POSITA in view of Kahn, as discussed above for Claim 26, and incorporated herein.
	[27.7] a thread that eliminates other threads upon detecting a problem with the eliminated threads.	Kahn inherently discloses a thread that eliminates other threads upon detecting a problem with the eliminated threads, or this limitation would be obvious to a POSITA in view of Kahn, as discussed above for Claim 26, and incorporated herein. Therefore, a POSITA would understand that Kahn discloses the elements recited in Claim 27. As such, Claim 27 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn.
28.	The method of claim 18, comprising: communicating, with a controller at one of the facilities, with an actuator or a sensor to actuate the actuator or read from the sensor.	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system's sensors. Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8-25, 29:5-37. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities, to facilitate the measurement of data requested through the graphical user interface. 10:62-67; *see also* 14:35-15:2, 15:62-16:32.

		A POSITA would recognize that Kahn discloses communicating, with a controller at one of the facilities, with an actuator or a sensor to actuate the actuator or read from the sensor, as recited in the '871 Patent. As such, Claim 28 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn.
29.	The method of claim 28, wherein the controller is communicatively coupled to the actuator and the sensor via a private local area network, and wherein controller is communicatively coupled to the actuator or sensor via a frame-based carrier-sense multiple access protocol with collision detection.	Kahn discloses coupling the system's components, e.g. controller and sensor units, with a "private" network. 10:18-48, 19:34-57. A POSITA would recognize that Kahn discloses a frame-based carrier-sense multiple access protocol with collision detection because a POSITA would know that frame-based carrier-sense multiple access protocol with collision detection, as recited in the '871 Patent, is an Ethernet networking technology. A POSITA would recognize that Kahn discloses communicating with a controller at one of the facilities to control and actuator or read from a sensor via a private local area network that uses a frame-based carrier-sense multiple access protocol with collision detection. *Id.* As such, Claim 29 is anticipated by Kahn or would be obvious to a POSITA in view of Kahn.
30.	The method of claim 28, comprising buffering data from sensors with the controller and pushing, with the controller, buffered data to the facility-interface module or modules.	Kahn discloses that data, such as chemical fingerprint information "downloaded into," i.e. pushed into, the sensor units, with intermittent updates available from the centralized data collection points. 9:48-10:7. A POSITA would recognize that Kahn discloses buffering data from sensors with the controller and pushing, with the controller, buffered data to the facility-interface module or modules. As such, Claim 30 is anticipated by Kahn or would be obvious to a POSITA in view of Kahn.
31.	The method of claim 28, comprising: steps for ensuring at least some data is not lost if network access ceases intermittently.	Kahn discloses that data collection can run in real time, and can continuously, or intermittently (e.g., periodically at pre-set time intervals) monitor fluid quality, or upon inquiry, or operate based on stored data at the sensor sites 110A-110F, depending on the data storage and communication capabilities of the sensor units 110. 19:24-33.

		A POSITA would recognize that Kahn discloses steps for ensuring at least some data is not lost if network access ceases intermittently, because sensor units 110 include data storage and allow for intermittent transmission of data. As such, Claim 31 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn.
34.	The method of claim 28, comprising: steps for mitigating shocks to up-stream or down-stream fluid- handling devices.	Kahn discloses detecting breakage of a pipe and the break's location through the system's sensors. 10:8-17, 19:16-23. Based on the identified condition, Kahn discloses activating a shut-off value to shut off the supply of fluid upon the detection of the emergency event. 10:62-11:5, 20:64-67. A POSITA would recognize that Kahn discloses steps for mitigating shocks to up-stream or down-stream fluid-handling devices, as recited in the '871 Patent. As such, Claim 34 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn.

Exhibit D-2

Invalidity Claim Chart for U.S. Patent No. 10,488,871 ("the 871 patent")

In view of

US 7,424,399 (Kahn) alone or taken together with

US 9,709,995 (Gutierrez)

The asserted claims of '871 patent are anticipated and/or rendered obvious by Kahn alone or in combination with Gutierrez as identified in Defendant' Preliminary Invalidity Contentions.

U.S. Patent No. 7,424,399 ("Kahn") was filed on June 09, 2006, published on March 01, 2007 and issued on September 09, 2008. Kahn is prior art under at least 35 U.S.C. 102(a).

U.S. Patent No. 9,709,995 ("Gutierrez") was filed on December 22, 2014, published on April 16, 2015 and issued on July 18, 2017. This application is a continuation of U.S. patent application Ser. No. 12/794,898, filed on Jun. 7, 2010. Gutierrez is prior art under at least 35 U.S.C. 102(a) and 35 U.S.C. 102(e).

The citations to portions of any reference in this chart are exemplary only. Defendant will rely on the entirety of the reference cited in this chart, as well as any additional materials relevant to the reference identified through their ongoing investigation, to show that the asserted claims are invalid.

Claim#	Claim Language	Kahn and Gutierrez
18.	[18.1] A method, comprising:	To the extent that the preamble is found to be limiting, Kahn discloses a method. 1:28-36, Claim 1. To the extent that the preamble is found to be limiting, Gutierrez discloses a method. 1:54-2:8, 5:32-36, Claims 1-8. A POSITA would recognize that Gutierrez discloses a method. Therefore, Gutierrez discloses a method.
	[18.2] storing, with one or more processors, records comprising:	Kahn discloses a data collection network with centralized data collection points. 8:51-59, 9:53-58, 17:18-30, 18:48-52, 63-65, 19:5-23, 19:58-65, 23:27-31. Kahn discloses that the centralized data collection point is a server. 10:52-61, 23:27-31. Kahn discloses that servers are computers, i.e. include processors. 32:58-63. A POSITA would recognize that Kahn discloses storing records, with one or more processors through its disclosure of centralized data collection points.

		Therefore, Kahn discloses storing records, with one or more processors. Gutierrez discloses that chemical injection system 100 may be utilized in a hydrocarbon production system, such as, for example, a field or area having one or more hydrocarbon (e.g., oil, natural gas) production sites. 6:55-7:2. Gutierrez discloses chemical injection system 100 that includes a pump 105 mechanically coupled to a driver, such as a motor 110; a motor controller 115; and a controller 130. 6:46-49. Controller 130 provides microprocessor-based control of the motor controller 115 and thus motor 110 and pump 105. 8:15-19. Controller 130 includes a communication module 140 . . . data acquisition, data storage, and a processor 150. 8:19-21; *see also id.*, 8:39-9:3. A POSITA would recognize that Gutierrez discloses controller 130 which includes a processor and data storage for records related to hydrocarbon production facilities. Therefore, Gutierrez discloses this element.
	[18.3] a plurality of accounts, each account corresponding to an entity operating one or more geographically distributed fluid-handling facilities, the accounts associating different fluid-handling facilities with different entities; and	Kahn discloses that centralized data collection points connect to sensor unit 110 at designated facilities from different entities, i.e. "accounts." 16:40- 18:52, 25:5-12. A hallmark of the distribution system in Kahn is the ability to identify the location of and communicate with the system's sensor units. 4:12-25, 11:2-15; *see also* 10:8-13 ("Physical events, such as a breakage of a pipe might be detected through a pattern of sensor units 110 reporting readings that deviate from historic norms, for example, reduced water pressure compared to historic norms, thereby identifying the exact location or proximate location of the breakage."); 23:51-62. Kahn discloses a user interface showing data from geographically distributed fluid handling facilities from multiple different entities. Abstract, 2:50-54, 25:5-12. A POSITA would recognize that Kahn discloses a plurality of accounts, namely one or more geographically distributed fluid-handling facilities with different entities.

		Gutierrez discloses chemical injection system 100 in a hydrocarbon production system, such as, for example, a field or area having one or more hydrocarbon (e.g., oil, natural gas) production sites. 6:55-7:2; *see also id.*, 5:22-26; 6:24-27; 10:22-38. Gutierrez discloses that the production sites are unique, disclosing controls for "each individual" system. 6:28-35; 10:22-24, 10:34-38, 10:43-59 ("data may be wirelessly transmitted directly to each chemical injection system . . . some or all of the processing of data and command generation may occur at the remote control center 220 rather than each individual chemical injection system 220."), 11:55-61 ("each computer 305 may monitor, receive data from, and/or generate commands transmitted to a single chemical injection system 310 or multiple chemical injection systems 310."), 11:62-12:3, 13:10-26 ("a user or operator may utilize the GUI 315 to control one or more components of the chemical injection system 310"); Claim 1. Gutierrez discloses hydrocarbon transmission system including one or more chemical injection systems for relative distances between production sites and pipeline monitoring locations in order to efficiently inject chemical additives into the system without waste. 5:22-31; *see also id.*, 3:49-4:4, 4:50-63, 6:24- 44 ("a hydrocarbon transmission system includes a pipeline adapted to enclose a fluid transmitted from a plurality of hydrocarbon production sites to a processing site and a plurality of chemical injection systems"), 6:45-58, 10:22-24 ("System 200 includes one or more hydrocarbon production sites 215, each of which is fluidly coupled to a pipeline 205."), 11:37-42. A POSITA would recognize that Gutierrez discloses a plurality of accounts, namely geographically distributed fluid-handling facilities. A POSITA would further recognize from Gutierrez that the disclosed geographically distributed accounts associate fluid-handling facilities from different entities because Gutierrez discloses systems with multiple fluid-handling facilities, as well as geographically distributed systems with multiple types of fluid-handling facilities, including

		production sites and pipeline monitoring locations. *Id.* Therefore, Gutierrez discloses the plurality of accounts recited in the '871 Patent.
	[18.4] addresses by which industrial monitoring or control equipment at the facilities is accessible via network connections, the monitoring or control equipment including sensors configured to measure fluid handled at respective fluid- handling facilities and actuators configured to manipulate fluid flow at respective fluid- handling facilities, at least some of the fluid-handling facilities including both a plurality of the sensors and a plurality of the actuators;	Kahn discloses a system with Sensor unit 110 that includes multiple sensors (e.g., first sensor 111A and second sensor 111B) a communication unit that connects via a network to centralized data collection points. 5:62-6:16, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. A hallmark of the distribution system in Kahn is the ability to identify the location of and communicate with the system's individual sensor units. 4:12-25, 11:2-15; *see also* 10:8-13; 23:51-62. Kahn discloses that the production sites are unique, disclosing separate control systems for designated location. 16:40-18:52. For example, Sensor unit 110 can be located at any desired point in a fluid distribution system. 11:2-15. Kahn discloses monitoring and control equipment including one or more actuators configured to manipulate fluid flow at respective fluid-handling facilities. 10:62-67; *see also* 14:35-15:2 ("one or more actuators"), 15:62- 16:32 (describing an actuator for each sensor 111). A POSITA would recognize that Kahn discloses the addresses for facilities accessible by the network, as well as the monitoring and control equipment as recited in the '871 Patent. Therefore, Kahn discloses this limitation. Gutierrez discloses that the production sites are uniquely addressable by the network connection through individualized controls for "each individual" system. 6:28-35; 10:22-24, 10:34-38, 10:43-59, 11:55-61, 11:62-12:3, 13:10-26; Claim 1. Gutierrez discloses monitoring and control equipment including sensors configured to measure fluid handled at respective fluid-handling facilities. 9:4-13 ("one or more electronic sensors monitoring the pipeline"); 9:21-25 ("wireless sensors may detect various operations parameters of the pipeline 120,

		such as line pressure and/or chemical concentrate"), 10:7-16 ("a wireless pressure sensor"), 10:40-46, 13:12-17. Gutierrez discloses monitoring and control equipment including actuators configured to manipulate fluid flow at respective fluid-handling facilities. 6:45-8:38 (describing chemical injection system with controllers for activating pumps to manipulate fluid flow), 9:54-10:16, 11:62-12:29, 13:23-26. Gutierrez discloses fluid-handling facilities having sets of both sensors and actuators. 6:45-7:2, 9:65-10:16, 10:17-11:4, 11:16-33, 11:55-61 ("each computer 305 may monitor, receive data from, and/or generate commands transmitted to a single chemical injection system 310 or multiple chemical injection systems 310"), 13:9-26. A POSITA would recognize that Gutierrez discloses the addresses for facilities and the monitoring and control equipment as recited in the '871 Patent. Therefore, Gutierrez discloses this limitation.
	[18.5] obtaining, with one or more processors implementing a facility-interface module or modules, data from the sensors at the facilities and send commands to the actuators at the facilities via the network connections; and	Kahn discloses a facility interface module, Sensor unit 110, including a processor that connects via a network to centralized data collection points. 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities. 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. A POSITA would recognize that Kahn discloses obtaining data with a facility interface module, with a processor, data from the sensors at the facilities and sending commands to the actuators at the facilities by the network connections as recited in the '871 Patent. Therefore, Kahn discloses this limitation.

		Gutierrez discloses fluid-handling facilities with computers or controllers that take data from sensors and send commands to actuators. 6:45-7:2, 8:16- 38 ("controller 130 includes a communication module 140 . . . and a processor 150 . . . controller 130 receives inputs and/or instructions and commands from a remote source and, according to the commands, controls the operation and/or speed of the motor 110 and pump 105 to inject chemicals into the pipeline 120 . . . [and] receive[s] data representative of pipeline conditions, such as line pressure, amount of chemicals present in the pipeline 120, and motor operating conditions"), 9:65-10:16, 10:17- 11:4, 11:16-33, 11:55-61 ("each computer 305 may monitor, receive data from, and/or generate commands transmitted to a single chemical injection system 310 or multiple chemical injection systems 310"), 13:9-26. A POSITA would recognize that Gutierrez discloses obtaining data with a facility interface module, with a processor, data from the sensors at the facilities and sending commands to the actuators at the facilities by the network connections as recited in the '871 Patent. Therefore, Gutierrez discloses this limitation.
	[18.6] sending, with one or more processors implementing a user-interface module or modules, respective instructions to present respective control interfaces on respective user- computing devices logged in to respective ones of the accounts and to receive respective commands to control respective actuators from the respective user computing devices;	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system's sensors. Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8-25, 29:5-37. Kahn discloses that users log into the system on respective user computing devices. 2:50-45, 25:5-12, 28:35-37, 30:45-49. Kahn discloses a variety of users and entities having different levels of authorized access. 25:48-26:67; *see also* 2:50-60, 19:58-65, 21:50-22:44, 22:62-23:50, 24:44-25:2, 25:5-12, 27:39-28:7. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities, and to facilitate the measurement of data requested through the graphical user interface. 10:62-67; *see also* 14:35-15:2, 15:62-16:32.

		A POSITA would recognize that Kahn discloses the control interfaces on a user computer device sending commands to control fluid handling system actuators, as recited in the '871 Patent. Therefore, Kahn discloses this limitation. Gutierrez discloses a remote computing system with a graphical user interface (GUI); a sensor coupled with a hydrocarbon transmission system; and a chemical injection system. 2:26-29. Gutierrez discloses that the computer used to manage the remote facilities includes a processor. 11:38-42 ("reference to the computer 305 includes any processor-based computing device that is operable to manipulate, display, receive, and/or transmit data, such as data associated with a wellsite, hydrocarbon piping system, or other hydrocarbon production facility.") The computer includes various respective user computing devices, such as such as a laptop computer, personal digital assistant (PDA), handheld electronic mail device, desktop computer, server, or other computing device. 9:59, 11:34-37. Gutierrez discloses user computing device that interfaces with the fluid handling system to sends instructions to control actuators of the fluid handling system. 11:16-33 ("the system 300 includes a computer 305 displaying a graphical user interface (GUI) 315, one or more remote chemical injection systems 310"), 13:9-26 ("a user or operator may utilize the GUI 315 to control one or more components of the chemical injection system 310 based on data received from the system 310 and displayed on the GUI 315. For example, each chemical injection system 310 may include a number of wireless sensor devices operable to detect one or more operational parameters of the hydrocarbon stream within the pipeline. For instance, the system 310 may detect the relative amount of chemical additives injected into the pipeline . . . the data is communicated to the computer 305 via the communication stations 320, base transceiver 325, and communications network 330, where it is then processed. The computer 305 and/or a user operating the computer 305 may then issue commands to one or more of the chemical

		injection systems 310 . . . include[ing] a command to stop injecting chemical additive into the pipeline and/or a command to inject a specified amount of chemical additive into the pipeline."). A POSITA would recognize that Gutierrez discloses the control interfaces on a user computer device logged into by an authorized user sending commands to control fluid handling system actuators, as recited in the '871 Patent. Therefore, Gutierrez discloses this limitation.
	[18.7] receiving, with the user-interface module or modules, a user command to actuate an actuator entered via a presented control interface;	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system's sensors. Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8-25, 29:5-37. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities, to facilitate the measurement of data requested through the graphical user interface. 10:62-67; *see also* 14:35-15:2, 15:62-16:32. A POSITA would recognize from the disclosure of Kahn that a user activates the actuator to achieve the disclosed action. Thus, a POSITA would recognize that Kahn discloses receiving with the user interface module a user command to actuate an actuator of the fluid handling system, as recited in the '871 Patent. *Id.* Therefore, Kahn discloses this limitation. Gutierrez discloses a graphical user interface that receives the commands, and sends them to the fluid handling system. 11:16-33, 13:9-26. A POSITA would recognize that Gutierrez discloses receiving with the user interface module a user command to actuate an actuator of the fluid handling system, as recited in the '871 Patent. Therefore, Gutierrez discloses this limitation.
	[18.8] identifying, with one or more processors, in response to the user command, an address in	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system's sensors. Abstract, 1:28-36, 2:50-3:2,

	the datastore corresponding to a facility at which the actuator is located; and	25:5-25, 25:48-26:19, 28:8-25, 29:5-37. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities, to facilitate the measurement of data requested through the graphical user interface. 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. Kahn discloses that the production sites are unique, disclosing separate control systems for designated facility locations. 16:40-18:52. For example, Sensor unit 110 can be located at any desired point in a fluid distribution system. 11:2-15. A hallmark of the distribution system in Kahn is the ability to identify the location of and communicate with the system's sensor units. 4:12-25; *see also id.*, 10:8-13, 23:51-62. A POSITA would recognize that Kahn discloses identifying an address in the datastore corresponding to the facility at which the actuator is located, as recited in the '871 Patent because the disclosed GUI enables the user to control a designated component of the system. Therefore, Kahn discloses this limitation. Gutierrez discloses a graphical user interface that receives the commands and sends them to the fluid handling system. 11:16-33 ("the system 300 includes a computer 305 displaying a graphical user interface (GUI) 315, one or more remote chemical injection systems 310"), 13:9-26. Gutierrez discloses that the production sites are unique, disclosing separately addressed controls for "each individual" system. 6:28-35; 10:22-24, 10:34-38, 10:43-59, 11:55-61, 11:62-12:3, 13:10-26; Claim 1. A POSITA would recognize that Gutierrez discloses identifying an address in the datastore corresponding to the facility at which the actuator is located, as recited in the '871 Patent, because the user controls "each" component of the chemical injection system with the disclosed GUI. Therefore, Gutierrez discloses this limitation.

	[18.9] sending, with one or more processors, instructions with the facility-interface module or modules to the facility to actuate the actuator, wherein:	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system's sensors. Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8-25, 29:5-37. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities, to facilitate the measurement of data requested through the graphical user interface. 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. A POSITA would recognize that Kahn discloses sending instructions to the facility interface module to actuate the fluid handling system's actuator, as recited in the '871 Patent. Therefore, Kahn discloses this limitation. Gutierrez discloses user computing device interfaces with the fluid handling system to send instructions to control the actuators of the fluid handling system. 11:16-33 ("the system 300 includes a computer 305 displaying a graphical user interface (GUI) 315, one or more remote chemical injection systems 310"), 13:9-26 ("a user or operator may utilize the GUI 315 to control one or more components of the chemical injection system 310 . . . a user operating the computer 305 may then issue commands to one or more of the chemical injection systems 310. Such commands may include a command to stop injecting chemical additive into the pipeline and/or a command to inject a specified amount of chemical additive into the pipeline."). A POSITA would recognize that Gutierrez discloses sending instructions to the facility interface module to actuate the fluid handling system's actuator, as recited in the '871 Patent. Therefore, Gutierrez discloses this limitation.
	[18.10] the plurality of accounts include a first account, a second account, a third account, and a fourth account;	Kahn discloses a plurality of accounts, i.e., geographically distributed facilities for the transport of fluids, as shown above for element 18.3, and incorporated herein. Kahn discloses an "authorized account A" for "a first entity" "to access aspects of first fluid test

		data." 25:48-26:67. Kahn further discloses an "authorized account B" for "a second entity" "to access aspects of second fluid test data." *Id*. The "first and second entities can control access to date generated by their respective sensors." *Id*. Thus, "separate entities provide their fluid test data to the computer system 4 controlled by the service provider (an entity different from the first and second entities), and the first and second entities can control access to data generated by their respective sensors." *Id*. Entities also "grant authorization to visualize [data] generated by them to others beyond themselves, such as government health organizations or security organizations such as the Department of Homeland Security." *Id*. A POSITA would recognize that Kahn discloses a plurality of accounts as recited in the '871 Patent. Therefore, Kahn discloses this limitation. Kahn in view of Gutierrez renders obvious the disclosed plurality of accounts. Gutierrez discloses that its subject conduit systems carry and/or transport one or more fluids to insert other fluids (e.g., additives, inhibitors, or otherwise) into the conduit system, the carried fluids include hydrocarbon systems that transport hydrocarbon fluids, such as oil and/or gas or other fluids. 1:18-26. A POSITA would recognize that the recited plurality of accounts from the disclosure of Gutierrez, because the system described by Gutierrez requires multiple systems and operational components to transport fluids through the described conduit system, geographically distributed across the distance for monitoring and controlling fluids transported through the pipeline. A POSITA would recognize that Gutierrez's disclosure of geographically distributed and multiple types of operational components discloses multiple fluid handling facilities. *Id.*
	[18.11] the first account corresponds to a first group	Kahn discloses a variety of users and entities having different levels of authorized access. 25:48-26:67,

	of fluid-handling facilities, one or more users of the first account being authorized to send commands to remotely control fluid handling devices at the first group of fluid- handling facilities;	*see also id.*, 2:50-60, 19:58-65, 21:50-22:44, 22:62-23:50, 24:44-25:2, 25:5-12, 27:39-28:7. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid-handling facilities. 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. A POSITA would recognize that Kahn discloses a plurality of accounts with varying degrees of access to designated systems, wherein a first group (authorized account A) has access to control a first group of fluid handling facilities, as recited in the '871 Patent. Therefore, Kahn discloses this limitation. Kahn in view of Gutierrez renders obvious the disclosed first account with its users authorized to remotely control a first group of fluid handling devices. Gutierrez discloses users remotely controlling fluid handling devices, as discussed above for element 18.7 and incorporated herein. Gutierrez discloses that the network used to communicate in the disclosed methods is an enterprise or secured network. 12:48-59. A POSITA would recognize that enterprise or secured networks require individual users to login, and then users receive access only to designated systems, e.g., access to control a designated group of devices. A POSITA would recognize that the disclosure in Gutierrez matches the relevant disclosure in the '871 Patent. *Id.* A POSITA would recognize that Kahn and Gutierrez both disclose secure systems where users only have designated access to authorized data or system controls. *Id.* As discussed above for limitation 18.10 and incorporated herein, a POSITA would recognize that

		Kahn in view of Gutierrez renders obvious the disclosed plurality of accounts including accounts in a first group with access permitted for control of a first designated group of devices, as recited in the '871 Patent. *Id.* Therefore, Gutierrez in combination with Kahn renders obvious this limitation.
	[18.12] the second account corresponds to a second group of fluid-handling facilities, the first group being different from the second group, one or more users of the second account being authorized to send commands to remotely control fluid handling devices at the second group of fluid-handling facilities;	Kahn in view of Gutierrez renders obvious the disclosed plurality of accounts with a second group of that plurality of accounts authorized to remotely control designated second fluid handling devices. A POSITA would recognize that Kahn and Gutierrez both disclose secure systems where users only have designated access to authorized data or system controls. As discussed above for limitation 18.11 and incorporated herein, a POSITA would recognize that Kahn in view of Gutierrez renders obvious a plurality of accounts including accounts in a second group with access permitted for control of a second designated group of devices, as recited in the '871 Patent. *Id.* Therefore, Gutierrez in combination with Kahn renders obvious this limitation.
	[18.13] the third account corresponds to the first group of fluid-handling facilities, one or more users of the of the third account being authorized to view reports of data from fluid handling devices at the first group of fluid- handling facilities; and	Kahn discloses a variety of users and entities having different levels of authorized access. 25:48-26:67; *see also* 2:50-60, 19:58-65, 21:50-22:44, 22:62-23:50, 24:44-25:2, 25:5-12, 27:39-28:7. A POSITA would recognize that Kahn discloses a plurality of accounts with varying degrees of access to designated systems, wherein a third group (service provider) has access to view data from a first group of fluid handling facilities, as recited in the '871 Patent. Therefore, Kahn discloses this limitation. Kahn in view of Gutierrez renders obvious the disclosed plurality of accounts with a third group of that plurality of accounts authorized to remotely view data reports from designated first fluid handling devices. Gutierrez discloses users remotely viewing data from designated fluid handling devices. For example, Gutierrez discloses monitoring and control

		equipment including sensors configured to measure fluid handled at respective fluid- handling facilities. 9:4-13 ("one or more electronic sensors monitoring the pipeline"); 9:21-25 ("wireless sensors may detect various operations parameters of the pipeline 120, such as line pressure and/or chemical concentrate"), 10:7-16 ("a wireless pressure sensor"), 10:40-46, 13:12-17. Gutierrez discloses that the network used to communicate in the disclosed methods is an enterprise or secured network. 12:48-59. A POSITA would recognize that enterprise or secured networks require individual users to login, and then users receive access only to designated systems, e.g. access to view data reports for a designated group of devices. A POSITA would recognize that the disclosure in Gutierrez matches the relevant disclosure in the '871 Patent. *Id.* A POSITA would recognize that Kahn and Gutierrez both disclose secure systems where users only have designated access to authorized data or system controls. *Id* As discussed above for limitations 18.10-18.12 and incorporated herein, a POSITA would recognize that Kahn in view of Gutierrez renders obvious the disclosed plurality of accounts including accounts in a third group permitted access to view data reports for a first designated group of devices, as recited in the '871 Patent. *Id*. Therefore, Gutierrez in combination with Kahn renders obvious this limitation.
	[18.14] the fourth account corresponds to the second group of fluid-handling facilities, one or more users of the of the fourth account being authorized to view reports of data from fluid handling devices at the	Kahn in view of Gutierrez renders obvious the disclosed plurality of accounts with a fourth group of that plurality of accounts authorized to remotely view data reports from a designated second fluid handling devices. As discussed above for limitation 18.13 and incorporated herein, a POSITA would recognize that Kahn in view of Gutierrez renders obvious the

	second group of fluid-handling facilities	disclosed plurality of accounts including accounts in a fourth group, as recited in the ’871 Patent. Therefore, Gutierrez discloses this limitation. A POSITA would recognize that Kahn in view of Gutierrez renders obvious the disclosed plurality of accounts including accounts in a fourth group permitted access to view data reports for a second designated group of devices, as recited in the ’871 Patent. *Id.* Therefore, Gutierrez in combination with Kahn renders obvious this limitation. As such, Claim 18 would be obvious to a POSITA over Kahn in view of Gutierrez.
19.	[19.1] The method of claim 18, wherein: at least some of the fluid-handling facilities are oil-or-gas related fluid-handling facilities and include petro-water disposal facilities or re- injection facilities; and	Gutierrez discloses that the chemical injection system 100 may be utilized in a hydrocarbon production system, such as, for example, a field or area having one or more hydrocarbon (e.g., oil, natural gas) production sites. 6:55-7:2; *see also id.*, 1:18-32, 5:22-26; 6:24-27; 10:22-38. A POSITA would understand that the fluid handling facilities for hydrocarbon production systems include oil-or-gas related fluid-handling facilities, petro-water disposal facilities and re-injection facilities.
	[19.2] the sensors include a level sensor of an oil/water separation tank at one of the facilities configured to indicate a level at which oil meets water, and wherein the datastore includes a record associating the tank with the facility.	Gutierrez discloses level sensors for chemical reservoirs. 12:65- 13:8 (“the GUI 315 may display a level of a chemical reservoir at the chemical injection system 310; power capacity and/or availability of a pump motor at the chemical injection system 310; one or more pump or pump motor characteristics (e.g., amps, current status, pressure, as well as other parameters)”). Gutierrez discloses sensor readings of fluidic pressure, fluidic storage level, and percentage of water content in the fluidic system. 13:27-49 (“One or more of GUIs 400, 410, 420, and 430 may be displayed on the computer 305 in place of or in addition to GUI 315. . . . GUI 400 provides information related to . . . fluidic pressure of fluid flowing through the pipeline and/or from chemical reservoir; fluidic storage level of the chemical reservoir; . . . and a percentage water content of fluid flowing through the pipeline.”).

		A POSITA would recognize that Gutierrez disclosure of a level sensor of fluid in a reservoir, as well as information regarding the percentage of water in the fluidic system, constitutes a fluid level indicator for the oil/water partition level within a particular storage tank within a facility, as recited in the '871 Patent. Gutierrez discloses separate control systems for "each" system. 6:28-35; 10:22-24, 10:34-38, 10:43-59 ("data may be wirelessly transmitted directly to each chemical injection system . . . some or all of the processing of data and command generation may occur at the remote control center 220 rather than each individual chemical injection system 220."), 11:55-61 ("each computer 305 may monitor, receive data from, and/or generate commands transmitted to a single chemical injection system 310 or multiple chemical injection systems 310."), 11:62- 12:3, 13:10-26 ("a user or operator may utilize the GUI 315 to control one or more components of the chemical injection system 310"); Claim 1. A POSITA would recognize that Gutierrez discloses sensor readings associated with a specific facility sensor, such as on a tank within a given facility, as recited in the '871 Patent. Therefore, a POSITA would understand that Gutierrez discloses the element recited in Claim 19. As such, Claim 19 would be obvious to a POSITA over Kahn in view of Gutierrez.
20.	[20.1] The method of claim 18, wherein: the sensors include a tank level sensor of a tank at one of the facilities;	Gutierrez discloses level sensors for chemical reservoirs. 12:65- 13:8 ("the GUI 315 may display a level of a chemical reservoir at the chemical injection system 310"). Gutierrez discloses sensor readings of fluidic pressure and fluidic storage level. 13:27-49 ("One or more of GUIs 400, 410, 420, and 430 may be displayed on the computer 305 in place of or in addition to GUI 315. . . . GUI 400 provides information related to . . . fluidic pressure of fluid flowing through the pipeline and/or from chemical

		reservoir; fluidic storage level of the chemical reservoir"). A POSITA would recognize that Gutierrez disclosure of a level sensor of fluid in a reservoir, would sense the level of fluid within a particular tank, as recited in the '871 Patent.
	[20.2] the datastore includes a record associating the tank with the facility, data from the tank being unavailable to users without an account associated with the tank; and	Kahn in view of Gutierrez renders obvious a plurality of accounts with a group of that plurality of accounts not authorized to retrieve data for designated fluid handling devices. As described above and incorporated by reference herein, a POSITA would be motivated to combine the disclosures of Kahn and Gutierrez for elements 20.2 and 20.3 to provide specific details of multiple facility and user management — including deny access to unauthorized users — to the general disclosures of Gutierrez. Kahn's and Gutierrez's disclosures, detailed above for elements 18.13 and 18.14, are incorporated herein by reference. A POSITA would recognize that enterprise or secured networks require individual users to login, and then users receive access only to designated systems, e.g. access to data only from a designated group of devices. A POSITA would recognize that the disclosure in Gutierrez matches the relevant disclosure in the '871 Patent. *Id.* A POSITA would recognize that Kahn in view of Gutierrez renders obvious a plurality of accounts including accounts with access not permitted to retrieve data from a designated group of devices, as recited in the '871 Patent. *Id.*
	[20.3] the accounts designate a plurality of fluid-handling facilities to which a given user is authorized to send user	Kahn in view of Gutierrez renders obvious a plurality of accounts with a group of that plurality of accounts authorized to remotely control fluid handling devices.

	commands to actuate actuators.	As discussed above for limitation 18.11 and 18.12 and incorporated herein, a POSITA would recognize that Kahn in view of Gutierrez renders obvious a plurality of accounts including accounts in a designated group with access permitted for control of a designated group of devices, as recited in the '871 Patent. Therefore, Kahn in view of Gutierrez renders obvious this limitation. Therefore, a POSITA would understand that Kahn in view of Gutierrez renders obvious every element recited in Claim 20. As such, Claim 20 would be obvious to a POSITA over Kahn in view of Gutierrez.
21.	[21.1] The method of claim 18, wherein the sensors include: a level sensor of a tank at a given one of the facilities and wherein the datastore includes a record associating the tank with the given facility; and	Gutierrez discloses level sensors for chemical reservoirs12:65- 13:8 ("the GUI 315 may display a level of a chemical reservoir at the chemical injection system 310"). Gutierrez discloses sensor readings of fluidic pressure and fluidic storage level. 13:27-49 ("One or more of GUIs 400, 410, 420, and 430 may be displayed on the computer 305 in place of or in addition to GUI 315. . . . GUI 400 provides information related to . . . fluidic pressure of fluid flowing through the pipeline and/or from chemical reservoir; fluidic storage level of the chemical reservoir"). Gutierrez discloses separate control systems for "each" system. 6:28-35; 10:22-24, 10:34-38, 10:43-59, 11:55-61, 11:62-12:3, 13:10-26; Claim 1. A POSITA would recognize that Gutierrez's disclosure of a level sensor of fluid in a designated reservoir, would sense the level of fluid within a particular tank, as recited in the '871 Patent.
	[21.2] a leak detector at the given facility, and wherein the datastore includes a record associating the leak detector with the given facility.	Gutierrez discloses sensors for chemical reservoirs. 12:65-13:8 ("the GUI 315 may display a level of a chemical reservoir at the chemical injection system 310"), 13:27-49 ("One or more of GUIs 400, 410, 420, and 430 may be displayed on the computer 305 in place of or in addition to GUI 315. . . . GUI 400 provides information related to . . . fluidic pressure of fluid flowing through the pipeline and/or from

		chemical reservoir; fluidic storage level of the chemical reservoir"). Gutierrez discloses that when such sensed pressure falls below a minimum threshold, such as when a pipeline break occurs, the processor 150 may command the motor controller 115 to stop or reduce the speed of the motor 110 and pump 105 so that additional chemicals are not injected into the pipeline 120 and wasted. 10:11-16. A POSITA would recognize that Gutierrez disclosure of pressure sensors used to detect leaks or breaks discloses a leak detector at a given facility with a record associated with the leak detector as Gutierrez discloses follow up actions taken by its described system when a leak is detected, as recited in the '871 Patent. Therefore, a POSITA would understand that Gutierrez discloses every element recited in Claim 21. As such, Claim 21 would be obvious to a POSITA over Kahn in view of Gutierrez.
23.	[23.1] The method of claim 18, comprising: steps for interfacing with a plurality of site controllers associated with the facilities; and	Kahn and Gutierrez disclose steps for interfacing with a plurality of site controllers associated with facilities, as discussed above for Claim 18.4, and incorporated herein. A POSITA would recognize that Kahn and Gutierrez disclose steps for interfacing with a plurality of site controllers associated with the facilities, as recited in the '871 Patent.
	[23.2] steps for sending instructions to present a control interface on the user devices.	Kahn and Gutierrez disclose steps for interfacing with a plurality of site controllers associated with facilities, as discussed above for Claim 18.6, and incorporated herein. A POSITA would recognize that Kahn and Gutierrez disclose steps for sending instructions to present a control interface on the user devices as a graphical user interface, as recited in the '871 Patent. Therefore, a POSITA would understand that Kahn and Gutierrez disclose every element recited in

		Claim 23. As such, Claim 23 would be obvious to a POSITA over Kahn in view of Gutierrez.
24.	The method of claim 18, wherein the datastore stores accounts for more than one thousand facilities, and the user-interface module or modules are configured interface with more than one thousand user devices.	Kahn discloses "A computer system controlled by a service provider (e.g., Sensicore) is connected to one or more communication networks as well as the Internet using any suitable communications technologies and is equipped (programmed) with suitable software to be able to receive fluid test data from portable handheld sensor units 2a (via wireless tower 3) and/or wired or wireless stationary on-line sensor devices 2b via the communication network(s). The sensor units 2a and 2b can be equipped with a "confirm" capability as described elsewhere herein, if desired. Fluid test data can also be received by or uploaded to computer system 4 from other data systems or resources as will be described below", 25:14-25. In addition, Kahn discloses "As will be described further herein, an authorized Account A (first user 5a) can be authorized by a first entity (e.g., a municipal water authority) to access aspects of first fluid test data from the computer system 4 via the Internet using a graphical computer interface at a computer operated by first user (Account A) ... Similarly, an authorized Account B (second user 5b) second user can be authorized by a second entity (e.g., an industrial plant or power utility) to access aspects of second fluid test data from the computer system 4 via the Internet using a graphical computer interface at a computer operated by the second user (Account B)."; 25:48-61. Thus, Kahn discloses that the computer system 4 stores data from the sensor units 2a and 2b**.** In addition, Kahn discloses that the computer system 4 enables the first user and the second user to access aspects of fluid test data from the computer system 4. A POSITA would consider it obvious to scale the processes and equipment having all the limitations of claim 24, without undue experimentation. Therefore, a POSITA would understand that Kahn discloses the elements recited in Claim 24. As such, Claim 24 is anticipated by Kahn or would be obvious to a POSITA in view of Kahn.

		Gutierrez discloses "the remote control center 220 may merely monitor and/or store data wirelessly communicated directly to the chemical injection systems 210 from the monitoring module 225" 10:65-67 and 11:1. Further, Gutierrez discloses "In some embodiments, the computer 305 may be located at a remote monitoring station, such as the station 220. Further computer 305 may be one of several computers at the remote monitoring station, where each computer 305 may monitor, receive data from, and/or generate commands transmitted to a single chemical injection system 310 or multiple chemical injection systems 310.", 11:55-61. Furthermore, Gutierrez discloses "The computer 305 and/or a user operating the computer 305 may then issue commands to one or more of the chemical injection systems 310", 13:21-23. Thus, Gutierrez discloses that the remote control center 220 stores information associated with the multiple chemical injection systems 210. In addition, Gutierrez discloses that the computer 305 may be one of several computers at the remote control center 220, which allows the users to interact with the multiple chemical injection systems 310/210. Thus, Gutierrez discloses that the remote control center 220 can interface with multiple user devices. In addition, a POSITA would consider it obvious to scale the processes and equipment having all the limitations of claim 24, without undue experimentation.
26.	[26.1] The method of claim 18, comprising instantiating at least three of the following as distinct threads from one another:	A POSITA would recognize that Kahn discloses software applications written or described in any appropriate computer language including HTML, Java, and XML, among others. 28:8-26, *see also id.*, 33:31-43. A POSITA would recognize that Kahn inherently discloses instantiation of threads, and the various thread implementations recited in Claim 26, through computer coding in computer languages such as Java.

		A POSITA would recognize that Kahn inherently discloses instantiation of threads, as recited in the '871 Patent, from its disclosure of software or applications written in then-current computer languages, including Java. Therefore, Kahn discloses this limitation. Kahn discloses a data collection network with centralized data collection points. 8:51-59, 9:53-58, 17:18-30, 18:48-52, 63-65, 19:5-23, 19:58-65, 23:27-31. A POSITA would recognize that Kahn inherently discloses a thread configured to send and receive data requests, as recited in the '871 Patent, from its disclosure of software or applications written in then-current computer languages, including Java. Therefore, Kahn discloses this limitation. A POSITA would also recognize that Gutierrez discloses software applications written or described in any appropriate computer language including C, C-++, Java, Visual Basic, assembler, Perl, any suitable version of 4GL, as well as others. 8:54-62, 11:50-54. A POSITA would recognize that Kahn and Gutierrez inherently disclose, or render obvious, instantiation of threads, and the various thread implementations recited in Claim 26, through computer coding in computer languages such as Java and C++.
	[26.2] a thread configured to sends and receive data requests;	Kahn discloses a data collection network with centralized data collection points. 8:51-59, 9:53-58, 17:18-30, 18:48-52, 63-65, 19:5-23, 19:58-65, 23:27-31. A POSITA would recognize that Kahn inherently discloses a thread configured to send and receive data requests, as recited in the '871 Patent, from its disclosure of software or applications written in then-current computer languages, including Java. Therefore, Kahn discloses this limitation.

		A POSITA would also recognize that Gutierrez discloses software applications written or described in any appropriate computer language including C, C-++, Java, Visual Basic, assembler, Perl, any suitable version of 4GL, as well as others. 8:54-62, 11:50-54. A POSITA would recognize that Kahn and Gutierrez inherently disclose, or render obvious, instantiation of threads, and the various thread implementations recited in Claim 26, through computer coding in computer languages such as Java and C++.
	[26.3] a thread configured to synchronize other threads with updated information;	A POSITA would recognize that Kahn inherently discloses a thread configured to synchronize other threads with updated information, as recited in the '871 Patent, from its disclosure of software or applications written in then-current computer languages, including Java. Therefore, Kahn discloses this limitation. A POSITA would also recognize that Gutierrez discloses software applications written or described in any appropriate computer language including C, C-++, Java, Visual Basic, assembler, Perl, any suitable version of 4GL, as well as others. 8:54-62, 11:50-54. A POSITA would recognize that Kahn and Gutierrez inherently disclose, or render obvious, instantiation of threads, and the various thread implementations recited in Claim 26, through computer coding in computer languages such as Java and C++.
	[26.4] a thread configured to set a target state of actuators;	Kahn discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow by setting a target state for actuators at respective fluid-handling facilities. 8:3-11, 8:21-24, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32, 34:7-12. A POSITA would recognize that Kahn inherently discloses a thread configured to set a target state of actuators, as recited in the '871 Patent, from its disclosure of software or applications written in

		then-current computer languages, including Java. Therefore, Kahn discloses this limitation. A POSITA would also recognize that Gutierrez discloses software applications written or described in any appropriate computer language including C, C-++, Java, Visual Basic, assembler, Perl, any suitable version of 4GL, as well as others. 8:54-62, 11:50-54. A POSITA would recognize that Kahn and Gutierrez inherently disclose, or render obvious, instantiation of threads, and the various thread implementations recited in Claim 26, through computer coding in computer languages such as Java and C++.
	[26.5] a thread configured to obtain updated sensor readings;	Kahn discloses a data collection network with centralized data collection points. 8:51-59, 9:53-58, 17:18-30, 18:48-52, 63-65, 19:5-23, 19:58-65, 23:27-31. Kahn discloses that the centralized data collection points receive sensor information via a network from a facility interface module, Sensor unit 110. 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. A POSITA would recognize that Kahn inherently discloses a thread configured to obtain updated sensor readings, as recited in the '871 Patent, from its disclosure of software or applications written in then-current computer languages, including Java. Therefore, Kahn discloses this limitation. A POSITA would also recognize that Gutierrez discloses software applications written or described in any appropriate computer language including C, C-++, Java, Visual Basic, assembler, Perl, any suitable version of 4GL, as well as others. 8:54-62, 11:50-54. A POSITA would recognize that Kahn and Gutierrez inherently disclose, or render obvious, instantiation of threads, and the various thread implementations recited in Claim 26, through computer coding in computer languages such as Java and C++.

	[26.6] a thread configured to process user interactions; and	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system's sensors. Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8-25, 29:5-37. A POSITA would recognize that Kahn inherently discloses a thread configured to process user interactions, as recited in the '871 Patent, from its disclosure of software or applications written in then-current computer languages, including Java. Therefore, Kahn discloses this limitation. A POSITA would also recognize that Gutierrez discloses software applications written or described in any appropriate computer language including C, C-++, Java, Visual Basic, assembler, Perl, any suitable version of 4GL, as well as others. 8:54-62, 11:50-54. A POSITA would recognize that Kahn and Gutierrez inherently disclose, or render obvious, instantiation of threads, and the various thread implementations recited in Claim 26, through computer coding in computer languages such as Java and C++.
	[26.7] a thread that eliminates other threads upon detecting a problem with the eliminated threads.	A POSITA would recognize that Kahn inherently discloses a thread that eliminates other threads upon detecting a problem with the eliminated threads, as recited in the '871 Patent, from its disclosure of software or applications written in then-current computer languages, including Java. Therefore, Kahn discloses this limitation. A POSITA would also recognize that Gutierrez discloses software applications written or described in any appropriate computer language including C, C-++, Java, Visual Basic, assembler, Perl, any suitable version of 4GL, as well as others. 8:54-62, 11:50-54. A POSITA would recognize that Kahn and Gutierrez inherently disclose, or render obvious, instantiation of threads, and the various thread implementations recited in Claim 26, through

		computer coding in computer languages such as Java and C++.
27.	[27.1] The method of claim 18, comprising instantiating each and every of the following as distinct threads from one another:	A POSITA would recognize that Kahn inherently discloses a thread configured to obtain updated sensor readings, as recited in the '871 Patent, from its disclosure of software or applications written in then-current computer languages, including Java. Therefore, Kahn discloses this limitation. Kahn inherently discloses instantiating each and every of the following as distinct threads from one another, or this limitation would be obvious to a POSITA in view of Kahn, as discussed above for Claim 26 and incorporated herein. A POSITA would also recognize that Gutierrez discloses software applications written or described in any appropriate computer language including C, C-++, Java, Visual Basic, assembler, Perl, any suitable version of 4GL, as well as others. 8:54-62, 11:50-54. A POSITA would recognize that Kahn and Gutierrez inherently disclose, or render obvious, instantiation of threads, and the various thread implementations recited in Claim 27, through computer coding in computer languages such as Java and C++.
	[27.2] a thread configured to send or receive data request;	Kahn inherently discloses a thread configured to send or receive data request, or this limitation would be obvious to a POSITA in view of Kahn, as discussed above for Claim 26, and incorporated herein. A POSITA would also recognize that Gutierrez discloses software applications written or described in any appropriate computer language including C, C-++, Java, Visual Basic, assembler, Perl, any suitable version of 4GL, as well as others. 8:54-62, 11:50-54. A POSITA would recognize that Kahn and Gutierrez inherently disclose, or render obvious, instantiation of threads, and the various thread implementations recited in Claim 27, through

		computer coding in computer languages such as Java and C++.
	[27.3] a thread configured to synchronize other threads with updated information;	Kahn inherently discloses a thread configured to synchronize other threads with updated information, or this limitation would be obvious to a POSITA in view of Kahn, as discussed above for Claim 26, and incorporated herein. A POSITA would also recognize that Gutierrez discloses software applications written or described in any appropriate computer language including C, C-++, Java, Visual Basic, assembler, Perl, any suitable version of 4GL, as well as others. 8:54-62, 11:50-54. A POSITA would recognize that Kahn and Gutierrez inherently disclose, or render obvious, instantiation of threads, and the various thread implementations recited in Claim 27, through computer coding in computer languages such as Java and C++.
	[27.4] a thread configured to set a target state of actuators;	Kahn inherently discloses a thread configured to set a target state of actuators, or this limitation would be obvious to a POSITA in view of Kahn, as discussed above for Claim 26 and incorporated herein. A POSITA would also recognize that Gutierrez discloses software applications written or described in any appropriate computer language including C, C-++, Java, Visual Basic, assembler, Perl, any suitable version of 4GL, as well as others. 8:54-62, 11:50-54. A POSITA would recognize that Kahn and Gutierrez inherently disclose, or render obvious, instantiation of threads, and the various thread implementations recited in Claim 27, through computer coding in computer languages such as Java and C++.
	[27.5] a thread configured to obtain updated sensor readings;	Kahn inherently discloses a thread configured to obtain updated sensor readings, or this limitation would be obvious to a POSITA in view of Kahn, as discussed above for Claim 26 and incorporated herein.

		A POSITA would also recognize that Gutierrez discloses software applications written or described in any appropriate computer language including C, C-++, Java, Visual Basic, assembler, Perl, any suitable version of 4GL, as well as others. 8:54-62, 11:50-54. A POSITA would recognize that Kahn and Gutierrez inherently disclose, or render obvious, instantiation of threads, and the various thread implementations recited in Claim 27, through computer coding in computer languages such as Java and C++.
	[27.6] a thread configured to process user interactions; and	Kahn inherently discloses a thread configured to process user interactions, or this limitation would be obvious to a POSITA in view of Kahn, as discussed above for Claim 26, and incorporated herein. A POSITA would also recognize that Gutierrez discloses software applications written or described in any appropriate computer language including C, C-++, Java, Visual Basic, assembler, Perl, any suitable version of 4GL, as well as others. 8:54-62, 11:50-54. A POSITA would recognize that Kahn and Gutierrez inherently disclose, or render obvious, instantiation of threads, and the various thread implementations recited in Claim 27, through computer coding in computer languages such as Java and C++.
	[27.7] a thread that eliminates other threads upon detecting a problem with the eliminated threads.	Kahn inherently discloses a thread that eliminates other threads upon detecting a problem with the eliminated threads, or this limitation would be obvious to a POSITA in view of Kahn, as discussed above for Claim 26, and incorporated herein. Therefore, a POSITA would understand that Kahn discloses the elements recited in Claim 27. As such, Claim 27 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn. A POSITA would also recognize that Gutierrez discloses software applications written or described in any appropriate computer language including C, C-++, Java, Visual Basic, assembler, Perl, any

		suitable version of 4GL, as well as others. 8:54-62, 11:50-54. A POSITA would recognize that Kahn and Gutierrez inherently disclose, or render obvious, instantiation of threads, and the various thread implementations recited in Claim 27, through computer coding in computer languages such as Java and C++. As such, Claim 27 would be obvious to a POSITA over Kahn in view of Gutierrez.
28.	The method of claim 18, comprising: communicating, with a controller at one of the facilities, with an actuator or a sensor to actuate the actuator or read from the sensor.	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system's sensors. Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8-25, 29:5-37. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities, to facilitate the measurement of data requested through the graphical user interface. 10:62-67; *see also* 14:35-15:2, 15:62-16:32. A POSITA would recognize that Kahn discloses communicating, with a controller at one of the facilities, with an actuator or a sensor to actuate the actuator or read from the sensor, as recited in the '871 Patent. As such, Claim 28 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn. Kahn and Gutierrez disclose steps for interfacing with a plurality of site controllers associated with facilities, as discussed above for Claims 18.4, 18.5, and 18.6, and incorporated herein. A POSITA would recognize that Kahn and Gutierrez disclose communicating with a controller at one of the facilities to control an actuator or read from a sensor, as recited in the '871 Patent. As such, Claim 28 would be obvious to a POSITA over Kahn in view of Gutierrez.
29.	The method of claim 28, wherein the controller is communicatively coupled	Kahn discloses coupling the system's components, e.g. controller and sensor units, with a "private" network. 10:18-48, 19:34-57.

	to the actuator and the sensor via a private local area network, and wherein controller is communicatively coupled to the actuator or sensor via a frame-based carrier-sense multiple access protocol with collision detection.	A POSITA would recognize that Kahn discloses a frame-based carrier-sense multiple access protocol with collision detection because a POSITA would know that frame-based carrier-sense multiple access protocol with collision detection, as recited in the '871 Patent, is an Ethernet networking technology. A POSITA would recognize that Kahn discloses communicating with a controller at one of the facilities to control and actuator or read from a sensor via a private local area network that uses a frame-based carrier-sense multiple access protocol with collision detection. *Id.* As such, Claim 29 is anticipated by Kahn or would be obvious to a POSITA in view of Kahn. Gutierrez discloses coupling the controller with the actuator and sensor via a local private area network, namely a "secured network" over one of several communications protocols including VPN, LAN, RAN, MAN, WAN, or the internet. 12:26-64. A POSITA would recognize that Kahn in view of Gutierrez renders obvious a frame-based carrier-sense multiple access protocol with collision detection because a POSITA would know that frame-based carrier-sense multiple access protocol with collision detection, as recited in the '871 Patent, is an Ethernet networking technology. A POSITA would recognize that Kahn in view of Gutierrez renders obvious communicating with a controller at one of the facilities to control an actuator or read from a sensor via a private local area network that uses a frame-based carrier-sense multiple access protocol with collision detection. *Id.* As such, Claim 29 would be obvious to a POSITA over Kahn in view of Gutierrez.
31.	The method of claim 28, comprising: steps for ensuring at least some data is not lost if network access ceases intermittently.	Kahn discloses that data collection can run in real time, and can continuously, or intermittently (e.g., periodically at pre-set time intervals) monitor fluid quality, or upon inquiry, or operate based on stored data at the sensor sites 110A-110F, depending on the data storage and communication capabilities of the sensor units 110. 19:24-33.

		A POSITA would recognize that Kahn discloses steps for ensuring at least some data is not lost if network access ceases intermittently, because sensor units 110 include data storage and allow for intermittent transmission of data. As such, Claim 31 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn. Gutierrez discloses that Controller 130 is communicably coupled to the motor controller 115 and provides microprocessor-based control of the motor controller 115 and thus motor 110 and pump 105 . . . a communication module 140, a translation module 145, motor driver, data acquisition, data storage, and a processor 150. 8:16-21. A POSITA would recognize that Kahn in view of Gutierrez renders obvious steps for ensuring at least some data is not lost if network access ceases intermittently because controller 130 includes data storage. As such, Claim 31 would be obvious to a POSITA over Kahn in view of Gutierrez.
32.	[32.1] The method of claim 28, comprising: steps for translating a command for an actuator from an input format to a format configured to effectuate changes in the actuator;	Gutierrez discloses a translation module that converts communication protocol messages into the communication protocol for fluid control actuation devices. 2:18-25, 41-47, 4:7-14, 8:19-21, 23-31, 9:34-64 ("translation module 145 receives data communicated in a particular communication protocol to the system 100 via the communication bus 155 and/or wireless antenna 160 and, when necessary, translates such data to a secondary communication protocol understood by the motor controller 115 or other components of the system 100."). A POSITA would recognize that Gutierrez discloses steps for translating a command for an actuator from an input format to a format configured to effectuate changes in the actuator.
	[32.2] steps for executing control routines implicated by translated commands on an individual actuator or sensor; and	Gutierrez discloses a translation module that converts communication protocol messages into the communication protocol for fluid control actuation devices. 2:18-25, 41-47, 4:7-14, 8:19-21, 23-31, 9:34-64 ("the translation module 145 may allow a user or operator to connect to the controller 130 and

		receive feedback data (e.g., operational data of the motor 110, pump 105, or any other component of the system 100) without regard to a particular protocol understood by the user's device"). A POSITA would recognize that Gutierrez discloses steps for translating a command for an actuator from an input format to a format configured to effectuate changes in the actuator.
	[32.3] steps for transmitting data to the facility-interface module or modules.	Gutierrez discloses steps for interfacing with site controllers associated with facilities, as discussed above for Claims 18.5, and 18.6, and incorporated herein. A POSITA would recognize that Gutierrez discloses communicating with a controller at one of the facilities to control an actuator or read from a sensor, as recited in the '871 Patent. Therefore, a POSITA would understand that Gutierrez discloses every element recited in Claim 32. As such, Claim 32 would be obvious to a POSITA over Kahn in view of Gutierrez.
34.	The method of claim 28, comprising: steps for mitigating shocks to up-stream or down-stream fluid-handling devices.	Kahn discloses detecting breakage of a pipe and the break's location through the system's sensors. 10:8-17, 19:16-23. Based on the identified condition, Kahn discloses activating a shut-off value to shut off the supply of fluid upon the detection of the emergency event. 10:62-11:5, 20:64-67. A POSITA would recognize that Kahn discloses steps for mitigating shocks to up-stream or down-stream fluid-handling devices, as recited in the '871 Patent. As such, Claim 34 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn. Gutierrez disclose steps for mitigating shocks to up-stream or down-stream fluid-handling devices. 5:11-14, 8:34-38, 10:11-16 ("When such sensed pressure falls below a minimum threshold, such as when a pipeline break occurs, the processor 150 may command the motor controller 115 to stop or reduce the speed of the motor 110 and pump 105 so that additional chemicals are not injected into the pipeline 120 and wasted"). The '871 Patent explains that shocks to up-stream or down-stream fluid-

		handling devices may be mitigated by a series of commands gradually changing the state of a given fluid-handling device, for instance gradually ramping up or down the speed of a pump or gradually opening or closing a valve. 6:29-34. A POSITA would recognize that Gutierrez discloses steps for mitigating shocks to up-stream or down-stream fluid-handling devices, as recited in the '871 Patent. As such, Claim 34 would be obvious to a POSITA over Kahn in view of Gutierrez.

Exhibit E-1

Invalidity Claim Chart for U.S. Patent No. 11,294,403 ("the 403 patent")

In view of

US 7,424,399 (Kahn)

The asserted claims of '403 patent are anticipated and/or rendered obvious by Kahn as identified in Defendant Preliminary Invalidity Contentions.

U.S. Patent No. 7,424,399 ("Kahn") was filed on June 09, 2006, published on March 01, 2007 and issued on September 09, 2008. Kahn is prior art under at least 35 U.S.C. 102(a).

The citations to portions of any reference in this chart are exemplary only. Defendant will rely on the entirety of the reference cited in this chart, as well as any additional materials relevant to the reference identified through their ongoing investigation, to show that the asserted claims are invalid.

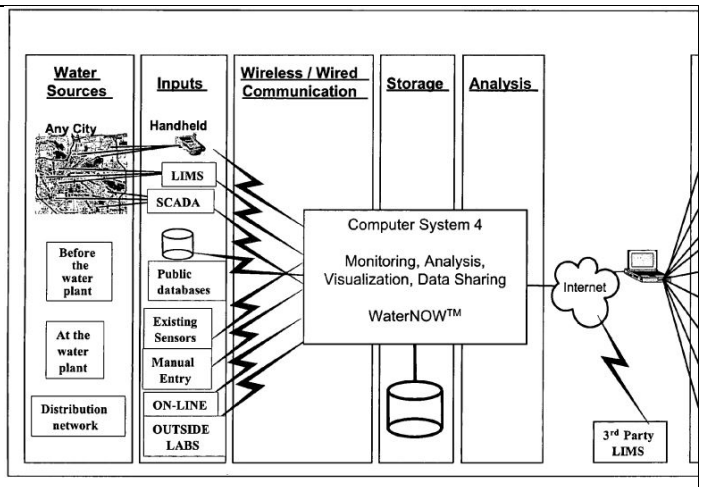
Claim#	Claim Language	Kahn
1.	[1.1] A fluid-processing system, comprising:	To the extent that the preamble is found to be limiting, Kahn discloses a method. 1:28-36, Claims 1-29, (a POSITA would recognize disclosure). Therefore, Kahn discloses a method.
	[1.2] a first computer system disposed at a first fluid handling site, the first fluid handling site comprising a first pump, a first valve, and a first tank that handle a first fluid, the first tank having a first fluid-level sensor with which the first computer system is configured to communicate to obtain a level of the first fluid in the first tank, and the first computer system being configured to provide remote control of the first pump or the first valve; and	Kahn discloses a system with Sensor unit 110 that includes multiple sensors (e.g., first sensor 111A and second sensor 111B) a communication unit that connects via a network to centralized data collection points. 5:62-6:16, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn discloses Sensor unit 110 having a processor that connects via a network to centralized data collection points. *Id.* A hallmark of the distribution system in Kahn is the ability to identify the location of and communicate with the system's individual sensor units. 4:12-25, 11:2-15; *see also id.*, 10:8-13; 23:51-62. Kahn discloses that the production sites are unique, disclosing separate control systems for designated location, i.e. fluid handling site. 16:40-18:52. Sensor unit 110 can be located at any desired point in a fluid distribution system. 11:2-15. Kahn discloses that the fluid-handling site includes a first pump, a first filter, and a first valve. 8:6-7, 8:19-30; 10:62-67, 11:2-5, 11:18-13:58, 13:34-36,

		15:50-16:5, 16:56, 20:64-67, 21:1, FIG. 1C-FIG. 1D., FIG. 1F, FIG. 1G. Kahn discloses a first fluid tank disposed at the first fluid-handling site through its disclosure of distribution systems that include fluids in tanks, including reservoirs, wells, large pools, and water treatment plants. 1:46-50, 2:1, 4:12-32. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities. 8:3-11, 8:19-21, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. Kahn discloses first sensor having actuators controlling valves and pumps. *Id*. Kahn discloses that sensor units 110 detect breakage of a pipe, i.e. level of a first fluid, based on reduced water pressure in the pipe. 10:8-16. Kahn discloses that its method can be applied to monitor any fluid (gas or liquid) including those present in a distribution system, reservoir or feed source in need of monitoring. 4:4-7, 4:12-48. A POSITA would understand that Kahn discloses receiving information comprising fluid level properties from one or more sensors disposed at a first fluid- handling site, the fluid-handling site through its disclosure of a computer system that receives first fluid test data from sensors. A POSITA would also understand that Kahn comprising one or more fluid- handling devices comprising one or more of a first pump, a first filter, and a first valve through its disclosure valves, filters, and a pump. *Id.* Finally, A POSITA would understand that the system disclosed in Kahn includes a tank through its disclosure of distribution systems that includes reservoirs, water treatment plants, and contain water, all of which includes tanks. *Id.* Thus Kahn discloses this claim element.
	[1.3] a server system remote from the fluid	Kahn discloses a data collection network with centralized data collection points. 8:51-59, 9:53-58,

	handling site, wherein the server system has memory storing instructions that, when executed, effectuate operations comprising:	17:18-30, 18:48-52, 63-65, 19:5-23, 19:58-65, 23:27-31. Kahn discloses that the centralized data collection point is a server. 10:52-61, 23:27-31. Kahn discloses that servers are computers, i.e., include processors. 32:58-63. Kahn discloses that processing unit is a generic term meaning one or more processing units programmed at a software, firmware, or hardware level, including, ASIC (application-specific integrated circuit). 4:49-53. Kahn discloses that the server system has memory storing instructions for its operation. 8:54-59, 33:4-14, 33:15-21. A POSITA would understand from the above disclosure of a central communication device, e.g., a server, that Kahn discloses a server system wherein the server system has memory storing instructions. Thus, Kahn discloses this claim element.
	[1.4] receiving, with the server system, from the first computer, via a network, a first fluid level sensed by the fluid-level sensor;	Kahn discloses a data collection network with centralized data collection points. 8:51-59, 9:53-58, 17:18-30, 18:48-52, 63-65, 19:5-23, 19:58-65, 23:27-31. Kahn discloses that the centralized data collection points receive sensor information via a network from a facility interface module, Sensor unit 110. 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn discloses that sensor units 110 detect breakage of a pipe, for example the level of a first fluid, based on reduced water pressure in the pipe. 10:8-16. Kahn discloses that its method can be applied to monitor any fluid (gas or liquid) including those present in a distribution system, reservoir, or feed source in need of monitoring. 4:4-7, 4:12-48. A POSITA would understand from the above disclosure and figures Kahn discloses receiving, with the server system, from the first computer system, via a network, a level associated with the first fluid sensed by a first sensor of one or more sensors. Thus, Kahn discloses this claim element.

	[1.5] obtaining, with the server system, credentials from a first client computing device;	Kahn discloses that any suitable technique can be used to verify that the identity of a present user is an authorized user of the device. 25:1-2; 28:35- 37 ("After the user has "logged in" to the service by inputting a username and password in a conventional manner"). Kahn further discloses that an authorized Account A (first user 5 a) can be authorized by a first entity. 25:48-51. Finally, Kahn discloses that an authorized Account B (second user 5 b) second user can be authorized by a second entity. 25:55-58. A POSITA would understand from Kahn's disclosure of authenticated accounts and suitable techniques for verification of the identity of present users as authorized users that Kahn discloses that credentials can be obtained from a first client computer. This Kahn discloses this claim element.
	[1.6] determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site, wherein the server system hosts data about other fluid handling sites the user is not authorized to interact;	Kahn discloses determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site through its disclosure of that an authorized Account A (first user 5a) can be authorized by a first entity. 25:48-26:67. Kahn further discloses that an authorized Account B (second user 5 b) second user can be authorized by a second entity. 25:55-58. Kahn discloses that "separate entities provide their fluid test data to the computer system 4 controlled by the service provider (an entity different from the first and second entities), and the first and second entities can control access to data generated by their respective sensors." 25:63- 66. Kahn discloses that server system hosts data about other fluid handling sites the user is not authorized to interact through its disclosure that only fluid test measurements which the user is authorized to see are displayed. 28:43- 45, 25:48-26:67, *see also id*., 2:50-60, 19:58-65, 21:50-22:44, 22:62-23:50, 24:44-25:2, 25:5-12, 27:39-28:7. A POSITA would recognize that Kahn discloses determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid

		handling site from its disclosure of multiple- user accounts which only permits access to certain aspects of test data and the computer system. A POSITA would further understand that the server system hosts data about other fluid handling sites the user is not authorized to interact. *Id.* Thus, Kahn discloses this claim element.
	[1.7] after the determination, providing, with the server system, via the network, information by which a first client computing device presents a user interface indicating the first fluid level, the first client computing device being remote from the server system and the first computer system;	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system's sensors. Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8-25, 29:5-37. Kahn discloses that Sensor unit 110 connects via a network to centralized data collection points. 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn discloses that the centralized data collection points are a server. 10:54-56, 23:29-30. Kahn discloses that users log into the system on respective user computing devices. 2:50-45, 25:5-12, 28:35-37, 30:45-49. Kahn discloses a variety of users and entities having different levels of authorized access. 25:48- 26:67, *see also id.*, 2:50-60, 19:58-65, 21:50-22:44, 22:62-23:50, 24:44-25:2, 25:5- 12, 27:39-28:7. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities, to facilitate the measurement of data requested through the graphical user interface. 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. Kahn discloses that sensor units 110 detect breakage of a pipe, i.e., level of a first fluid, based on reduced water pressure in the pipe. 10:8-16. Kahn discloses that its method can be applied to monitor any fluid (gas or liquid) including those present in a distribution system, reservoir or feed source in need of monitoring. 4:4-7, 4:12-48. The sensor outputs are presented to the user through the GUI on the remote user's computer. 2:50-54, 2:61-65, 25:5-12, 26:3-7, Claim 36, FIG. 5, FIG. 6.

		 FIG. 6 A POSITA would recognize Kahn discloses a providing, a user interface indicating the first fluid level, the first client computing device being remote from the server system and the first computer system through its disclosure of a graphical user interface for monitoring fluid quality. Thus, Kahn discloses this claim element.
	[1.8] receiving, with the server system, from the first client computing device, a first command to change a state of the first pump; and	Kahn discloses a facility interface module, Sensor unit 110, including a processor that connects via a network to centralized data collection points. 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities. 8:3-11, 8:21-24, 10:62-67; *see also* 14:35-15:2, 15:62-16:32, 34:7-12. A POSITA would recognize from the above disclosure that Kahn discloses receiving, with the server system, from the first client computing device, a first command to change a state of the first fluid-handling device where the command to change a state of the fluid-handling devices is the recalibration solution.
	[1.9] causing, with the server system, the first computer system disposed at the first fluid handling	Kahn discloses a facility interface module, Sensor unit 110, including a processor that connects via a network to centralized data collection points. 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-

	site to effectuate the command by changing the state of the first pump to a sequence of different target states that change over time.	19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid-handling facilities. 8:3-11, 8:19-21, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. Kahn discloses first sensor having actuators controlling valves and pumps to manipulate fluid flow. *Id.* A POSITA would recognize from Kahn's disclosures that Kahn discloses the limitation regarding changing the state of the first pump. Thus, Kahn discloses this claim element. Claim 1 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn.
2.	The system of claim 1, wherein: the first fluid handling site comprises a second pump and a second tank that handle a second fluid, the second tank having a second fluid-level sensor with which the first computer system is configured to communicate to obtain a level of the second fluid in the second tank, and the first computer system being configured to provide remote control of the second pump.	Kahn discloses the first fluid-handling site, in a contiguous distribution system of pipes and/or systems of reservoirs, channels, pipes and treatment plants. *Id.*, 1:46- 50, 2:1, 4:12-32. A hallmark of the system in Kahn is the ability to identify the location of and communicate with the system's sensor units. 4:12-25. Kahn expressly discloses a second, and indeed larger numbers of fluid handling devices for detecting and locating physical events in the distribution system. 10:8-13, 23:51-62. Kahn discloses that sensors units can be placed at the shut off valve located at the introduction of water supply into a house, business, industrial site or government site and that they can be placed at each individual faucet or selected faucets where it is likely that the end user 23 might drink water or otherwise consume or cause fluids to be consumed. 11:2-15; *see also* FIG. 2, 16:67-17:7. Kahn discloses a system with Sensor unit 110 that includes multiple sensors (e.g., first sensor 111A and second sensor 111B) a communication unit that connects via a network to centralized data collection points. 5:62-6:16, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn discloses that the centralized data collection points are a server. 10:54-

		56, 23:29-30. Kahn discloses that users log into the system on respective user computing devices. 2:50-45, 25:5-12, 28:35-37, 30:45-49. Kahn discloses each sensor having a pump. 8:3-15; *see also id.,* 6:41-43, 7:38-40, 7:67-8:2. Each sensor also includes two valves. 8:19- 30, FIG. 1C, FIG. 1D. Sensor units 110 include a plurality of additional fluids, including recalibration solution, and reagents. 8:3-18, 8:31-34, 8:41-42. Kahn discloses recalibration fluid or reagent in the form of a replenishing supply, i.e., tracking the level of each for replenishment. 8:16-18. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities. 8:3-11, 8:19-21, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. Kahn discloses first sensor having actuators controlling valves and pumps. *Id.* Kahn also discloses that the sensor unit 110 is a fluid handling tank. 8:19-30, FIG. 1C, FIG. 1D, 15:50-16:5, FIG. 1L; 4:26-27. Sensor unit 110 measures the fluid level of the fluid in the sensor cavity to minimize the potential for fluid leakage. 16:2-5. Claim 2 is anticipated by Kahn or would be obvious to a POSITA in view of Kahn.
4.	The system of claim 1, wherein: the sequence of different target states that change over time are configured to ramp up or down a speed of the first pump.	Kahn discloses a facility interface module, sensor unit 110, including a processor that connects via a network to centralized data collection points. 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid-handling facilities. 8:3-11, 8:19-21, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. Kahn discloses sensors having actuators controlling valves and pumps to change the target states (sensing, recalibrating) over time. *Id*. Data collection can run in real time to continuously, or intermittently, operate. 19:24-29. Kahn also discloses shutting down (ramping down)

		the supply of fluid during the detection of emergency events. 10:62-67. A POSITA would recognize from Kahn's disclosure of changing the fluid by pump that a pump would ramp up and down in speed changing the fluid in the sensor cavity, e.g., the recalibration fluid during calibration. A POSITA would recognize from Kahn's disclosure of changing the fluid and injecting by pumps that Kahn discloses this claim element. *Id*. Claim 4 is anticipated by Kahn or would be obvious to a POSITA in view of Kahn.
5.	The system of claim 1, wherein: the sequence of different target states that change over time are determined with steps for mitigating shocks to upstream or down-stream fluid- handling devices relative to the first pump.	Kahn discloses the sequence of different target states that change over time are determined, as discussed above for Claims 1 and 4, and incorporated herein. Kahn discloses fluid handling devices for detecting, locating, and mitigating physical events in the distribution system. 10:8-13 ("Physical events, such as a breakage of a pipe might be detected through a pattern of sensor units 110 . . . reduced water pressure . . . thereby identifying the exact location or proximate location of the breakage."); 23:51-62; 10:62-67 ("shutting off the supply of fluid upon the detection of emergency events"). Kahn also discloses that sensor units be placed at multiple locations in water supply. 11:2-15; *see also id*., FIG. 2, 16:67-17:7. Thus, Kahn discloses this claim element. Claim 5 is anticipated by Kahn or would be obvious to a POSITA in view of Kahn.
7.	The system of claim 1, wherein: the server system is configured to interface with both a web browser on the client computing device and a special-purpose application executing on the client computing device to present the user interface	Kahn discloses that the computer system 4 permits Account A to visualize first information associated with the first fluid test data overlaid on a geographical map displayed on the graphical computer interface (e.g., a web browser) of Account A's computer. 26:3-13. Kahn discloses that the computer system 4 can provide either a hosted environment (e.g., act as an application service provider as known in the art such that Account A needs primarily only a suitable web browser) or a

	indicating the first fluid level.	non-hosted environment wherein appropriate software issued by the service provider is run on Account A's computer to access computer system 4. *Id*. Thus, Kahn discloses this claim element. Claim 7 is anticipated by Kahn or would be obvious to a POSITA in view of Kahn.

Exhibit E-2

Invalidity Claim Chart for U.S. Patent No. 11,294,403 ("the 403 patent")

In view of

US 7,424,399 ("Kahn")

alone or taken together with US 8,667,091 ("Almadi") and

US 9,709,995 ("Gutierrez")

The asserted claims of '403 patent are anticipated and/or rendered obvious by Kahn alone or in combination with Almadi, Gutierrez as identified in Defendant Preliminary Invalidity Contentions.

U.S. Patent No. 7,424,399 ("Kahn") was filed on June 09, 2006, published on March 01, 2007 and issued on September 09, 2008. Kahn is prior art under at least 35 U.S.C. 102(a).

U.S. Patent No. 8,667,091 ("Almadi") was filed on July 22, 2011, published on April 05, 2012 and issued on March 04, 2014. Almadi is prior art under at least 35 U.S.C. 102(a).

U.S. Patent No. 9,709,995 ("Gutierrez") was filed on December 22, 2014, published on April 16, 2015 and issued on July 18, 2017. This application is a continuation of U.S. patent application Ser. No. 12/794,898, filed on Jun. 7, 2010. Gutierrez is prior art under at least 35 U.S.C. 102(a) and 35 U.S.C. 102(e).

The citations to portions of any reference in this chart are exemplary only. Defendant will rely on the entirety of the reference cited in this chart, as well as any additional materials relevant to the reference identified through their ongoing investigation, to show that the asserted claims are invalid.

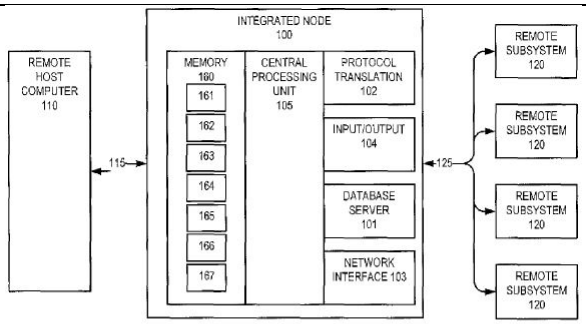
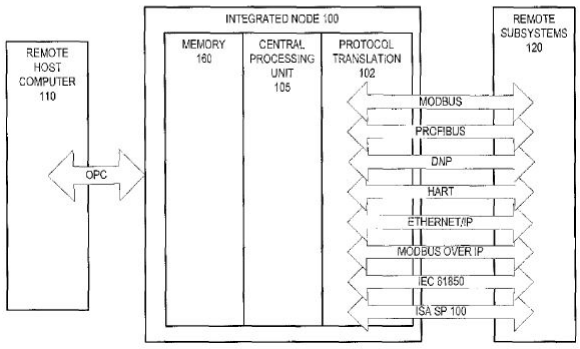
Claim#	Claim Language	Kahn, Almadi and Gutierrez
1.	[1.1] A system, comprising:	To the extent that the preamble is found to be limiting, Kahn discloses a method. 1:28-36, Claims 1-29, (a POSITA would recognize disclosure). To the extent that the preamble is found to be limiting, Almadi discloses a system for remotely controlling a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station. Almadi discloses that the automation architecture of modern industrial operations, such as that found in modern oil and gas field applications, is enabled at the field-level and process-level by various interconnected devices referred to as remote subsystems or field devices. 1:28-35. These field devices monitor and collect data, such as measurements of fluid

		pressure, temperature, or flow, reflective of the operations of the automated process. *Id*. A POSITA would recognize that the system disclosed by Almadi remotely monitors and controls a fluid handling devices at oil wells, water disposal sites, re- injection facilities, or petroleum pumping stations. Therefore, Almadi discloses a system.
	[1.2] a first computer system disposed at a first fluid handling site, the first fluid handling site comprising a first pump, a first valve, and a first tank that handle a first fluid, the first tank having a first fluid-level sensor with which the first computer system is configured to communicate to obtain a level of the first fluid in the first tank, and the first computer system being configured to provide remote control of the first pump or the first valve; and	Kahn discloses a system with Sensor unit 110 that includes multiple sensors (e.g., first sensor 111A and second sensor 111B) a communication unit that connects via a network to centralized data collection points. 5:62-6:16, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn discloses Sensor unit 110 having a processor that connects via a network to centralized data collection points. Id. A hallmark of the distribution system in Kahn is the ability to identify the location of and communicate with the system's individual sensor units. 4:12-25, 11:2-15; *see also id*., 10:8-13; 23:51-62. Kahn discloses that the production sites are unique, disclosing separate control systems for designated location, i.e. fluid handling site. 16:40-18:52. Sensor unit 110 can be located at any desired point in a fluid distribution system. 11:2-15. Kahn discloses that the fluid-handling site includes a first pump, a first filter, and a first valve. 8:6-7, 8:19-30; 10:62-67, 11:2-5, 11:18-13:58, 13:34-36, 15:50-16:5, 16:56, 20:64-67, 21:1, FIG. 1C-FIG. 1D., FIG. 1F, FIG. 1G. Kahn discloses a first fluid tank disposed at the first fluid-handling site through its disclosure of distribution systems that include fluids in tanks, including reservoirs, wells, large pools, and water treatment plants. 1:46-50, 2:1, 4:12-32. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities. 8:3-11, 8:19-21, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. Kahn discloses first sensor having actuators controlling valves and pumps. Id. Kahn discloses that sensor units 110 detect breakage of a pipe, i.e. level of a first fluid, based on reduced water pressure in the pipe. 10:8-16. Kahn discloses that its method can be applied to monitor any fluid (gas or liquid) including those present in a

		distribution system, reservoir or feed source in need of monitoring. 4:4-7, 4:12-48. A POSITA would understand that Kahn discloses receiving information comprising fluid level properties from one or more sensors disposed at a first fluid- handling site, the fluid-handling site through its disclosure of a computer system that receives first fluid test data from sensors. A POSITA would also understand that Kahn comprising one or more fluid- handling devices comprising one or more of a first pump, a first filter, and a first valve through its disclosure valves, filters, and a pump. *Id*. Finally, A POSITA would understand that the system disclosed in Kahn includes a tank through its disclosure of distribution systems that includes reservoirs, water treatment plants, and contain water, all of which includes tanks. *Id*. Thus Kahn discloses this claim element. Almadi discloses intelligent oilfield systems for oil and gas extraction and handling. 11:18-12:59; see also Abstract; 1:18-22, 1:28-35. Intelligent field systems include permanent down hole monitoring ("PDHM") systems, electrical submersible pump ("ESP") systems, smart well completion ("SWC") systems, and flow meter systems, and any of the types of Intelligent Equipment Devices ("IED"). 12:27-35. Accordingly, the field devices perform sensor and actuator functions, at the process level, supported by a controller or a number of controllers, at the system level, which receive information from the sensors and transmit information to the actuators. 1:41-52. Almadi discloses that "intelligent field devices" (i.e. remote subsystems 120) include the ability to process data, self-monitor, self-regulate, self-calibrate, or provide early warnings with respect to malfunctions or predictive maintenance. 1:18-57, 3:4-9, 12:27-32. Almadi discloses processing by remote subsystems 120, including a processor. 4:6-16, 4:51-57, 6:49-53, 7:3-9, 11:18-21, 18:57. Remote subsystems 120 can also adapted to be programmed so as to communicate with other field devices that a processor is required. 12:35-43. The field devices perform sensor functions to sense operational information and variables such as temperature, pressure, pH,

		flow rate, tank level, and deliver that information to the system-level controller devices. 1:41-45, 12:27-32, 25:11-25. Almadi further discloses commands used by the local controller to drive the fluid handling device to a particular target state, e.g. "field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps." 1:45-49, 12:27-59; *see also id*., 25:26-37. Almadi discloses the first tank having a first fluid-level sensor with which the first computer system is configured to communicate to obtain a level of the first fluid in the first tank through its disclosure of a plant-wide model 704, that defines a mass balancing loop for the plant based on crude switches, operation scenarios, and open and closed transactions (for example, when there is a change in the level status of tanks or the operation of pumps). 25:11-17. Almadi discloses the first valve through its disclosure of Intelligent field systems include PDHM systems, ESP systems, SWC systems, and flow meter systems, and any of the types of IED. 1:45-49, 12:27-59, Claim 3. Almadi discloses detection and analysis of key performance indicators, including loss identification, oil accounting, performance monitoring, loss management, i.e., for calculating an amount of losses incurred the unit or plant level. 27:11-23; *see also id*., 27:61-28:10 ("Reports may be generated, for example, according to yield and loss accounting (i.e., charge/feed balancing); environmental compliance of drainage, tank vaporization, and percentage of unaccountable or accountable losses; performance monitoring; and data/model analysis"); 25:38-26:20 (discussing data libraries such as "Standard Volume," "Mass and Heat Balance Optimization Calculations," and "Pressure and Molecule Balance"). A POSITA would understand that Almadi discloses a first computer system that is configured to communicate to obtain a tank fluid level and provide remote control of a pump or valve of the '403 Patent through its disclosure of remote subsystems 120, intelligent field devices which include tank level sensors that can detect changing the level status of tanks. Thus, Almadi discloses this claim element.

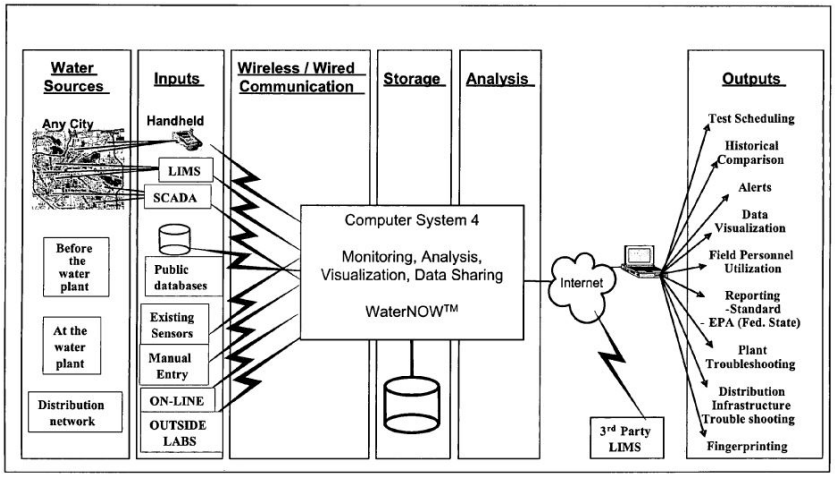
	[1.3] a server system remote from the fluid handling site, wherein the server system has memory storing instructions that, when executed, effectuate operations comprising:	Kahn discloses a data collection network with centralized data collection points. 8:51-59, 9:53-58, 17:18-30, 18:48-52, 63-65, 19:5-23, 19:58-65, 23:27-31. Kahn discloses that the centralized data collection point is a server. 10:52-61, 23:27-31. Kahn discloses that servers are computers, i.e., include processors. 32:58-63. Kahn discloses that processing unit is a generic term meaning one or more processing units programmed at a software, firmware, or hardware level, including, ASIC (application-specific integrated circuit). 4:49-53. Kahn discloses that the server system has memory storing instructions for its operation. 8:54-59, 33:4-14, 33:15-21. A POSITA would understand from the above disclosure of a central communication device, e.g., a server, that Kahn discloses a server system wherein the server system has memory storing instructions. Thus, Kahn discloses this claim element. Almadi discloses integrated node 100, as illustrated in FIGS. 1A-1B, having a central processing unit 105 and a memory 160 to allow a remote host 110 to interface with a plurality of remote subsystems 120. 11:18-21. Integrated node 100 is a programmable logic controller ("PLC"), meaning any PLC, remote terminal unit ("RTU"), computer, **server**, system, node, or unit. 11:18-28. Almadi discloses that the integrated node 100 collects data from remote subsystems 120. 11:51-55; 13:47-14:9. Integrated node 100 has memory storing instructions that, when executed, effectuate operations. 4:55-57, 6:49-53, 17:42-49, 18:54-60.

		 FIG. 1A  FIG. 1B A POSITA would understand that Almadi discloses the a server system remote from the fluid handling site, wherein the server system has memory storing instructions that, when executed, effectuate operations comprising of the '403 Patent through its disclosure of the integrated node 100 and Figures 1A, 1B. Thus, Almadi discloses this claim element.
	[1.4] receiving, with the server system, from the first computer, via a network, a first fluid level sensed by the fluid-level sensor;	Kahn discloses a data collection network with centralized data collection points. 8:51-59, 9:53-58, 17:18-30, 18:48-52, 63-65, 19:5-23, 19:58-65, 23:27-31. Kahn discloses that the centralized data collection points receive sensor information via a network from a facility interface module, Sensor unit 110. 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn discloses that sensor units 110 detect breakage of a pipe, for example the level of a first fluid, based on reduced water pressure in the pipe. 10:8-16. Kahn discloses that its method can be applied to monitor any fluid (gas or liquid) including those present in a distribution system, reservoir, or feed source in need of monitoring. 4:4-7, 4:12-48. A POSITA would understand from the above disclosure and figures Kahn discloses receiving, with the server system, from

		the first computer system, via a network, a level associated with the first fluid sensed by a first sensor of one or more sensors. Thus, Kahn discloses this claim element. The field devices perform sensor functions to sense operational information and variables such as temperature, pressure, pH, flow rate, tank level, and deliver that information to the system-level controller devices. 1:41-45, 25:11-25. Almadi discloses the first tank having a first fluid-level sensor with which the first computer system is configured to communicate to obtain a level of the first fluid in the first tank through its disclosure of a plant-wide model 704, that defines a mass balancing loop for the plant based on crude switches, operation scenarios, and open and closed transactions (for example, when there is a change in the level status of tanks or the operation of pumps). 25:11-17; see also 27:11. Almadi discloses that the integrated node 100 collects data from remote subsystems 120. 11:51-55; 13:47-14:9. The level status of the tank is sent to the remote subsystems where it is then transmitted to the server. Figures 1A, 1B. Almadi also discloses a first fluid level sensed by the fluid-level sensor, as discussed above for element 1.3, and incorporated herein by reference. A POSITA would understand that Almadi discloses receiving a first fluid level sensed by the fluid level sensor of the '403 Patent. Thus, Almadi discloses this claim element.
	[1.5] obtaining, with the server system, credentials from a first client computing device;	Kahn discloses that any suitable technique can be used to verify that the identity of a present user is an authorized user of the device. 25:1-2; 28:35- 37 ("After the user has "logged in" to the service by inputting a username and password in a conventional manner"). Kahn further discloses that an authorized Account A (first user 5 a) can be authorized by a first entity. 25:48-51. Finally, Kahn discloses that an authorized Account B (second user 5 b) second user can be authorized by a second entity. 25:55-58. A POSITA would understand from Kahn's disclosure of authenticated accounts and suitable techniques for verification of the identity of present users as authorized users that Kahn

		discloses that credentials can be obtained from a first client computer. This Kahn discloses this claim element. Almadi discloses obtaining, with the server system, credentials from a first client computing device through its disclosure of an embodiment of an integrated node 100 can be shown, as illustrated in Figures 1A, 1B, having a central processing unit 105 and a memory 160 to allow a remote host 110 to interface with a plurality of remote subsystems 120. 11:18-21. Almadi discloses a system intended to serve in various networking operating environments, including, for example, intelligent fields for oil and gas, substations/power grid, and remote security, and can be utilized and can be extended for enterprise applications. 12:48-59, 13:20-25. Almadi further discloses "[t]hose having skill in the art will appreciate various techniques to ensure no file access violations during the process of accessing the file, for example, by the remote host 300." 16:65-67. A POSITA would understand that Almadi discloses the obtaining credentials from a first client computing device of the '403 Patent through its disclosure of the integration node's application in secure enterprise network environments ensuring that no file access violations occur. Thus, Almadi discloses this claim element.
	[1.6] determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site, wherein the server system hosts data about other fluid handling sites the user is not	Kahn discloses determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site through its disclosure of that an authorized Account A (first user 5a) can be authorized by a first entity. 25:48-26:67. Kahn further discloses that an authorized Account B (second user 5 b) second user can be authorized by a second entity. 25:55-58. Kahn discloses that "separate entities provide their fluid test data to the computer system 4 controlled by the service provider (an entity different from the first and second entities), and the first and second entities can control access to data generated by their respective sensors." 25:63- 66. Kahn discloses that server system hosts data about other fluid handling sites the user is not authorized to interact through its disclosure that only fluid test measurements which the user is authorized to see are displayed. 28:43- 45, 25:48-26:67, *see also id*., 2:50-60, 19:58-65, 21:50-22:44, 22:62-23:50, 24:44-25:2, 25:5-12, 27:39-28:7.

	authorized to interact;	A POSITA would recognize that Kahn discloses determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site from its disclosure of multiple- user accounts which only permits access to certain aspects of test data and the computer system. A POSITA would further understand that the server system hosts data about other fluid handling sites the user is not authorized to interact. *Id.* Thus, Kahn discloses this claim element. Almadi discloses determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site through its disclosure that an embodiment of an integrated node 100 can be shown, as illustrated in FIGS. 1A-1B, having a central processing unit 105 and a memory 160 to allow a remote host 110 to interface with a plurality of remote subsystems 120. 11:18-21. Integrated node is a server system. *Id*. Almadi discloses a system intended to serve in various networking operating environments, including, for example, intelligent fields for oil and gas and can be utilized and can be extended for enterprise applications. 12:48-59, 13:20-25. Almadi discloses that "those having skill in the art will appreciate various techniques to ensure no file access violations during the process of accessing the file, for example, by the remote host 300." 16:65-67. A POSITA would understand that Almadi discloses determining whether a user is authorized to interact with the fluid-handling device of the '403 Patent through its disclosure of the integrated node 100 and the various techniques to ensure no file access violations during the process of accessing the file by the remote host. Thus, Almadi discloses this element.
	[1.7] after the determination, providing, with the server system, via the network, information by which a first client computing device presents a user interface	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system's sensors. Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8-25, 29:5-37. Kahn discloses that Sensor unit 110 connects via a network to centralized data collection points. 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn discloses that the centralized data collection points are a server. 10:54-56, 23:29-30. Kahn discloses that users log into the system on respective user computing devices. 2:50-45, 25:5-12, 28:35-37, 30:45-49. Kahn

	indicating the first fluid level, the first client computing device being remote from the server system and the first computer system;	discloses a variety of users and entities having different levels of authorized access. 25:48- 26:67, *see also id.*, 2:50-60, 19:58-65, 21:50-22:44, 22:62-23:50, 24:44-25:2, 25:5- 12, 27:39-28:7. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities, to facilitate the measurement of data requested through the graphical user interface. 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. Kahn discloses that sensor units 110 detect breakage of a pipe, i.e., level of a first fluid, based on reduced water pressure in the pipe. 10:8-16. Kahn discloses that its method can be applied to monitor any fluid (gas or liquid) including those present in a distribution system, reservoir or feed source in need of monitoring. 4:4-7, 4:12-48. The sensor outputs are presented to the user through the GUI on the remote user's computer. 2:50-54, 2:61-65, 25:5-12, 26:3-7, Claim 36, FIG. 5, FIG. 6.  FIG. 6 A POSITA would recognize Kahn discloses a providing, a user interface indicating the first fluid level, the first client computing device being remote from the server system and the first computer system through its disclosure of a graphical user interface for monitoring fluid quality. Thus, Kahn discloses this claim element. Almadi discloses the first client computing device being remote from the server system and the first computer system through its

		disclosure that the DRM 166 can output any of the measurements or values by storing to a storage medium such as memory 160 or database 101, by transmitting to remote host computer 110, or by transmitting to any other computer or interface in communication with the integrated node 100 over the input/output unit, such as the local interface 190 or any computer terminal having a graphical user interface. 27:2-11. More specifically, Almadi discloses the configuration interface 190, an object-oriented graphical user interface ("GUI") having a built-in library of objects required to develop unit models and plant-wide models. 24:32-53. Almadi discloses that the configuration interface identifies routing and process streams between plants and different numbers and types of process units, such as tanks, crude switches, and other process units. *Id*. The configuration interface also allows a user to assign to a model various types of data, including reconciled readings, key performance indicators, confidence/accuracy factors, and unreconciled data (real- time and historical). *Id*. The model is also configured for any group of units and can define a mass balancing loop for the plant based on crude switches, operation scenarios, and open and closed transactions (for example, when there is a change in the level status of tanks or the operation of pumps). 25:11-17. A POSITA would understand that Almadi's user interface indicates the first fluid level. Thus, Almadi discloses this claim element.
	[1.8] receiving, with the server system, from the first client computing device, a first command to change a state of the first pump; and	Kahn discloses a facility interface module, Sensor unit 110, including a processor that connects via a network to centralized data collection points. 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities. 8:3-11, 8:21-24, 10:62-67; *see also* 14:35-15:2, 15:62-16:32, 34:7-12. A POSITA would recognize from the above disclosure that Kahn discloses receiving, with the server system, from the first client computing device, a first command to change a state of the first fluid-handling device where the command to change a state of the fluid-handling devices is the recalibration solution.

		Almadi discloses that integrated node 100 supports a local programming interface over a computer, such as through computer terminals having one or more input devices and one or more display devices that are accessible to a human user by using the remote host computer 110. 11:18-21, 12:10-15. The remote host 110 can be any type of remote host computer for management or hosting of process automation functions, for example, a SCADA host. 12:55-59. Almadi discloses that the PLC or RTU functions of the integrated node 100 enable data processing in the integrated node 100 and also enable data collection from, and control of, the plurality of remote subsystems 120. 11:51-63; 22:32-36 ("The DVRM 164 enhances the accuracy of data acquired by the integrated node 100, which also enhances the effectiveness of the integrated node 100 in controlling the plurality of remote subsystems 120."). Almadi discloses commands used by the local controller to drive the fluid handling device to a particular target state, e.g. "field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps." 1:45-49, 12:27-59; *see also* 25:26-37 ("switching a pump off if the flow is below a certain limit or activating some bounds or streams based on some readings/conditions"). A POSITA would understand from Almadi that a user command is received to change a state of the first pump. Thus, Almadi discloses this claim element.
	[1.9] causing, with the server system, the first computer system disposed at the first fluid handling site to effectuate the command by changing the state of the first pump to a sequence of different target	Kahn discloses a facility interface module, Sensor unit 110, including a processor that connects via a network to centralized data collection points. 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid-handling facilities. 8:3-11, 8:19-21, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. Kahn discloses first sensor having actuators controlling valves and pumps to manipulate fluid flow. *Id.*

	states that change over time.	A POSITA would recognize from Kahn's disclosures that Kahn discloses the limitation regarding changing the state of the first pump. Thus, Kahn discloses this claim element. Almadi discloses commands used by the local controller to drive the fluid handling device to a particular target state, e.g., "field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps." 1:45-49, 12:27-59; *see also* 25:26-37. A POSITA would understand that changing the state of the first pump of the '403 Patent is disclosed by Almadi's disclosure of changing the state of the pump based on readings/conditions including switching a pump off (from on) if the flow is below a certain limit. Thus, Almadi discloses this claim element. Claim 1 would be obvious to a POSITA over Kahn in view of Almadi.
2.	The system of claim 1, wherein: the first fluid handling site comprises a second pump and a second tank that handle a second fluid, the second tank having a second fluid-level sensor with which the first computer system is configured to communicate to obtain a level of the second fluid in the second tank, and the first computer system being configured to provide remote control of the second pump.	Kahn discloses the first fluid-handling site, in a contiguous distribution system of pipes and/or systems of reservoirs, channels, pipes and treatment plants. *Id.*, 1:46- 50, 2:1, 4:12-32. A hallmark of the system in Kahn is the ability to identify the location of and communicate with the system's sensor units. 4:12-25. Kahn expressly discloses a second, and indeed larger numbers of fluid handling devices for detecting and locating physical events in the distribution system. 10:8-13, 23:51-62. Kahn discloses that sensors units can be placed at the shut off valve located at the introduction of water supply into a house, business, industrial site or government site and that they can be placed at each individual faucet or selected faucets where it is likely that the end user 23 might drink water or otherwise consume or cause fluids to be consumed. 11:2-15; *see also* FIG. 2, 16:67-17:7. Kahn discloses a system with Sensor unit 110 that includes multiple sensors (e.g., first sensor 111A and second sensor 111B) a communication unit that connects via a network to centralized data collection points. 5:62-6:16, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn discloses that the centralized data collection points are a server. 10:54-56, 23:29-30. Kahn discloses that users log into the system on respective user computing devices. 2:50-45, 25:5-12, 28:35-37, 30:45-49. Kahn

		discloses each sensor having a pump. 8:3-15; *see also id.,* 6:41-43, 7:38-40, 7:67-8:2. Each sensor also includes two valves.8:19- 30, FIG. 1C, FIG. 1D. Sensor units 110 include a plurality of additional fluids, including recalibration solution, and reagents. 8:3-18, 8:31-34, 8:41-42. Kahn discloses recalibration fluid or reagent in the form of a replenishing supply, i.e., tracking the level of each for replenishment. 8:16-18. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities. 8:3-11, 8:19-21, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. Kahn discloses first sensor having actuators controlling valves and pumps. *Id.* Kahn also discloses that the sensor unit 110 is a fluid handling tank. 8:19-30, FIG. 1C, FIG. 1D, 15:50-16:5, FIG. 1L; 4:26-27. Sensor unit 110 measures the fluid level of the fluid in the sensor cavity to minimize the potential for fluid leakage. 16:2-5. Claim 2 is anticipated by Kahn or would be obvious to a POSITA in view of Kahn. Almadi discloses that modern industrial operations require control of multiple remote subsystems or field devices. 1:28-35. The complexity of connecting and controlling numerous field devices creates logistics problems related to the large number of controlled components. 2:4-40. Thus, Almadi discloses an integrated node to interface the numerous system components to provide a single point of control for data collection, monitoring, and restoration. 2:64-3:1. Thus, a POSITA would recognize that Almadi discloses multiples of each distributed system, both on the field device side, as well as on the user computing device side, all connected by Almadi's integrated node. More specifically, Almadi discloses that the first fluid handling site comprises a second pump and a second tank that handle a second fluid through its disclosure of a plant-wide model 704, for example, can be configured for any group of units and can define a mass balancing loop for the plant based on multiple crude switches, operation scenarios, and open and closed transactions (for example, when there is a change in the level status of tanks or the operation of pumps). 25:12-17.

		Almadi also discloses detecting a change in the level status of multiple, including second, fluids, tanks and the operation of pumps. 25:12-17. Almadi discloses the first computer system being configured to provide remote control of the second pump through its disclosure that remote subsystems 120 perform tasks including processing of measurement and control data and signal conversions, as well as to communicate with other field devices, for example, independent of the integrated node. 12:35-40. A POSITA would understand that Almadi discloses a second pump and second tank having a second fluid-level sensor through its disclosure of a plant-wide model that further discloses multiple tanks, pumps and motors, and sensor and actuator functions which are supported by a number of controllers. Claim 2 would be obvious to a POSITA over Kahn in view of Almadi.
3.	The system of claim 2, comprising: the first tank, the first pump, the first valve, the second tank, and the second pump, wherein the first fluid is water and the second fluid is oil, wherein the first tank or the second tank is an oil/water separation tank.	Almadi discloses the first tank, the first pump, the first valve, the second tank, and the second pump as discussed above for Claims 1 and 2, and incorporated herein. Kahn discloses the first tank, the first pump, the first valve, the second tank, and the second pump, wherein the first fluid is water, as discussed above for Claims 1 and 2, and incorporated herein. A POSITA would be motivated to combine the disclosures of Kahn and Almadi or Gutierrez for Claim 3. Kahn provides specific details of multiple fluid handling components to the general fluid handling system disclosures of Almadi. Gutierrez provides specific details of a general fluid handling system for oil and oil extraction waste water storage and transport, which allows remote users to monitor and control fluid handling facilities. 1:26-27. Almadi discloses that its system identifies routing and process streams between plants and different numbers and types of process units, such as tanks, crude switches, and other process units that will be known to those having skill in the art. 25:43-48. Almadi discloses the first fluid is water and the second fluid is oil through its disclosure that the present invention can serve different networking operating environments, including, for example, intelligent field devices for oil and gas. 13:20-25.

		The '403 Patent broadly states that "the fluid-handling devices may be a valve, a pump, a process chamber (for instance a oil/water separation tank), or a process filter, or level switch." 5:59-63. Similarly, Gutierrez cites "water removal or separation from hydrocarbon gasses or liquids" as a typical component of "hydrocarbon systems." 1:18-27. A POSITA would understand that water is used in oil extraction, and that an oil/water separation tank is a standard process unit in the oil and gas industry. A POSITA would understand that Almadi discloses the first or second tank being an oil/water separation tank of the '403 Patent through its disclosure of process units in the oil and gas industry. Claim 2 would be obvious to a POSITA over Kahn in view of Almadi.
6	The system of claim 1, wherein: at least some of the sequence of different target states that change over time are determined by the first computer system in response to a rate of change in the level of the first fluid in the first tank.	Almadi discloses commands used by the local controller to drive the fluid handling device to a particular target state, e.g., "field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps." 1:45-49, 12:27-59; *see also id*., 25:26-37, 12:27-59, 20:25, 23:20-25. Almadi discloses different states corresponding to different times through its disclosures related to the collection, storage, and retrieval of time-stamped process data. Abstract, FIG. 6, FIGS. 8-11; 4:30-34, 5:4-6:53, 7:26-34, 7:59-64, 8:6-45, 9:1-33, 15:38-16:50, 17:1-14, 17:29-35, 7:50-65, 19:8-14, 19:26-38, 21:23- 27, 23:10-15. A POSITA would understand that Almadi's disclosure of monitoring and collecting time-stamped process data can be done automatically or manually at different times to determine a plurality of different target states corresponding to different times, as claimed in the '403 Patent. A POSITA would understand from Almadi's disclosure to sequence of different target states that change over time are determined by the first computer system in response to a rate of change in the level of the first fluid in the first tank. Claim 6 would be obvious to a POSITA over Kahn in view of Almadi.
8.	The system of claim 1, wherein: the first computer	Almadi further discloses that each of the computer components, including integrated node 100, remote subsystems 120, and remote host computer 110, communicates through available

	system is configured to communicate with the server system via a cellular wireless connection.	wireless systems and services, including corporate Wi-Fi networks (IEEE 802.11a/b/g/n) in conjunction with cellular networks (GSM/TETRA). 13:47-60, *see also* Abstract. A POSITA would recognize that Almadi discloses the first computer system is configured to communicate with the server system via a cellular wireless connection. Claim 8 would be obvious to a POSITA over Kahn in view of Almadi.
9.	The system of claim 1, wherein the first computer system is configured to translate a plurality of commands from the server system, including the command, from an input format to a plurality of different formats and protocols configured to effectuate changes in states of a plurality of different fluid-handling devices at the first fluid handling site, the different fluid-handling devices including the first pump or the first valve.	Almadi discloses that integrated node 100 includes a protocol translator or translation server 102 to translate communications with each of the remote subsystems 120 according to any one or more of a plurality of messaging protocols (as can be shown with reference to the arrows connecting protocol translator or translation server 102 and the plurality of remote subsystems 120). 14:10-17, FIG. 1B; *see also* 11:35-41. Almadi discloses a command, from an input format to a plurality of different formats and protocols configured to effectuate changes in states of a plurality of different fluid-handling devices at the first fluid handling site, the different fluid-handling devices including the first pump or the first valve through its disclosure that the protocol translator or translation server 102 supports communications according to various protocols, including serial and Ethernet physical interfaces. 14:17-28; *see also* FIG. 2D. Almadi discloses translated commands used by the local controller to drive the fluid handling device to a particular target state. 1:45-49, 12:27-59, 14:10-32, 25:26-37. A POSITA would understand that the use of different protocols by the protocol translator requires that the protocols including command must be identified and translated to be used by various fluid-handling devices. A POSITA would further understand that the translated protocols include commands to change the states in the fluid-handling devices including pump or valves as claimed in the '403 Patent. Claim 9 would be obvious to a POSITA over Kahn in view of Almadi.
10.	The system of claim 9, wherein	Almadi discloses translating the plurality of commands comprises steps for translating commands through its disclosure

	translating the plurality of commands comprises steps for translating commands.	that integrated node 100 can further include a protocol translator or translation server 102 to translate communications with each of the remote subsystems 120 according to any one or more of a plurality of messaging protocols. 14:10-17, FIG. 1B; *see also* 11:35-41. Almadi discloses that the protocol translator or translation server 102 can be configurable, such as being configured by a user. 14:17-28; *see also* FIG. 2D. Almadi discloses translated commands used by the local controller to drive the fluid handling device to a particular target state, e.g. "field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps." 1:45-49, 12:27-59, 14:10-32, 25:26-37. A POSITA would understand that use of different protocols by the integrated node and remote subsystems involves the protocol translator performing steps for translating commands as claimed in the '403 Patent. Claim 10 would be obvious to a POSITA over Kahn in view of Almadi.
11.	The system of claim 9, wherein the plurality of different formats and protocols comprise: modbus protocol; and analog electrical signals.	Almadi discloses that a protocol translator or translation server 102 can be configurable and supports communications according to various protocols, including Serial Modbus, Modbus over IP (Internet Protocol). 14:17-28, FIG. 1B. Almadi further discloses a plurality of different formats and protocols comprise: analog electrical signals through its disclosure that the input/output unit 104 can support, for example, any of analog inputs, analog outputs, digital inputs, digital outputs, pulse inputs, and pulse outputs for both wired and wireless instrumentation interfaces. 13:64-67. A POSITA would understand that Almadi discloses a modbus protocol and analog electrical signals. Claim 11 would be obvious to a POSITA over Kahn in view of Almadi.
12.	The system of claim 9, wherein at least some of the plurality of different fluid-handling devices	Almadi discloses that integrated node 100 is a PLC, meaning any programmable logic controller PLC, RTU, computer, server, system, node, or unit. 11:18-28. Almadi also discloses that integrated node 100 supports proportional-integral-derivative control (PID), closed loop control, open loop control, and logic and sequence functions. 12:15-17.

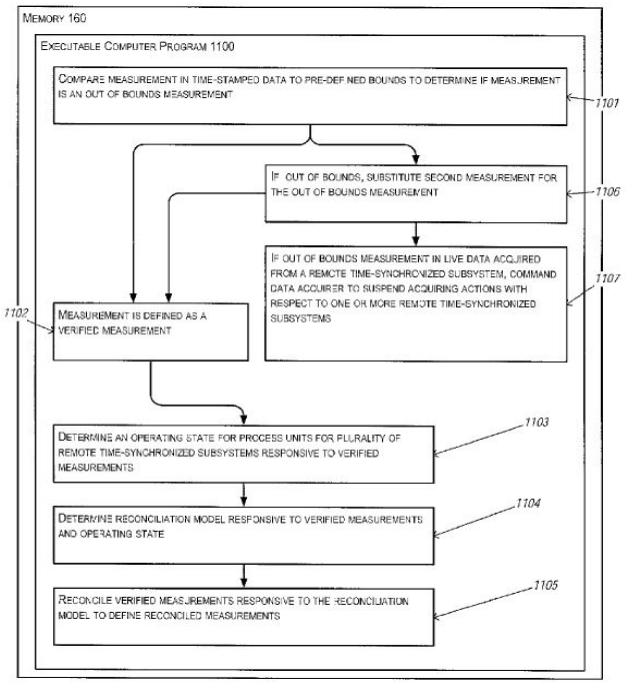
	comprise proportional-integral-derivative controllers configured to drive respective fluid-handing devices to different target setpoints determined by the first computer system responsive to corresponding commands from the server system.	Almadi discloses that the fluid-handling devices also include PLC, meaning any PLC, RTU, PLC with RTU functionality, RTU with PLC functionality, or any type of computer, terminal, server, system, node, or unit that can incorporate PLC or RTU functionality or both. 11:22-27. Almadi discloses that the local controller uses commands to drive the fluid handling device to a particular target state. 1:45-49, 12:27-59, 14:10-32, 25:26-37. A POSITA would understand that the fluid handling device's programmable logic controller of Almadi is a proportioned integrated derivative controller because they are used to regulate temperature, flow pressure, spool, and other process variables in the control system. Claim 12 would be obvious to a POSITA over Kahn in view of Almadi.
13.	[13.1] The system of claim 9, wherein: the first computer system is coupled to at least some of the plurality of different fluid handing devices via a bus; and	Almadi discloses coupling through a bus through its disclosure that network communication links 125 includes a logical bus. 11:31-35, 13:26-30, FIG. 1A;. Almadi also discloses that in addition to analog communications using the standard analog signal, digital networks can be used to communicate, such as the Field Bus type 61158. 14:3-9. Thus, Almadi discloses this claim element.
	[13.2] the first computer system comprises means for controlling which fluid handling devices are permitted to transmit signals on the bus at a given point in time.	Kahn and Almadi disclose remotely communicating to control fluid handling devices in Claim 1.8, above, herein incorporated by reference. Almadi discloses the first computer system comprises means for controlling which fluid handling devices are permitted to transmit signals on the bus at a given point in time through its disclosure that network communication links 125 may include a logical bus; 13:26-30; *see also id*., 14:3-9. A POSITA would understand that commands can be sent via a bus at any given time and that Almadi's disclosure using analog signals and digital networks to communicate via a bus is the plurality the transmission of signals on a bus at a given time at the '403 Patent. Thus, Almadi discloses this claim element.

		Claim 13 would be obvious to a POSITA over Kahn in view of Almadi.
14.	The system of claim 9, wherein the plurality of different formats and protocols comprise three different protocols communicated over three different types of control busses to corresponding fluid handling devices among the plurality of different fluid handing devices.	Kahn and Almadi disclose a plurality of different fluid handling devices. *See* Claim 2 (Kahn), above, and 11:18-21, herein incorporated by reference. Almadi discloses three different protocols communicated over three different types of control busses to corresponding fluid handling devices among the plurality of different fluid handing devices through its disclosure of various protocols, including over serial and Ethernet physical interfaces. 14:22-28. A POSITA would recognize that Almadi discloses three different protocols in the above disclosure. Claim 14 would be obvious to a POSITA over Kahn in view of Almadi.
15.	The system of claim 9, wherein two of the plurality of different formats and protocols comprise binary frames with redundant bits used to detect errors.	Almadi discloses two of the plurality of different formats and protocols comprise binary frames with redundant bits used to detect errors through its disclosure that the DRM 166 includes instructions to detect gross errors in reconciled measurements 715 to determine a confidence level for reconciled values and a probability of gross error existence and, further, can flag 716 values that exceed a preselected confidence level 713. 26:41-49. Almadi further discloses that DRM 166 has instructions for eliminating gross errors by removing measurements 717 with detected gross errors according to a preselected priority scheme 718, which includes: (i) giving the priority to remove measurements with larger magnitude of corrections; or (ii) giving the priority to 60 remove measurements with highest impact on the total sum of reconciliation run penalty. 26:50-61. A POSITA would understand that from Almadi's disclosure of the detection and elimination of errors in data suggests that the system disclosed in Almadi sends redundant bits with the reconciled measurement data, with the redundant bits added by the sender and removed by the receiver to allow the receiver to detect or correct corrupted bits. Claim 15 would be obvious to a POSITA over Kahn in view of Almadi.

16.	The system of claim 9, wherein the plurality of different formats and protocols comprise command code format, an on-off signal format, and an application-program interface format.	Almadi discloses the plurality of different formats and protocols as disclosed above in Claim 14 and incorporated herein by reference. *See* 14:17-28. A POSITA would understand that the above-described protocols include different formats include command code format, on-off format, and application program interference. Claim 16 would be obvious to a POSITA over Kahn in view of Almadi.
17.	The system of claim 9, wherein the first computer system is configured to operate in an automatic mode, a mixed automatic mode, and a manual mode.	Kahn discloses manual and automatic mode for the reasons stated in Claims 1.2, 1.9, 4, and 5, above, and incorporated by reference herein. The '403 Patent explains that in a mixed automatic mode "the user selects which devices are manually controlled while other devices are automatically controlled." 10:18-23. A POSITA would understand that Kahn's disclosure of manual and automatic mode that Kahn also discloses mixed automatic mode within the meaning of the '403 Patent because Kahn discloses a plurality of fluid handling devices that may be separately controlled. *See* Claim 2 above, and incorporated by reference herein. Almadi discloses the first computer system is configured to operate in an automatic mode, a mixed automatic mode, and a manual mode through its disclosure that field devices incorporate robust functionality, such as the ability to process data, self-monitor, self-regulate, self-calibrate, or provide early warning with respect to malfunctions or predictive maintenance. 1:53-57. A POSITA would understand that Almadi's disclosure of self-monitoring, self-regulating and self-calibrating is to the operation of the first computer system in an automatic mode of the '403 Patent. A POSITA would further understand that a computer system configured to operate in an automatic mode can also be configured to operate in a manual mode and a mixed automatic/manual mode.

		Claim 17 would be obvious to a POSITA over Kahn in view of Almadi.
18.	The system of claim 17, wherein the automatic mode comprise executing s [sic] process recipe in which a collection of set points are targeted.	Almadi discloses executing a process recipe in which a collection of set points are targeted through its disclosure that "[u]pon receiving the time-stamped process data from a remote subsystem, the integrated node can determine whether the time-stamped process data constitutes an exception based on pre-defined exception criteria." 17:1-14. "A computer program product, which can be shown, for example, with reference to FIG. 8, FIG. 9, and FIG. 10, having instructions for such detection by comparing exception criteria 811 can be executed either at the integrated node, at the remote subsystem or at the remote host." *Id*. A POSITA would understand that Almadi's disclosure of providing instructions for exception detection by comparing exception criteria is the executing a process recipe targeting set points in the '403 Patent. Claim 18 would be obvious to a POSITA over Kahn in view of Almadi.
19.	The system of claim 9, wherein translating the plurality of commands comprises steps for identifying protocols and control busses.	Almadi discloses steps for identifying protocols and control busses through its disclosure that a protocol translator or translation server 102 can be configurable, for example through a configuration tool interface, to support communications according to various protocols, including various protocols over serial and Ethernet physical interfaces. 14:17-28. A POSITA would understand that configuring the protocol translator includes steps for identifying protocols and control busses. Thus, Almadi discloses steps for identifying protocols and control buses. Claim 19 would be obvious to a POSITA over Kahn in view of Almadi.
20.	The system of claim 1, wherein the first computer system comprises a protocol multiplexer.	Almadi discloses a protocol multiplexer through its disclosure of the use of an integrated system, e.g., an embodiment of an integrated node, provides for a central point of control to enforce time synchronization for the data and among the host, subsystems, and upper application layers . . . [the]integrated node advantageously combine[s] a TCP/IP Ethernet Switch, PLC or RTU logic, input/output interfaces supporting multiple communication protocols and enabled with data storage capability, FTP client/server support, and OPC interface capabilities. 3:48-56. A POSITA would understand from Almadi's disclosure of the combination of the TCP/IP Ethernet switch, PLC logic, and input/output interfaces that a protocol multiplexer is required by the first computer system to combine the aforementioned

		protocols. Claim 20 would be obvious to a POSITA over Kahn in view of Almadi.
21.	The system of claim 1, wherein the first computer system comprises a site-management module implemented with multiple threads.	Almadi discloses a site-management module through its disclosure that an integrated node can comprise a PLC or RTU, or employ the functionality of a PLC or RTU, for example through hardware or software, to issue commands and collect and process data according to multiple process automation protocols. 3:24-28. Almadi further discloses a site-management module implemented with multiple threads through its disclosure that embodiments of a computer program comprise a set of instructions to be executed on the processor. 6:27-36. A POSITA would understand that Almadi's disclosure of a set of instructions executed on the PLC or RTU is a site-management module with multiple threads which is a sequence of program and instructions. Thus, Almadi discloses a site-management module implemented with multiple threads. Claim 21 would be obvious to a POSITA over Kahn in view of Almadi.
22.	The system of claim 1, wherein the first computer system comprises means for implementing remotely issued commands, such that once remotely issued commands are issued and received, the remotely issued commands are executed to completion even if Internet access is lost before the commands are fully executed.	Almadi discloses that modern field devices monitor and collect data, such as measurements of fluid pressure, temperature, or flow, reflective of the operations of the automated process. 1:28-57. Almadi further discloses that modern field devices may be termed "intelligent field devices," generally, in the sense that they may also incorporate more robust functionality, such as the ability to process data, self-monitor, self-regulate, self-calibrate, or provide early warning with respect to malfunctions or predictive maintenance. 1:18-57. Almadi discloses that remote subsystems 120 can include a variety of intelligent field systems. *See generally*, 12:27-59. A POSITA would understand Almadi's disclosure of monitoring and collecting data determines a plurality of different target states of a given one of the fluid-handling devices over time. A POSITA would further understand from Almadi's disclosure that "intelligent field devices" process data, self-monitor, self-regulate, and self-calibrate among other operations necessary to maintain control of the fluid handling devices without requiring network connectivity to a command center server. *Id.* A POSITA would understand from the disclosure in Almadi that commands sent to the fluid-handling device would continue to executed over if a network connection is lost because the fluid-handling device will continue to operate autonomously. Claim 22 would be obvious to a POSITA over Kahn in view of Almadi.

23.	The system of claim 1, wherein the first computer system is configured to receive another command, determine the another command will cause the first fluid handing site to violate a constraint, and determine not execute the another command.	Almadi discloses the data filtering procedures cdetect measurement data outside of the preselected bounds, for example, command 612 the plurality of remote subsystems 120 or the data acquirer 161 to deactivate or suspend measurement or data acquisition functions, for example, according to instruction 1107. 23:35-40, FIG. 11.  ***FIG. 11*** A POSITA could understand that Almadi's disclosure of detecting measurement data outside of the preselected bounds is the determining whether a command will violate a constraint. A POSITA would further understand that the deactivation or suspend measurements or data acquisition function is the determining not to execute the another command. Claim 23 would be obvious to a POSITA over Kahn in view of Almadi.
25.	The system of claim 1, comprising: a second computer system disposed at a second fluid handling site that is remote from the first fluid handling site, the first fluid handling site	Kahn and Almadi disclose a plurality of different fluid handling devices/components and fluid handling sites. *See* Claims 1.2 and 2 (Kahn), above, and 11:18-21, herein incorporated by reference. Almadi discloses a second computer system disposed at a second fluid handling site that is remote from the first fluid handling site through its disclosure that "that the present invention can be embodied in multiple computer program products, multiple computer program products and hardware products, or combined in a single computer program product having the functionality of other computer program products described further herein." 18:48-53.

	being an oil or gas well and the second fluid handling site being a saltwater disposal facility, the second computer system being configured to control a second pump or a second valve at the second facility responsive to commands from the server system.	Gutierrez discloses "hydrocarbon systems that transport hydrocarbon fluids, such as oil and/or gas or other fluids," as well as "water removal or separation from hydrocarbon gasses or liquids." 1:18-32. Almadi discloses the second fluid handling site being a saltwater disposal facility through its disclosure that the present invention is not limited to the use of remote automation subsystems in any particular industry, sector, or operating environment, and can serve different networking operating environments. 12:48-55. A POSITA would understand from Almadi or Gutierrez that these systems are particularly oil and gas used at saltwater disposal facilities. A POSITA would recognize from Kahn and Almadi's discussion of multiple hardware products and multiple motors and pumps that a second computer system can be configured to control a second pump or valve of a second facility. Claim 25 would be obvious to a POSITA over Kahn in view of Almadi.
26.	The system of claim 1, wherein: receiving a first fluid level sensed by the fluid-level sensor comprises receiving a buffered fluid level reading pushed by the first computer system to the server system along with alarms and measurements from other sensors, the other sensors including a temperature sensor and a pressure sensor.	Almadi discloses that when the computer program product having instructions is executed at the remote subsystem the remote subsystem communicates an alarm to the integrated node to be received by the integrated node. 5:24-27. Almadi further discloses in Figure 9 buffering data transmissions (including fluid level readings) in the communication link between the integrated node and the remote host.

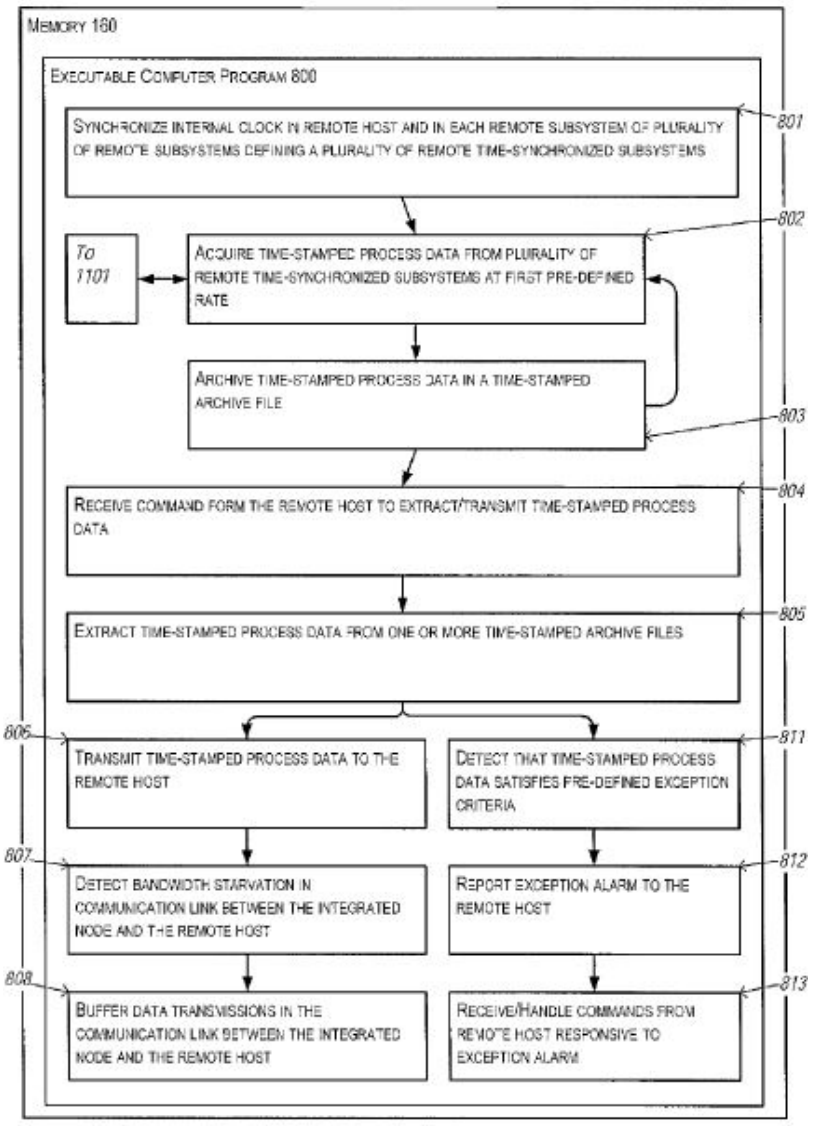
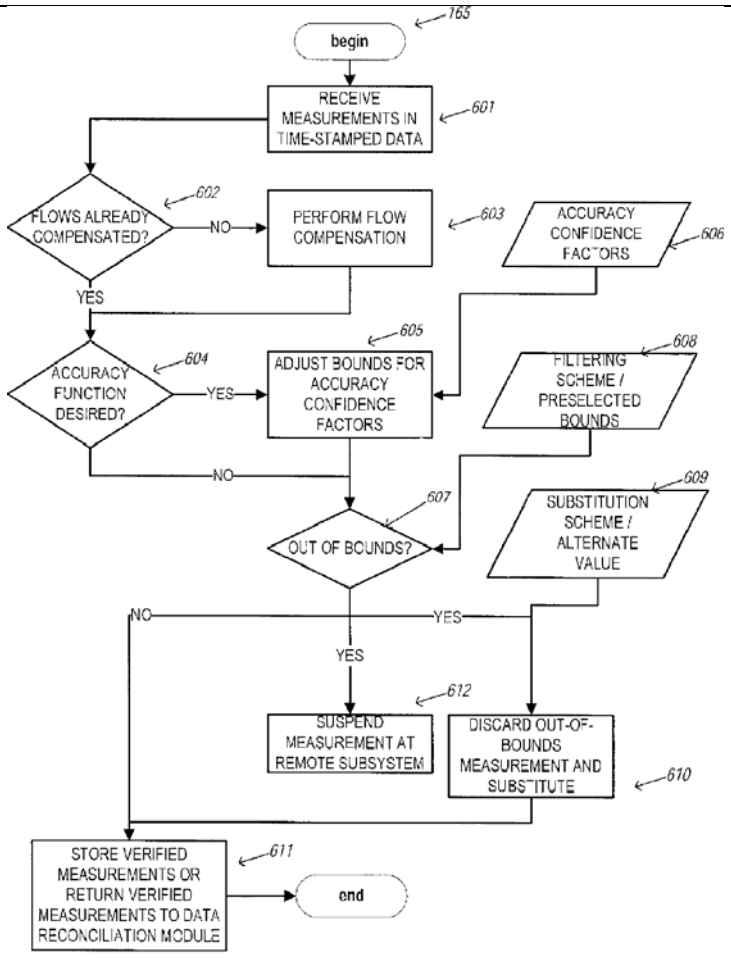


FIG. 8

Almadi discloses that the other sensors including a temperature sensor and a pressure sensor through its disclosure that field devices perform sensor functions to sense operational information and variables such as temperature, pressure, pH, or flow rate and deliver that information to the system-level controller devices. 1:41-45, 12:27-32.

Kahn discloses that data, such as chemical fingerprint information "downloaded into," i.e., pushed into, the sensor units, with intermittent updates available from the centralized data collection points. 9:48-10:7.

		A POSITA would understand that Almadi discloses this limitation through its disclosure of field devices that perform sensor functions to sense operational information and variables such as temperature, pressure, pH, or flow rate and deliver that information to the system-level controller devices. Claim 26 would be obvious to a POSITA over Kahn in view of Almadi.
27.	The system of claim 1, wherein: receiving a first fluid level sensed by the fluid-level sensor comprises receiving a buffered fluid level reading pulled by the server system from the first computer system along with alarms and measurements from other sensors, the other sensors including a temperature sensor and a pressure sensor.	Almadi discloses receiving a first fluid level sensed by the fluid-level sensor comprises receiving a buffered fluid level reading pulled by the server system from the first computer system along with alarms and measurements from other sensors, the other sensors including a temperature sensor and a pressure sensor through its disclosure that field devices perform sensor functions to sense operational information and variables such as temperature, pressure, pH, or flow rate and deliver that information to the system-level controller devices. 1:41-45, 12:27-32. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities, and to facilitate the measurement of data requested by the user through the graphical user interface, i.e., in a pull request. 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. A POSITA would understand that Almadi discloses this limitation through its disclosure of field devices that perform sensor functions to sense operational information and variables such as temperature, pressure, pH, or flow rate and deliver that information to the system-level controller devices. Claim 27 would be obvious to a POSITA over Kahn in view of Almadi.
28.	The system of claim 1, comprising: a controller by which the first computer system is coupled to an actuator of the first pump or valve, wherein the controller is configured to exercise feedback control of the actuator according to	Almadi discloses a controller by which the first computer system is coupled to an actuator of the first pump or valve through its disclosure that sensor and actuator functions, at the process level, are supported by a controller or a number of controllers, at the system level, which receive information from the sensors and transmit information to the actuators. 1:45-52; *see also id.* 25:26-37, 22:50-64.

	setpoints corresponding to respective target states of the sequence of different target states.	 ***FIG. 6*** A POSITA would recognize from Almadi's disclosures that the remotes subsystems can output measurement data which is then verified and reconciled with the verified measurement data used by the controller to exercise feedback control of the actuator based on set points. Claim 28 would be obvious to a POSITA over Kahn in view of Almadi.
29.	[29.1] The system of claim 1, wherein: the first computer system comprises a site master controller;	Almadi discloses this element for the reason stated in Claim 1.2 above, and incorporated by reference herein. A POSITA would understand that Almadi's disclosure of a plurality of remote systems that include intelligent equipment devices that incorporate PLC or RTU functionally is the first computer system comprising a site master controller claimed in the '403 Patent. Thus, Almadi discloses this claim element.
	[29.2] the server system comprises a command-center server	Almadi discloses the server system comprises a command-center server configured to provide user interfaces by which a plurality of users monitor and control a plurality of different site master controllers through its disclosure that the integrated node 100

	configured to provide user interfaces by which a plurality of users monitor and control a plurality of different site master controllers, including the site master controller of the first computer system, associated with a plurality of different accounts.	also supports a local programming interface over a computer, such as through computer terminal accessible to a human user or the remote host computer 110. 12:10-15. Kahn discloses the site master controller of the first computer system, associated with a plurality of different accounts as discussed in Claim 2 above and incorporated herein by reference. A POSITA would understand that Kahn and Almadi disclose this limitation through its disclosure of the multiple computer programs and hardware products which would include a plurality of users and plurality of site master controllers. Thus, Almadi discloses this claim element. Claim 29 would be obvious to a POSITA over Kahn in view of Almadi.
30.	[30.1] A system, comprising: [30.2] a first computer system disposed at a first fluid handling site, the first fluid handling site comprising a first pump, a first valve, and a first tank that handle a first fluid, the first tank having a first fluid-level sensor with which the first computer system is configured to communicate to obtain a level of the first fluid in the first tank, and the first computer system being configured to provide remote control of the	Kahn and Almadi discloses systems for the reasons discussed above in Claim and incorporated herein. Kahn and Almadi disclose claim element 30.2 for the reasons discussed above in claim 1.2 and incorporated herein. Kahn and Almadi disclose claim element 30.3 for the reasons discussed above in Claim 1.3 and incorporated herein. Kahn and Almadi disclose claim 30.4 element for the reasons discussed above in Claim 1.4 and incorporated herein. Kahn and Almadi disclose claim element 30.5 for the reasons discussed above in Claim 1.5 and incorporated herein. Kahn and Almadi disclose claim element 30.6 for the reasons discussed above in Claim 1.6 and incorporated herein. Kahn and Almadi disclose claim element 30.7 for the reasons discussed above in Claim 1.7 and incorporated herein. Kahn and Almadi disclose claim element 30.8 for the reasons discussed above in Claim 1.8 and incorporated herein. Kahn and Almadi disclose claim element 30.9 for the reasons discussed above in Claim 1.9 and incorporated herein. Kahn and Almadi disclose claim element 30.10 for the reasons discussed above in Claim 2 and incorporated herein. Kahn and Almadi disclose claim element 30.11 for the reasons discussed above in Claim 3 and incorporated herein. Kahn and Almadi disclose claim element 30.12 for the reasons discussed above in Claim 9 and incorporated herein. Claim 30 would be obvious to a POSITA over Kahn in view of Almadi.

	first pump or the first valve; and	
	[30.3] a server system remote from the fluid handling site, wherein the server system has memory storing instructions that, when executed, effectuate operations comprising:	
	[30.4] receiving, with the server system, from the first computer, via a network, a first fluid level sensed by the fluid-level sensor;	
	[30.5] obtaining, with the server system, credentials from a first client computing device;	
	[30.6] determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site, wherein the server system hosts data about	

	other fluid handling sites the user is not authorized to interact;	
	[30.7] after the determination, providing, with the server system, via the network, information by which a first client computing device presents a user interface indicating the first fluid level, the first client computing device being remote from the server system and the first computer system;	
	[30.8] receiving, with the server system, from the first client computing device, a first command to change a state of the first pump; and	
	[30.9] causing, with the server system, the first computer system disposed at the first fluid handling site to effectuate the command by changing the state of the first	

	pump to a sequence of different target states that change over time, wherein:	
	[30.10] the a first fluid handling site comprises a second pump and a second tank that handle a second fluid, the second tank having a second fluid-level sensor with which the first computer system is configured to communicate to obtain a level of the second fluid in the second tank, and the first computer system being configured to provide remote control of the second pump;	
	[30.11] the first tank, the first pump, the first valve, the second tank, and the second pump, wherein the first fluid is water and the second fluid is oil, wherein the first tank or the second tank is an oil/water separation tank; and	

	[30.12] the first computer system is configured to translate a plurality of commands from the server system, including the command, from an input format to a plurality of different formats and protocols configured to effectuate changes in states of a plurality of different fluid-handling devices at the first fluid handling site, the different fluid-handling devices including the first pump.	

Exhibit E-3

Invalidity Claim Chart for U.S. Patent No. 11,294,403 ("the 403 patent")

In view of

US 7,424,399 ("Kahn")

alone or taken together with

64utah-SCADA

Brochure-VTScada-FeaturesByVersion

sys_wht_ppr-2a_new

CR1000 Datalogger – Brochure

TM 5-601 Supervisory Control

The asserted claims of '403 patent are anticipated and/or rendered obvious by Kahn alone or combination with 64utah-SCADA, Brochure-VTScada-FeaturesByVersion, scada_sys_wht_ppr-2a_new, CR1000 Datalogger – Brochure, TM 5-601 Supervisory Control and identified in Defendant Preliminary Invalidity Contentions.

U.S. Patent No. 7,424,399 ("Kahn") was filed on June 09, 2006, published on March 01, 2007 and issued on September 09, 2008. Kahn is prior art under at least 35 U.S.C. 102(a).

64utah-SCADA was published in 2012. 64utah-SCADA is prior art under at least 35 U.S.C. 102(a).

Brochure-VTScada-FeaturesByVersion was published in 2016 (continuously updated since 2007). Brochure-VTScada-FeaturesByVersion is prior art under at least 35 U.S.C. 102(a).

scada_sys_wht_ppr-2a_new was published in 2007. scada_sys_wht_ppr-2a_new is prior art under at least 35 U.S.C. 102(a).

CR1000 Datalogger – Brochure was published in June 2004 and 2008. CR1000 Datalogger – Brochure is prior art under at least 35 U.S.C. 102(a).

TM 5-601 Supervisory Control was published on January 21, 2006. TM 5-601 Supervisory Control is prior art under at least 35 U.S.C. 102(a).

The citations to portions of any reference in this chart are exemplary only. Defendant will rely on the entirety of the reference cited in this chart, as well as any additional materials relevant to the reference identified through their ongoing investigation, to show that the asserted claims are invalid.

Claim#	Claim Language	Kahn, 64utah-SCADA, Brochure-VTScada-FeaturesByVersion, scada_sys_wht_ppr-2a_new, CR1000 Datalogger – Brochure, TM 5-601 Supervisory Control
1.	[1.1] A fluid-processing system, comprising:	To the extent that the preamble is found to be limiting, Kahn discloses a method. 1:28-36, Claims 1-29, (a POSITA would recognize disclosure). Therefore, Kahn discloses a method. Further 64utah-SCADA discloses a fluid processing system. 64utah-SCADA recites, "The systems connect with numerous sensors via a Campbell multiplexer to monitor parameters such as flow and pressure from water sources into tanks, flow and pressure from tanks into the towns, tank level, and flood conditions at the building housing the system. The CR1000 uses a Campbell SDM-CD8S dc device controller to control pumps and valves, with each town controlling the valves to allow or disallow the water flowing to the other." *See* 64utah-Scada, page 2. Also, 64utah-Scada recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* 64utah-Scada, page 2. Further, Brochure-VTScada-FeaturesByVersion discloses fluid processing system. Brochure-VTScada-FeaturesByVersion recites, "The simplest way to access your process from smart phones or tablets. This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* Brochure-VTScada-FeaturesByVersion, page 4. Further scada_sys_wht discloses a system for fluid processing. scada_sys_wht, recites, "Remote monitoring and control of oil and gas production, pumping, and storage at refineries from both offshore platforms and onshore wells". *See* page 2. Scada_sys_wht further recites, "The RTU or PLC acquires the site data, which includes meter

		readings, pressure, voltage, or other equipment status, then performs local control and transfers the data to the central SCADA system."
	[1.2] a first computer system disposed at a first fluid handling site, the first fluid handling site comprising a first pump, a first valve, and a first tank that handle a first fluid, the first tank having a first fluid-level sensor with which the first computer system is configured to communicate to obtain a level of the first fluid in the first tank, and the first computer system being configured to provide remote control of the first pump or the first valve; and	Kahn discloses a system with Sensor unit 110 that includes multiple sensors (e.g., first sensor 111A and second sensor 111B) a communication unit that connects via a network to centralized data collection points. 5:62-6:16, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn discloses Sensor unit 110 having a processor that connects via a network to centralized data collection points. *Id.* A hallmark of the distribution system in Kahn is the ability to identify the location of and communicate with the system's individual sensor units. 4:12-25, 11:2-15; *see also id.*, 10:8-13; 23:51-62. Kahn discloses that the production sites are unique, disclosing separate control systems for designated location, i.e. fluid handling site. 16:40-18:52. Sensor unit 110 can be located at any desired point in a fluid distribution system. 11:2-15. Kahn discloses that the fluid-handling site includes a first pump, a first filter, and a first valve. 8:6-7, 8:19-30; 10:62-67, 11:2-5, 11:18-13:58, 13:34-36, 15:50-16:5, 16:56, 20:64-67, 21:1, FIG. 1C-FIG. 1D., FIG. 1F, FIG. 1G. Kahn discloses a first fluid tank disposed at the first fluid-handling site through its disclosure of distribution systems that include fluids in tanks, including reservoirs, wells, large pools, and water treatment plants. 1:46-50, 2:1, 4:12-32. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities. 8:3-11, 8:19-21, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. Kahn discloses first sensor having actuators controlling valves and pumps. *Id*. Kahn discloses that sensor units 110 detect breakage of a pipe, i.e. level of a first fluid, based on reduced water pressure in the pipe. 10:8-16. Kahn discloses that its method can be applied to monitor any fluid

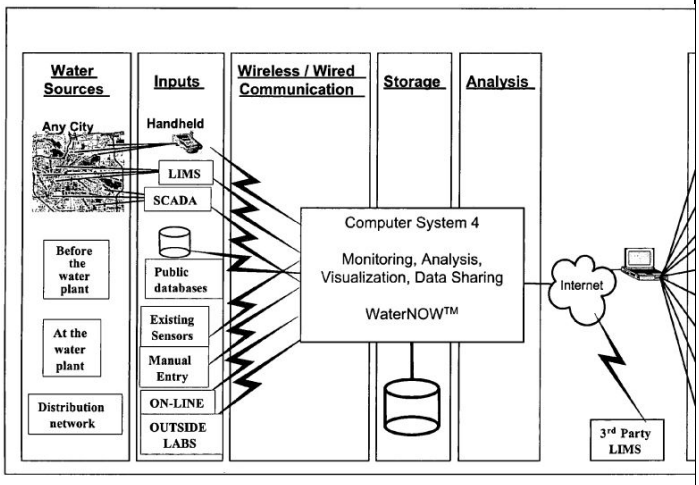
		(gas or liquid) including those present in a distribution system, reservoir or feed source in need of monitoring. 4:4-7, 4:12-48. A POSITA would understand that Kahn discloses receiving information comprising fluid level properties from one or more sensors disposed at a first fluid- handling site, the fluid-handling site through its disclosure of a computer system that receives first fluid test data from sensors. A POSITA would also understand that Kahn comprising one or more fluid- handling devices comprising one or more of a first pump, a first filter, and a first valve through its disclosure valves, filters, and a pump. *Id.* Finally, A POSITA would understand that the system disclosed in Kahn includes a tank through its disclosure of distribution systems that includes reservoirs, water treatment plants, and contain water, all of which includes tanks. *Id.* Thus Kahn discloses this claim element. Further 64utah-SCADA discloses a controlling system disposed at the site. 64utah-SCADA recites, "The systems connect with numerous sensors via a Campbell multiplexer to monitor parameters such as flow and pressure from water sources into tanks, flow and pressure from tanks into the towns, tank level… The CR1000 uses a Campbell SDM-CD8S dc device controller to control pumps and valves, with each town controlling the valves to allow or disallow the water flowing to the other." *See* 64Utah-SCADA, page 2. Further CR1000 Datalogger – Brochure discloses a controlling system disposed at the site. CR1000 Datalogger – Brochure recites, "The module measures sensors, drives direct communications and telecommunications, reduces data, controls external devices, and stores data and programs in on-board, non-volatile storage." *See* page 2. Further TM 5-601 discloses a controlling system disposed at the site, "The RTUs were developed

		primarily to provide monitoring and control capability at unattended sites such as substations, metering stations, pump stations, and water towers." *See* page 3-4. Further scada_sys_wht_ppr-2a_new discloses a controlling system disposed at the site. Scada_sys_wht_ppr-2a_new recites, "RTUs that contain a 200 MHz, 500 Million Instructions per Second (MIPS) CPU with multiple communication port support are optimal for performing simultaneous communications, networking, and control tasks." *See* page 5.
	[1.3] a server system remote from the fluid handling site, wherein the server system has memory storing instructions that, when executed, effectuate operations comprising:	Kahn discloses a data collection network with centralized data collection points. 8:51-59, 9:53-58, 17:18-30, 18:48-52, 63-65, 19:5-23, 19:58-65, 23:27-31. Kahn discloses that the centralized data collection point is a server. 10:52-61, 23:27-31. Kahn discloses that servers are computers, i.e., include processors. 32:58-63. Kahn discloses that processing unit is a generic term meaning one or more processing units programmed at a software, firmware, or hardware level, including, ASIC (application-specific integrated circuit). 4:49-53. Kahn discloses that the server system has memory storing instructions for its operation. 8:54-59, 33:4-14, 33:15-21. A POSITA would understand from the above disclosure of a central communication device, e.g., a server, that Kahn discloses a server system wherein the server system has memory storing instructions. Thus, Kahn discloses this claim element. 64utah-SCADA, discloses a remote system to receive data. 64utah-SCADA recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 2. Further Brochure-VTScada-FeaturesByVersion, discloses a server for user to control the site.

		Brochure-VTScada-FeaturesByVersion recites, "This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* page 4. Brochure-VTScada-FeaturesByVersion further recites, "This optional feature, introduced in 10, allows authorized users to see changes made on all servers, roll back to previous versions and merge versions together." *See* page 4.
	[1.4] receiving, with the server system, from the first computer, via a network, a first fluid level sensed by the fluid-level sensor;	Kahn discloses a data collection network with centralized data collection points. 8:51-59, 9:53-58, 17:18-30, 18:48-52, 63-65, 19:5-23, 19:58-65, 23:27-31. Kahn discloses that the centralized data collection points receive sensor information via a network from a facility interface module, Sensor unit 110. 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn discloses that sensor units 110 detect breakage of a pipe, for example the level of a first fluid, based on reduced water pressure in the pipe. 10:8-16. Kahn discloses that its method can be applied to monitor any fluid (gas or liquid) including those present in a distribution system, reservoir, or feed source in need of monitoring. 4:4-7, 4:12-48. A POSITA would understand from the above disclosure and figures Kahn discloses receiving, with the server system, from the first computer system, via a network, a level associated with the first fluid sensed by a first sensor of one or more sensors. Thus, Kahn discloses this claim element. 64utah-SCADA, discloses getting a fluid level. 64utah-SCADA recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 2.

		Further Brochure-VTScada-FeaturesByVersion, discloses server receiving a fluid level. Brochure-VTScada-FeaturesByVersion recites, "This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch."
	[1.5] obtaining, with the server system, credentials from a first client computing device;	Kahn discloses that any suitable technique can be used to verify that the identity of a present user is an authorized user of the device. 25:1-2; 28:35- 37 ("After the user has "logged in" to the service by inputting a username and password in a conventional manner"). Kahn further discloses that an authorized Account A (first user 5 a) can be authorized by a first entity. 25:48-51. Finally, Kahn discloses that an authorized Account B (second user 5 b) second user can be authorized by a second entity. 25:55-58. A POSITA would understand from Kahn's disclosure of authenticated accounts and suitable techniques for verification of the identity of present users as authorized users that Kahn discloses that credentials can be obtained from a first client computer. This Kahn discloses this claim element. Further Brochure-VTScada-FeaturesByVersion discloses getting a user credential. Brochure-VTScada-FeaturesByVersion recites, "To reduce duplication and ensure consistency, accounts can now be shared across applications. The security database scheme now employs military-grade encryption as does the security information exchanged between the VTScada Internet Client and Server. Accounts can also now be disabled following repeated failed log-in attempts." *See* page 4. A POSITA would understand that for log-in attempts, the user has to provide with credential. Hence, Brochure-VTScada-FeaturesByVersion describes the sited claim element.
	[1.6] determining, with the server system, based on the credentials, that a user of the first client computing	Kahn discloses determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site through its disclosure of that

	device is authorized to interact with the first fluid handling site, wherein the server system hosts data about other fluid handling sites the user is not authorized to interact;	an authorized Account A (first user 5a) can be authorized by a first entity. 25:48-26:67. Kahn further discloses that an authorized Account B (second user 5 b) second user can be authorized by a second entity. 25:55-58. Kahn discloses that "separate entities provide their fluid test data to the computer system 4 controlled by the service provider (an entity different from the first and second entities), and the first and second entities can control access to data generated by their respective sensors." 25:63- 66. Kahn discloses that server system hosts data about other fluid handling sites the user is not authorized to interact through its disclosure that only fluid test measurements which the user is authorized to see are displayed. 28:43- 45, 25:48-26:67, *see also id*., 2:50-60, 19:58-65, 21:50-22:44, 22:62-23:50, 24:44-25:2, 25:5-12, 27:39-28:7. A POSITA would recognize that Kahn discloses determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site from its disclosure of multiple- user accounts which only permits access to certain aspects of test data and the computer system. A POSITA would further understand that the server system hosts data about other fluid handling sites the user is not authorized to interact. *Id.* Thus, Kahn discloses this claim element.
	[1.7] after the determination, providing, with the server system, via the network, information by which a first client computing device presents a user interface indicating the first fluid level, the first client computing device being remote from the server system and the first computer system;	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system's sensors. Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8-25, 29:5-37. Kahn discloses that Sensor unit 110 connects via a network to centralized data collection points. 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn discloses that the centralized data collection points are a server. 10:54-56, 23:29-30. Kahn discloses that users log into the system on respective user computing devices. 2:50-45, 25:5-12, 28:35-37,

		30:45-49. Kahn discloses a variety of users and entities having different levels of authorized access. 25:48- 26:67, *see also id.*, 2:50-60, 19:58-65, 21:50-22:44, 22:62-23:50, 24:44-25:2, 25:5- 12, 27:39-28:7. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities, to facilitate the measurement of data requested through the graphical user interface. 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. Kahn discloses that sensor units 110 detect breakage of a pipe, i.e., level of a first fluid, based on reduced water pressure in the pipe. 10:8-16. Kahn discloses that its method can be applied to monitor any fluid (gas or liquid) including those present in a distribution system, reservoir or feed source in need of monitoring. 4:4-7, 4:12-48. The sensor outputs are presented to the user through the GUI on the remote user's computer. 2:50-54, 2:61-65, 25:5-12, 26:3-7, Claim 36, FIG. 5, FIG. 6.  FIG. 6 A POSITA would recognize Kahn discloses a providing, a user interface indicating the first fluid level, the first client computing device being remote from the server system and the first computer system through its disclosure of a graphical user interface

		for monitoring fluid quality. Thus, Kahn discloses this claim element. 64utah-SCADA, discloses indicating fluid level to user being in remote location. 64utah-SCADA recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 4. Further Brochure-VTScada-FeaturesByVersion, discloses indicating fluid level to user being in remote location. Brochure-VTScada-FeaturesByVersion recites, "This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* page 4.
	[1.8] receiving, with the server system, from the first client computing device, a first command to change a state of the first pump; and	Kahn discloses a facility interface module, Sensor unit 110, including a processor that connects via a network to centralized data collection points. 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities. 8:3-11, 8:21-24, 10:62-67; *see also* 14:35-15:2, 15:62-16:32, 34:7-12. A POSITA would recognize from the above disclosure that Kahn discloses receiving, with the server system, from the first client computing device, a first command to change a state of the first fluid-handling device where the command to change a state of the fluid-handling devices is the recalibration solution. 64utah-SCADA, discloses command to change the state. 64utah-SCADA recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to

		access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 4. Further Brochure-VTScada-FeaturesByVersion, discloses command to change the state. Brochure-VTScada-FeaturesByVersion recites, "This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* page 4.
	[1.9] causing, with the server system, the first computer system disposed at the first fluid handling site to effectuate the command by changing the state of the first pump to a sequence of different target states that change over time.	Kahn discloses a facility interface module, Sensor unit 110, including a processor that connects via a network to centralized data collection points. 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid-handling facilities. 8:3-11, 8:19-21, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. Kahn discloses first sensor having actuators controlling valves and pumps to manipulate fluid flow. *Id.* A POSITA would recognize from Kahn's disclosures that Kahn discloses the limitation regarding changing the state of the first pump. Thus, Kahn discloses this claim element. Claim 1 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn.
4.	The system of claim 1, wherein: the sequence of different target states that change over time are configured to ramp up or down a speed of the first pump.	Kahn discloses a facility interface module, sensor unit 110, including a processor that connects via a network to centralized data collection points. 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid-handling facilities. 8:3-11, 8:19-21, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. Kahn discloses sensors

		having actuators controlling valves and pumps to change the target states (sensing, recalibrating) over time. *Id*. Data collection can run in real time to continuously, or intermittently, operate. 19:24-29. Kahn also discloses shutting down (ramping down) the supply of fluid during the detection of emergency events. 10:62-67. A POSITA would recognize from Kahn's disclosure of changing the fluid by pump that a pump would ramp up and down in speed changing the fluid in the sensor cavity, e.g., the recalibration fluid during calibration. A POSITA would recognize from Kahn's disclosure of changing the fluid and injecting by pumps that Kahn discloses this claim element. *Id*. Claim 4 is anticipated by Kahn or would be obvious to a POSITA in view of Kahn. 64utah-SCADA discloses controlling the pump to change the flow. 64utah-SCADA recites, "The systems connect with numerous sensors via a Campbell multiplexer to monitor parameters such as flow and pressure from water sources into tanks, flow and pressure from tanks into the towns, tank level, and flood conditions at the building housing the system. The CR1000 uses a Campbell SDM-CD8S dc device controller to control pumps and valves, with each town controlling the valves to allow or disallow the water flowing to the other." *See* page 2. Further TM 5-601 Supervisory Control discloses changing the speed of pump. TM 5-601 Supervisory Control recites, "The control output usually must act on the system through another device to effect the desired control action, such as varying the position of a valve, the speed of a motor, or the current through a heating element. The device that converts the control output into control action is the actuator." *See* page 2-1.
7.	The system of claim 1, wherein: the server system	Kahn discloses that the computer system 4 permits Account A to visualize first information associated

	is configured to interface with both a web browser on the client computing device and a special-purpose application executing on the client computing device to present the user interface indicating the first fluid level.	with the first fluid test data overlaid on a geographical map displayed on the graphical computer interface (e.g., a web browser) of Account A's computer. 26:3-13. Kahn discloses that the computer system 4 can provide either a hosted environment (e.g., act as an application service provider as known in the art such that Account A needs primarily only a suitable web browser) or a non-hosted environment wherein appropriate software issued by the service provider is run on Account A's computer to access computer system 4. *Id*. Thus, Kahn discloses this claim element. Claim 7 is anticipated by Kahn or would be obvious to a POSITA in view of Kahn. 64utah-SCADA, discloses a server system to view data. 64utah-SCADA recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 2. Further Brochure-VTScada-FeaturesByVersion, discloses a server a server system to view data. Brochure-VTScada-FeaturesByVersion recites, "This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* page 4. Brochure-VTScada-FeaturesByVersion further recites, "This optional feature, introduced in 10, allows authorized users to see changes made on all servers, roll back to previous versions and merge versions together." *See* page 4.
8.	The system of claim 1, wherein: the first computer system is configured to communicate with the server system via a cellular wireless connection.	64utah-SCADA discloses communicating via wireless connection. 64utah-SCADA recites, "LoggerNet and VTScada run on Windows 7 PCs and communicate with the CR1000 master unit over Ethernet connections." *See* page 2.

Exhibit F-1

Invalidity Claim Chart for U.S. Patent No. 11,726,504 ("the 504 patent")

In view of

US 2015/0308244 ("Cardamone")

The asserted claims of '504 patent are anticipated and/or rendered obvious by Cardamone as identified in Defendant Preliminary Invalidity Contentions.

U.S. Patent No. 2015/0308244 ("Cardamone") was filed on November 26, 2013, published on October 29, 2015. This application is a National Stage Entry of PCT/US2013/071976, filed on November 26, 2013 that claim priority from a provisional application 61/729,815, filed on November 26, 2012. Cardamone is prior art under at least 35 U.S.C. 102(e).

The citations to portions of any reference in this chart are exemplary only. Defendant will rely on the entirety of the reference cited in this chart, as well as any additional materials relevant to the reference identified through their ongoing investigation, to show that the asserted claims are invalid.

Claim#	Claim Language	Cardamone
1.	[1.1] A fluid processing system, comprising:	To the extent that the preamble is found to be limiting, Cardamone discloses a system for remotely controlling a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station. *See, e.g.*, ¶¶ 0001, 0022; *see also id*., ¶ 0005 ("downhole pump"). A POSITA would readily recognize that the deep well linear pump system is a fluid processing system. Thus, Cardamone discloses this claim element.
	[1.2] a first computer system disposed at a first fluid handling site, wherein the first computer system is configured to: receive information comprising one or more properties of a first fluid from one or more sensors disposed at a first fluid tank itself disposed at the first fluid-handling site, the fluid-handling site comprising one or more	Cardamone discloses control and communication computer 126 arranged at the surface of the deep oil well. ¶ 0024. Control and communication computer 126 includes data sampling and storage mechanisms for receiving and storing sensory data from both pump system 122 and motor driver 124. *Id*. The available data includes inlet pressure, which can be used to determine the depth of fluids remaining in the well, and monitoring pump frequency to monitor the volume of fluids extracted from the well. ¶¶ 0029-30, 0044-45, 0049. Cardamone discloses that the raw sensor signals collected by control and communication computer 126 include motor output

	fluid-handling devices, the one or more fluid-handling devices comprising one or more of a first pump, a first filter, and a first valve; an:	force, motor position, motor temperature, pump inlet and outlet pressure, inlet temperature, pump inclination, motor driver state, motor driver output current, power distribution system state and temperature, and power distribution system output voltage and current. ¶ 0042. Cardamone discloses that the fluid handling site has a pump, valve, and tank that handles a fluid in its disclosure of down-hole pump 228 includes a standing valve, a traveling valve, a piston or plunger, inlet 227, and outlet 231. ⁋ 0029. A POSITA would understand that the deep oil system and oil wells described in Cardamone include a tank to store the oil that is pumped up the surface of the oil well. ⁋ 0022. Thus, Cardamone discloses this claim element.
	[1.3] provide remote control of a first fluid-handling device of the one or more fluid-handling devices; and	Cardamone discloses that data server 134 provides the functionality of GUI Computer 130. ¶ 0046. Cardamone discloses that users connect to GUI computer 130 to interface with control and communication computer 126, through application 131. ¶ 0042, *see also id*., ¶¶ 0011, 0021, 0026, 0041. Application 131 provides access to control and communication computer 126 to request data, including the current sensory data of pump control system 110. *Id*. Application 131 also allows the user to adjust the operating parameters with control computer 126 through "a command interface." ¶¶ 0044-45. Cardamone also discloses that data server 134 is connected to network 132 which is linked to control and communication computer 126 through a variety of network communication types. ¶ 0027. A POSITA would readily recognize Cardamone discloses the remote management computer and web application facilitates remote control of fluid handling devices. Thus, Cardamone discloses this claim element.
	[1.4] a server system wherein the server system has memory storing instructions that, when	Cardamone discloses data server 134, a server computer remote from the oil well. ¶ 0021. Data server 134 links to control and communication computer 126 through standard wired and wireless communication links. ¶ 0024. Data server 134

	executed, effectuate operations comprising;	receives sensory data logs from control and communication computer 126 and contains a web server/web application 136 for providing a client interface for viewing the sensory data logs on remote management computer 138. ¶ 0027. Data server 134 acts as a data storage for sensory data and configuration commands. ¶¶ 0021, 0027, 0035, 0048. A POSITA would understand that Cardamone discloses a server system with a memory for storing instructions through its disclosure of a data storage from the disclosure of a data server and memory. Thus, Cardamone discloses this claim element.
	[1.5] receiving, with the server system, from the first computer system, via a network, a first fluid property of the one or more properties associated with the first fluid sensed by a first sensor of the one or more sensors;	Control and communication computer 126 includes data sampling and storage mechanisms for receiving and storing sensory data from both pump system 122 and motor driver 124. ¶¶ 0002, 0024. The available data includes inlet pressure, pump frequency, and other properties associated with the fluids extracted from the well. ¶¶ 0029-30, 0044-45, 0049. Cardamone also discloses that the raw sensor signals collected by control and communication computer 126 include motor output force, motor position, motor temperature, pump inlet and outlet pressure, inlet temperature, pump inclination, motor driver state, motor driver output current, power distribution system state and temperature, and power distribution system output voltage and current. ¶ 0042. Cardamone discloses that the fluid properties are received via a network through its disclosure that the control and communication computer includes communication transceivers to provide a network link to a data server 134. ¶ 0024. A POSITA would understand from Cardamone's disclosure of a data server that receives sensory data logs from the first computer system, and that the sensory data logs include fluid properties sensed by the sensor. Thus, Cardamone discloses this claim element.
	[1.6] obtaining, with the server system, credentials from a first client computing device;	Cardamone discloses obtaining, with the server system, credentials from a first client computing device through its disclosure that application 131 queries user 101 for a username and password. ¶

		0042. The user queries GUI computer which, as discussed above, is connected to data server 134. *Id*. A POSITA would readily understand that querying a user for a username and password is the obtaining credentials from a first client computing device. Thus, Cardamone discloses this claim element.
	[1.7] determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site, wherein the server system hosts data about other fluid handling sites the user is not authorized to interact;	Cardamone discloses that application 131 queries user 101 for a username and password, which are then provided to control and communication computer 126 for authentication. ¶ 0042. A POSITA would readily understand that, after querying a user for a username and password "for authentication," the system would only provide information about a fluid-handling device a user is authorized to interact with, and not provide access to information about a fluid-handling device a user is not authorized to interact with. A POSITA would further understand that the server discussed above in element 1.4 hosts user data for fluid-handling devices other than the limited set of fluid handling devices a particular user is authorized to access. Thus, Cardamone discloses this claim element. *Id*.
	[1.8] after the determination, providing, with the server system, via the network, information by which the first client computing device presents a user interface indicating the first fluid property, the first client computing device being remote from the server system and the first computer system;	Cardamone discloses that data server 134 provides the functionality of GUI Computer 130. ¶ 0046. Cardamone discloses that users connect to GUI computer 130 to interface with control and communication computer 126, through application 131. ¶ 0042, *see also id*., ¶¶ 0011, 0021, 0026 ("GUI computer 130 may be a portable computer brought by a service user 101 in order to provide on-site maintenance and/or monitoring"), 0041, FIG. 1.

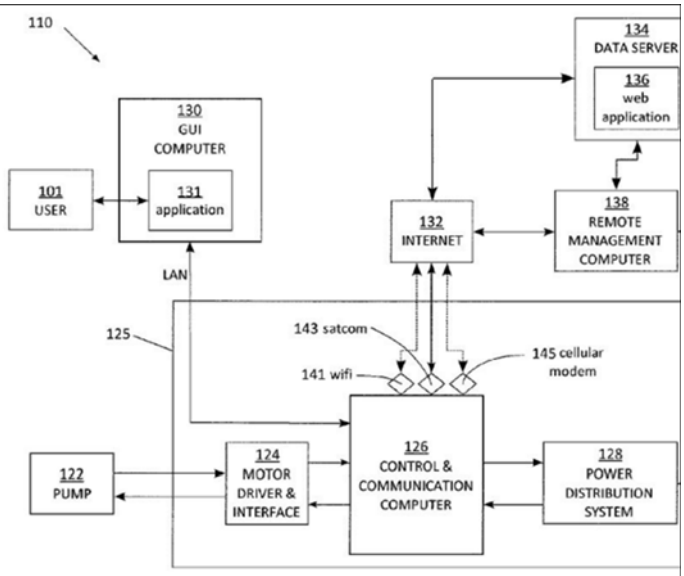


FIG. 1

The user queries GUI computer for access to the system which, as discussed above, is communicatively coupled to data server 134. ¶ 0035. Application 131 provides access to control and communication computer 126 to request data, including the current sensory data of pump control system 110. *Id*. Operational data includes sensory data from pump system 122, motor driver 124, power distribution system 128, and control and communication computer 126. ¶ 0026. Cardamone also discloses that data server 134 is connected to network 132 which is linked to control and communication computer 126 through a variety of network communication types. ¶ 0027.

A POSITA would recognize that Cardamone's disclosure of the first client computing device is the GUI computer interfacing with the user, the server is data server 134, and the first computer system is control and communication computer 126.

A POSITA would recognize that Cardamone's disclosure of web a GUI computer for providing a client interface for viewing the sensory data logs on remote management computer 138 is the presenting a user interface indicating the first fluid property found in claim of the '504 Patent. *Id*.

Thus, Cardamone discloses this claim element.

	[1.9] receiving, with the server system, from the first client computing device, a first command to change a state of the first fluid-handling device; and	Cardamone discloses that data server 134 provides the functionality of GUI Computer 130. ¶ 0046. Cardamone discloses that users connect to GUI computer 130 to interface with control and communication computer 126, through application 131. ¶ 0042, *see also* ¶¶ 0011, 0021, 0026, 0041. Application 131 provides access to control and communication computer 126 to request data, including the current sensory data of pump control system 110. *Id*. Application 131 also allows the user to adjust the operating parameters with control computer 126 through "a command interface." ¶¶ 0044-45; *see also id*., ¶ 0026 ("software application (131) for allowing a user (101) to view sensor data, and view and set control computer operating parameters and algorithms"). Cardamone also discloses that data server 134 is connected to network 132 which is linked to control and communication computer 126 through a variety of network communication types. ¶ 0027. A POSITA would readily recognize that that setting operational parameters disclosed in Cardamone is the receiving a first command to change a state of the first fluid-handling device in claim 1 of the '504 Patent. Thus, Cardamone discloses this claim element.
	[1.10] causing, with the server system, the first computer system disposed at the first fluid handling site to effectuate the command by changing the state of the first fluidhandling device to a sequence of different target states that change over time.	Cardamone discloses the determining of different target states of a given one of the fluid-handling devices over time. ¶¶ 0009, 0021, 0022, 0025, 0026, 0029, 0036. Cardamone discloses that the "control algorithm may control the motor drive system and/or pump as a function of sensory data." ¶ 0009; *see also id*., Claims 11 ("control computer is programmed to provide an output command as a function of one or more of said operating parameters from said sensor system"), 12 ("the output command is a motor drive command"), 13 ("the motor drive command is a function of a change in pressure sensed by said pump inlet pressure sensor"). Cardamone discloses that data server 134 provides the functionality of GUI Computer 130. ¶ 0046.

		Cardamone discloses that users connect to GUI computer 130 to interface with control and communication computer 126, through application 131. ¶ 0042, *see also id*., ¶¶ 0011, 0021, 0026, 0041, FIG. 1. Cardamone further discloses that application 131 also allows the user to adjust the operating parameters of control computer 126 through "a command interface" to specify the "movement profile" for the pump system, including through a distance vs. time curve, or a force vs. time curve for an operation cycle of the pump. ¶ 0044. Application 131 allows the user to program the operating function to control computer 126 based upon sensory data. ¶ 0045. For example, user 101 may program control computer 126 to set the pump frequency to be equal to the inlet pressure times a constant, or more complex functions, based upon a whole range of sensory input conditions. *Id*. A POSITA would understand that the causing, with the server system, the first computer system disposed at the first fluid handling site to effectuate the command by changing the state of the first fluid-handling device to a sequence of different target states that change over time is provided by Cardamone in its disclosure of control computer being programmed to provide an output command as a function of one or more of said operating parameters (i.e. different target states) from said sensor system which is communicatively coupled to the data server. Thus, Cardamone discloses this claim element. As such, Claim 1 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone.
2.	The system of claim 1, wherein: the sequence of different target states that change over time are configured to ramp up or down a speed of the first fluid-handling device.	Cardamone discloses that the "control algorithm may control the motor drive system and/or pump as a function of sensory data." ¶ 0009; *see also id*., Claims 11 ("control computer is programmed to provide an output command as a function of one or more of said operating parameters from said sensor system"), 12 ("the output command is a motor drive command"), 13 ("the motor drive command is a function of a change in pressure sensed by said pump inlet pressure sensor"). Cardamone further

		discloses that application 131 also allows the user to adjust the operating parameters of control computer 126 through "a command interface" to specify the "movement profile" for the pump system, including through a distance vs. time curve, or a force vs. time curve for an operation cycle of the pump. ¶ 0044; *see also id*., ¶ 0036. A POSITA would readily understand that adjusting pump operation based on measurements or predefined functions would necessarily include adjusting pump operation of ramping up or down of the fluid handling device as feedback to maintain the operating regimen. ¶ 63. As such, Claim 2 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone.
3.	The system of claim 1, wherein: the sequence of different target states that change over time are determined with steps for mitigating shocks to up-stream or down-stream fluidhandling devices relative to the first fluid-handling device.	As discussed above for Claim 1.10, and incorporated by reference herein, Cardamone discloses the sequence of different target states that change over time. Cardamone discloses that the control and communication computer has a control algorithm to control the motor drive system as a function of sensory data, and that detects various shocks to up-stream or down-stream fluid-handling. ¶¶ 0009, 0035-0036 ("if a "Pump Hitting" curve is recognized in the sensory data, computer 410 will attempt to send a warning to data server 134,"). A POSITA would understand from Cardamone the sequence of different target states that change over time are determined with steps for mitigating shocks to upstream or down-stream fluid-handling device. As such, Claim 2 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone.
4.	The system of claim 1, wherein: at least some of the sequence of different target states that change over time are determined by the first computer	Cardamone discloses the determining of different target states of a given one of the fluid-handling devices over time. ¶¶ 0009, 0021, 0022, 0025, 0026, 0029, 0036. Cardamone discloses that the "control algorithm may control the motor drive system and/or pump as a function of sensory data." ¶ 0009; *see*

	system in response to a rate of change in the first fluid property, wherein the first fluid property corresponds to a level of the first fluid in the first tank.	*also id*., Claims 11 ("control computer is programmed to provide an output command as a function of one or more of said operating parameters from said sensor system"), 12 ("the output command is a motor drive command"), 13 ("the motor drive command is a function of a change in pressure sensed by said pump inlet pressure sensor"). Cardamone further discloses that application 131 also allows the user to adjust the operating parameters of control computer 126 through "a command interface" to specify the "movement profile" for the pump system, including through a distance vs. time curve, or a force vs. time curve for an operation cycle of the pump. ¶ 0044. Application 131 allows user 101 may program control computer 126 to set the pump frequency to be equal to the inlet pressure times a constant or more complex functions based upon a whole range of sensory input conditions. *Id*. Cardamone discloses that inlet pressure can be used to determine the depth, i.e. level, of oil remaining in the oil well. ¶ 0030. Cardamone discloses that the sequence of different target states that the change over time in response to a rate of change in the first fluid property, through its disclosure the motor drive command is a function of a change in pressure sensed by said pump inlet pressure sensor. Claim 13. A POSITA would understand that changing target states over time as determined by the first computer system in response to a rate of change of a level of the first fluid in the first tank is provided by Cardamone in its disclosure of commanding the motor drive, where the motor drive command is a function of a change in pressure sensed by the pump inlet pressure sensor, which indicates the level of fluid in a tank. As such, Claim 4 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone.
5.	The system of claim 1, wherein: the server system is configured to interface	Cardamone discloses claim 5 of the '504 Patent. Cardamone discloses the server system is configured to interface with both a web browser on the client

	with both a web browser on the client computing device and a special-purpose application executing on the client computing device to present the user interface indicating the first fluid property, wherein the first fluid property corresponds to a first fluid level.	computing device through its disclosure that control and communication computer 126 also contains communication systems for interacting with data server 134 and GUI computer 130. ¶ 0021. Cardamone further discloses that the server system is configured to interface special-purpose application executing on the client computing device through its disclosure that Data server 134 includes web application 134 which provides an interface to remote management computer 138. ¶ 0021. Cardamone discloses that the special-purpose application presents the user interface indicating a first fluid level through its disclosure that through interaction via web application 136, remote management computer 138 provides user 102 with a user interface for reviewing sensory data and setting operational parameters of control and communication computer 126. ¶ 0021. Cardamone discloses that inlet pressure can be monitored to determine the depth, i.e. level, of oil remaining in the oil well. ¶ 0030. A POSITA would readily understand that the server system is configured to interface with both a web browser on the client computing device and a special-purpose application executing on the client computing device to present the user interface indicating the first fluid property, wherein the first fluid property corresponds to a first fluid level is provided by Cardamone in its disclosure of the GUI computer 130, which contains a web browser and the web application 134 (special/purpose application) which provides an interface to remote management computer 138 to provide fluid properties, including inlet pressure, an indication of fluid level. As such, Claim 5 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone.
6.	The system of claim 1, wherein: the first computer system is configured to communicate with the	Cardamone discloses that data server 134 is connected to network 132 which is linked to control and communication computer 126 through one of a variety of communication link types, including hardwire connection, or internet connection via wire,

	server system via a cellular wireless connection.	wifi, satellite modem, and/or cellular data connections. ¶ 0027. A POSITA would understand that the communicating with the server system via a cellular wireless connection is provided by Cardamone in its disclosure of the communication link including cellular data connections. As such, Claim 6 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone.
7.	The system of claim 1, wherein the first computer system is configured to translate a plurality of commands from the server system, including the command, from an input format to a plurality of different formats and protocols configured to effectuate changes in states of a plurality of different fluid-handling devices at the first fluid handling site.	Cardamone discloses data server 134 connected to network 132 linked to control and communication computer 126 through one of a variety of communication link types, including hardwire connection, or internet connection via wire, wifi, satellite modem, and/or cellular data connections. ¶¶ 0024, 0027. Whereas, the pump drive unit 318 interfaces with control and communication computer 126 over digital interface bus 326. ¶ 0031; *see also* ¶¶ 0029-31 (describing Pump System 122). Bus 326 has multiple protocols implemented including DeviceNet, RS485, F-NET, Modbus, FireWire, CANopen, Ethernet IP, ProfiNet, and SERCOS. ¶ 0031. These protocols, which include but are not limited to internet or computer networking protocols, drive the fluid-handling device. ¶ 0007. And other similar protocols may also be used as alternatives, through either analog or digital signal transfer. ¶ 0030-31. Cardamone further discloses that the system is programmed to provide an output command as a function of one or more of said operating parameters from said sensor system. ‖ Claim 4. Cardamone discloses a plurality of "known pumps" and references pipelines. ¶ 0041, 0049. A POSITA would readily understand that oil well sites include a plurality of below ground extraction pumps and above ground transportation (pipeline) related pumps at a fluid handling site. A POSITA would readily understand that Cardamone discloses the claimed translated plurality of commands from the server.

		As such, Claim 7 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone.
8.	The system of claim 7, wherein translating the plurality of commands comprises steps for translating commands.	Cardamone discloses data server 134 connected to network 132 linked to control and communication computer 126 through one of a variety of communication link types, including hardwire connection, or internet connection via wire, wifi, satellite modem, and/or cellular data connections. ¶¶ 0024, 0027. Whereas, the pump drive unit 318 interfaces with control and communication computer 126 over digital interface bus 326. ¶ 0031; *see also* ¶¶ 0029-31 (describing Pump System 122). Bus 326 has multiple protocols implemented including DeviceNet, RS485, F-NET, Modbus, FireWire, CANopen, Ethernet IP, ProfiNet, and SERCOS. ¶ 0031. These protocols, which include but are not limited to internet or computer networking protocols, drive the fluid-handling device. ¶ 0007. And other similar protocols may also be used as alternatives, through either analog or digital signal transfer. ¶ 0030-31. A POSITA would readily understand that the claimed translation of protocols is required to permit the data interface and bus to operate and communicate with various types of devices using multiple different types of protocols. As such, Claim 8 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone.
9.	The system of claim 7, wherein the plurality of different formats and protocols comprise: modbus remote terminal unit protocol; and analog electrical signals.	Cardamone discloses plurality of different formats and protocols comprising Modbus remote terminal unit protocol through its disclosure that Bus 326 has multiple protocols implemented including Modbus. ¶ 0007. Cardamone further discloses the plurality of different formats and protocols comprising analog electrical signals through its disclosure that the data interface may be implemented using alternative protocols for either analog or digital signal transfer. ¶ 0030. A POSITA would understand from the disclosures that Cardamone discloses a Modbus protocol and analog signals.

		As such, Claim 9 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone.
10.	The system of claim 7, wherein at least some of the plurality of different fluid-handling devices comprise proportional-integral-derivative controllers configured to drive respective fluid-handing devices to different target setpoints determined by the first computer system responsive to corresponding commands from the server system.	Cardamone discloses the determining of different target states of a given one of the fluid-handling devices over time. ¶ 0009, 0021, 0022, 0025, 0026, 0029, 0036. Cardamone discloses that the "control algorithm may control the motor drive system and/or pump as a function of sensory data." ¶ 0009; *see also id*., Claims 11 ("control computer is programmed to provide an output command as a function of one or more of said operating parameters from said sensor system"), 12 ("the output command is a motor drive command"), 13 ("the motor drive command is a function of a change in pressure sensed by said pump inlet pressure sensor"). Cardamone further discloses that application 131 also allows the user to adjust the operating parameters of control computer 126 through "a command interface" to specify the "movement profile" for the pump system, including through a distance vs. time curve, or a force vs. time curve for an operation cycle of the pump. ¶ 0044. Application 131 allows user 101 may program control computer 126 to set the pump frequency to be equal to the inlet pressure times a constant . . . or more complex functions . . . based upon a whole range of sensory input conditions. *Id*. Cardamone discloses that at least some of the plurality of different fluid-handling devices comprise proportional-integral-derivative ("PID") controllers through its disclosure that a program on control computer 126 recognizes that the motor force vs. pump displacement data produces a curve similar to one of the error conditions shown in FIGS. 7 or 8, a descriptive warning may be flashed on GUI computer 130's display. ¶¶ 0036, 0043. Cardamone discloses a plurality of "known pumps" and references pipelines. ¶¶ 0041, 0049. A POSITA would readily understand that oil well sites include a plurality of different fluid handling devices including below-ground extraction pumps and

		above-ground transportation (pipeline) related pumps at a fluid handling site. A POSITA would further understand that a proportional–integral–derivative controller operates through continuously modulated feedback control. A POSITA would further understand that driving motors based on sensor conditions of the fluid-handling devices as described in Cardamone, above, requires PID controllers. *Id.* As such, Claim 10 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone.
11.	[11.1] The system of claim 7, wherein: the first computer system is coupled to at least some of the plurality of different fluid-handling devices via a bus; and	Cardamone discloses the first computer system is coupled to at least some of the plurality of different fluid-handling devices via a bus through its disclosure that the motor drive unit 318 (fluid-handing device) interfaces with control and communication computer 126 (first computer system) over digital interface bus 326. ¶ 0031 (emphasis added). Sensory data from lines 237 and 239 is relayed to computer 126 over bus 326. *Id*. Thus, Cardamone discloses this claim limitation.
	[11.2] the first computer system comprises means for controlling which fluid-handling devices are permitted to transmit signals on the bus at a given point in time.	Cardamone discloses the first computer system comprises means for controlling which fluid-handling devices are permitted to transmit signals on the bus at a given point in time through its disclosure that motor drive unit 318 interfaces with control and communication computer 126 over digital interface bus 326. Sensory data from lines 237 and 239 is relayed to computer 126 over bus 326. ¶ 0031. A POSITA would readily understand that transmission of sensory data is permitted at a given point in time sensory data is required to be viewed or to operate fluid-handling devices. As such, Claim 11 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone.
12.	The system of claim 7, wherein the plurality of different formats and protocols comprise three different protocols communicated over three	Cardamone discloses the plurality of different formats and protocols comprise three different protocols communicated over three different types of control busses through its disclosure that bus 326 has multiple protocols implemented including DeviceNet, RS485, F-NET, Modbus, FireWire,

	different types of control busses to corresponding fluid handling devices among the plurality of different fluid-handling devices.	CANopen, Ethernet IP, ProfiNet, and SERCOS. ¶ 0031. Cardamone disclosure that bus 326 is also used by computer 126 to relay drive commands to motor drive unit 318. ¶ 0031. A POSITA would recognize from the disclosure that at least three different protocols are provided in Cardamone. A POSITA would also understand that the three different protocols are transmitted on a bus specific to that protocol and that the specific bus corresponds to the fluid-handling device. Cardamone discloses a plurality of "known pumps" and references pipelines. ¶¶ 0041, 0049. A POSITA would readily understand that oil well sites include a plurality of different fluid handling devices including below-ground extraction pumps and above-ground transportation (pipeline) related pumps at a fluid handling site. As such, Claim 12 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone.
13.	The system of claim 7, wherein the plurality of different formats and protocols comprise command code format, an on-off signal format, and an application-program interface format.	Cardamone discloses the plurality of different formats and protocols comprise command code format, an on-off signal format, and an application-program interface format that the field bus interface may include DeviceNet, RS485, F-NET, Modbus, FireWire, CANopen, Ethernet IP, ProfiNet, SERCOS, 12-bit Analog IN, 16-bit Analog I/O, and/or other similar bus hardware and protocols. ¶ 0031. A POSITA would readily recognize that the above formats and protocols include command code format, an on-off signal format, and an application-program interface format. As such, Claim 13 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone.
14.	The system of claim 7, wherein the first computer system is configurable to operate in an automatic	Cardamone discloses the first computer system is configurable to operate in an automatic mode, a mixed automatic mode, and a manual mode through its disclosure that control computer 126 may be programmed to automatically adjust the movement

	mode, a mixed automatic mode, and a manual mode.	profile based upon predefined conditions, such as the operating regimes defined in FIGS. 7 and 8. ¶ 0045; *see also id*., ¶¶ 0051-0052. A POSITA would readily understand the automatic adjustment of the movement profile is operating in an automatic mode. Cardamone also discloses that GUI computer 130 also provides user 101 with a mechanism for changing operational parameters of control and communication computer 126. *See, e.g*., ¶ 0026. A POSITA would readily understand that a user providing on-demand instructions is operating in a manual mode. The '504 Patent explains that in a mixed automatic mode "the user selects which devices are manually controlled while other devices are automatically controlled." 10:23-28. A POSITA would readily understand from Cardamone's disclosure of both automatic and manual operation, that a user could direct Cardamone's plurality of devices with some fluid handling devices in manual mode, and others in automatic mode. As such, Claim 14 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone.
15.	The system of claim 7, wherein translating the plurality of commands comprises steps for identifying protocols and control busses.	Cardamone discloses data server 134 connected to network 132 linked to control and communication computer 126 through one of a variety of communication link types, including hardwire connection, or internet connection via wire, wifi, satellite modem, and/or cellular data connections. ¶¶ 0024, 0027. Whereas, the pump drive unit 318 interfaces with control and communication computer 126 over digital interface bus 326, which supports multiple protocols implemented including DeviceNet, RS485, F-NET, Modbus, FireWire, CANopen, Ethernet IP, ProfiNet, and SERCOS. ¶ 0031; *see also id*., ¶¶ 0029-31 (describing Pump System 122). These protocols, which include but are

		not limited to internet or computer networking protocols, drive the fluid-handling device. ¶ 0007. And other similar protocols may also be used as alternatives, through either analog or digital signal transfer. ¶¶ 0030-31. A POSITA would readily understand that the claimed translation of protocols requires the system to identify protocols and control busses. As such, Claim 15 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone.
16.	The system of claim 1 wherein the first computing system is configured to receive and transmit data and commands via a remote terminal unit protocol wherein the data and commands comprise redundant bits.	Cardamone discloses the first computing system is configured to receive and transmit data and commands via a remote terminal unit protocol through its disclosure the control and communication computer 126 can interface with fluid-handling devices via digital interface bus 326. ¶ 0031. Cardamone further discloses that bus 326 uses Modbus protocol (¶ 0031) which a POSITA would recognize is a remote terminal unit protocol. Cardamone further discloses that the data and commands transmitted via a remote terminal unit protocol comprises redundant bits through its disclosure that User 101 may select an option to view the current sensory data of pump control system 110, causing application 131 to request a data stream from control and communication computer 126. ¶ 0042. A POSITA would further understand that redundant bits are extra binary bits added externally into the original data bit to prevent damage to the transmitted data and are also needed to recover the original data. A POSITA would understand that in order to protect data transmissions described in Cardamone, redundant bits are needed. *Id*. As such, Claim 16 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone.
20.	[20.1] A tangible, non-transitory, machine-readable medium storing	Cardamone discloses each and every limitation of claim 20, anticipating claim 20. Claim 20's preamble is non-limiting. Claim 20's limitation 20.2

	instructions that, when executed by a computer processor, effectuate operations comprising:	is analogous to limitation 1.2, limitation 20.3 is analogous to limitation 1.2, limitation 20.4 is analogous to limitation 1.2, limitation 20.5 is analogous to limitation 1.5, limitation 20.6 is analogous to limitation 1.6, limitation 20.7 is analogous to limitation 1.7, limitation 20.8 is analogous to limitation 1.8, limitation 20.9 is analogous to limitation 1.9, and limitation 20.10 is analogous to limitation 1.10. Each of Claim 20's limitations are disclosed by Cardamone for reasons provided above, and incorporated here. Claim 20 is anticipated by Cardamone.
	[20.2] measuring, with one or more sensors at a first fluid tank located at a first-fluid handling site, one or more properties associated with a first fluid;	
	[20.3] receiving, with a first computer system disposed at a first fluid handling site, information associated with the one or more properties associated with the first fluid;	
	[20.4] providing, with the first computer system, remote control of a first fluid-handling device of a plurality of fluid-handling devices, the first fluid-handling device comprising at least one of a first pump, a first filter, and a first valve;	
	[20.5] receiving, with a server system, from the first computer system, via a network, a first fluid property of the one or more properties associated with the first fluid sensed by a first sensor of the one or more sensors;	
	[20.6] obtaining, with the server system, credentials from a first client computing device;	
	[20.7] determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with	

	the first fluid handling site, wherein the server system hosts data about other fluid handling sites the user is not authorized to interact;	
	[20.8] after the determination, providing, with the server system, via the network, information by which a first client computing device presents a user interface indicating the first fluid property, the first client computing device being remote from the server system and the first computer system;	
	[20.9] receiving, with the server system, from the first client computing device, a first command to change a state of the first fluid-handling device; and	
	[20.10] causing, with the server system, the first computer system disposed at the first fluid handling site to effectuate the command by changing the state of the first fluid-handling device to a sequence of different target states that change over time.	

Exhibit F-2

Invalidity Claim Chart for U.S. Patent No. 11,726,504 ("the 504 patent")

In view of

US 7,424,399 (Kahn)

The asserted claims of '504 patent are anticipated and/or rendered obvious by Kahn as identified in Defendant Preliminary Invalidity Contentions.

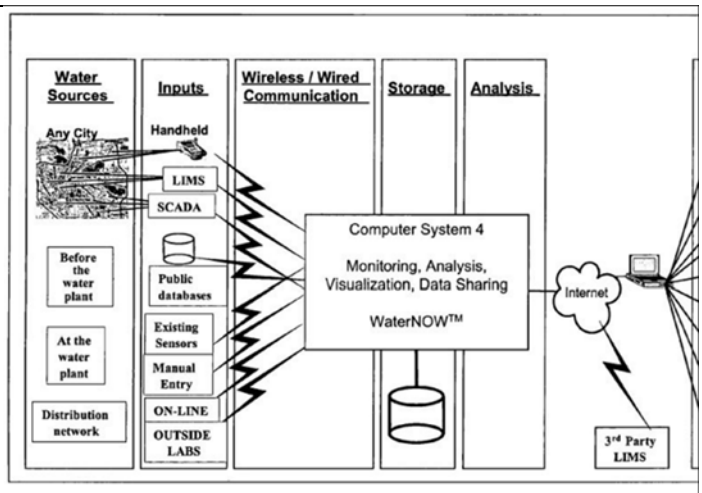
U.S. Patent No. 7,424,399 ("Kahn") was filed on June 09, 2006, published on March 01, 2007 and issued on September 09, 2008. Kahn is prior art under at least 35 U.S.C. 102(a).

The citations to portions of any reference in this chart are exemplary only. Defendant will rely on the entirety of the reference cited in this chart, as well as any additional materials relevant to the reference identified through their ongoing investigation, to show that the asserted claims are invalid.

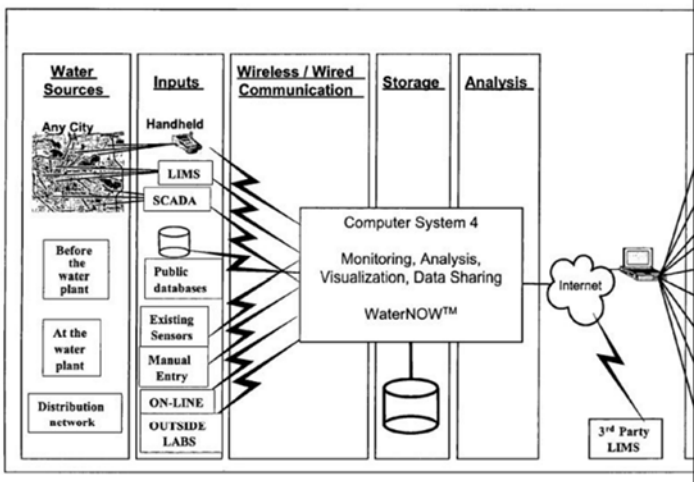
Claim#	Claim Language	Kahn
1.	[1.1] A fluid processing system, comprising:	To the extent that the preamble is found to be limiting, Kahn discloses a "Distribution system" that "includes any system of fluid distribution . . . , which in the case of water distribution, currently commonly manifest themselves as contiguous systems of pipes and/or systems of reservoirs, channels, pipes and treatment plants." 4:12-17. A POSITA would readily recognize that Kahn discloses a system. Therefore, Kahn discloses a system.
	[1.2] a first computer system disposed at a first fluid handling site, wherein the first computer system is configured to: receive information comprising one or more properties of a first fluid from one or more sensors disposed at a first fluid tank itself disposed at the first fluid-handling site, the fluid-handling site comprising one or more fluid-handling devices, the one or more fluid-handling devices comprising one or	Kahn discloses a system with Sensor unit 110 that includes multiple sensors (e.g., first sensor 111A and second sensor 111B) a communication unit that connects via a network to centralized data collection points. *See, e.g.,* 5:62-6:16, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. A hallmark of the distribution system in Kahn is the ability to identify the location of and communicate with the system's individual sensor units. 4:12-25, 11:2-15; *see also id.,* 10:8-13; 23:51-62. Kahn discloses that the production sites are unique, disclosing separate control systems for designated location, i.e. fluid handling site. *See, e.g.,* 16:40-18:52. For example, Sensor unit 110 can be located at any desired point in a fluid distribution system. *See, e.g.,* 11:2-15.

	more of a first pump, a first filter, and a first valve; an:	Kahn discloses a first fluid tank disposed at the first fluid-handling site through its disclosure of distribution systems that include fluids in tanks, including reservoirs, wells, large pools, and water treatment plants. 1:46-50, 2:1, 4:12-32. Kahn discloses that the fluid-handling site includes a first pump, a first filter, and a first valve. 8:6-7, 8:19-30; 10:62-67, 11:2-5, 11:18-13:58, 13:34-36, 15:50-16:5, 16:56, 20:64-67, 21:1, FIG. 1C-FIG. 1D., FIG. 1F, FIG. 1G. A POSITA would readily understand that Kahn discloses receiving information comprising fluid properties from one or more sensors disposed at a first fluid-handling site, the fluid-handling site through its disclosure of a computer system that receives first fluid test data from sensors. A POSITA would also understand that Kahn comprising one or more fluid-handling devices comprising one or more of a first pump, a first filter, and a first valve through its disclosure valves, filters, and a pump. *Id*. Finally, A POSITA would understand that the system disclosed in Kahn necessarily includes a tank through its disclosure of distribution systems that includes reservoirs, water treatment plants, and contain water, all of which includes tanks. *Id*. Thus Kahn discloses this claim element.
	[1.3] provide remote control of a first fluid-handling device of the one or more fluid-handling devices; and	Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid-handling facilities. *See, e.g.,* 8:19-21, 10:62-67; *see also id.,* 14:35-15:2, 15:62-16:32. A POSITA would understand from Kahn's disclosure of remote communication devices that Kahn discloses a provide remote control of a first fluid-handling device of the one or more fluid-handling devices. Thus, Kahn discloses this claim element.
	[1.4] a server system wherein the server system has memory storing	Kahn discloses a data collection network with centralized data collection points. *See, e.g.,* 8:51-59, 9:53-58, 17:18-30, 18:48-52, 63-65, 19:5-23, 19:58-

	instructions that, when executed, effectuate operations comprising;	65, 23:27-31. Kahn discloses that the centralized data collection point is a server. 10:52-61, 23:27-31. Kahn discloses that servers are computers, i.e. include processors. 32:58-63. Kahn discloses that processing unit is a generic term meaning one or more processing units programmed at a software, firmware or hardware level, including, for example, ASIC (application specific integrated circuit). 4:49-53. Kahn discloses that the server system has memory storing instructions for its operation. 8:54-59, 33:4-14, 33:15-21. A POSITA would understand from the above disclosure of a central communication device, e.g., a server that Kahn discloses a server system wherein the server system has memory storing instructions. Thus, Kahn discloses this claim element.
	[1.5] receiving, with the server system, from the first computer system, via a network, a first fluid property of the one or more properties associated with the first fluid sensed by a first sensor of the one or more sensors;	Kahn discloses a data collection network with centralized data collection points. *See, e.g.,* 8:51-59, 9:53-58, 17:18-30, 18:48-52, 63-65, 19:5-23, 19:58-65, 23:27-31. Kahn discloses that the centralized data collection points receive sensor information via a network from a facility interface module, Sensor unit 110. *See, e.g.,* 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5- 20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn discloses that its sensors may detect any measurable fluid property including but not limited to physical properties (e.g., temperature), chemical properties (e.g., presence of organic and/or inorganic chemical species), biological properties (e.g., presence of cryptosporidium, ecoli, etc.) and radiological properties (e.g., presence of radium, tritium, etc.). 25:26-34; *see also* 5:62- 6:14, 20:10-13, FIG. 6.

		 FIG. 6 A POSITA would understand from the above disclosure and figure than Kahn discloses receiving, with the server system, from the first computer system, via a network, a first fluid property of the one or more properties associated with the first fluid sensed by a first sensor of the one or more sensors. Thus, Kahn discloses this claim element.
	[1.6] obtaining, with the server system, credentials from a first client computing device;	Kahn discloses that any suitable technique can be used to verify that the identity of a present user is an authorized user of the device. 25:1-2; 28:35- 37 ("After the user has "logged in" to the service by inputting a username and password in a conventional manner"). Kahn further discloses that an authorized Account A (first user 5 a) can be authorized by a first entity. 25:48-51. Finally, Kahn discloses that an authorized Account B (second user 5 b) second user can be authorized by a second entity. 25:55-58. A POSITA would understand from Kahn's disclosure of authenticated accounts and suitable techniques for verification of the identity of present users as authorized users that Kahn discloses that credentials can be obtained from a first client computer. This Kahn discloses this claim element.
	[1.7] determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to	Kahn discloses determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site through its disclosure of that an authorized Account A (first user 5a) can be

	interact with the first fluid handling site, wherein the server system hosts data about other fluid handling sites the user is not authorized to interact;	authorized by a first entity. *See, e.g.,* 25:48-51. Finally, Kahn discloses that an authorized Account B (second user 5 b) second user can be authorized by a second entity. *See, e.g.,* 25:55-58. Kahn discloses that server system hosts data about other fluid handling sites the user is not authorized to interact through its disclosure that only fluid test measurements which the user is authorized to see are displayed. *See, e.g.,* 28:43-45, 25:48-26:67, *see also* 2:50-60, 19:58-65, 21:50-22:44, 22:62- 23:50, 24:44-25:2, 25:5-12, 27:39-28:7. A POSITA would recognize that Kahn discloses determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site from its disclosure of multiple-user accounts which only permits access to certain aspects of test data and the computer system. A POSITA would further understand that the server system hosts data about other fluid handling sites the user is not authorized to interact. Thus, Kahn discloses this claim element.
	[1.8] after the determination, providing, with the server system, via the network, information by which the first client computing device presents a user interface indicating the first fluid property, the first client computing device being remote from the server system and the first computer system;	Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system's sensors. Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8- 25, 29:5-37. Kahn discloses that Sensor unit 110 connects via a network to centralized data collection points. *See, e.g.,* 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn discloses that the centralized data collection points are a server. 10:54-56, 23:29-30. Kahn discloses that users log into the system on respective user computing devices. *See, e.g.,* 2:50-45, 25:5-12, 28:35-37, 30:45-49. Kahn discloses a variety of users and entities having different levels of authorized access. 25:48-26:67, *see also id.,* 2:50-60, 19:58-65, 21:50-22:44, 22:62-23:50, 24:44-25:2, 25:5-12, 27:39-28:7. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured

		to manipulate fluid flow at respective fluid-handling facilities, to facilitate the measurement of data requested through the graphical user interface. *See, e.g.,* 10:62-67; *see also id.,* 14:35-15:2, 15:62-16:32. Kahn discloses that its sensors may detect any measurable fluid property including but not limited to physical properties (e.g., temperature), chemical properties (e.g., presence of organic and/or inorganic chemical species), biological properties (e.g., presence of cryptosporidium, ecoli, etc.) and radiological properties (e.g., presence of radium, tritium, etc.). 25:26-34; *see also id.,* 5:62-6:14, 20:10-13. The sensor outputs are presented to the user through the GUI on the remote user's computer. 2:50-54, 2:61-65, 25:5-12, 26:3-7, Claim 36, FIG. 5, FIG. 6.  FIG. 6 A POSITA would recognize Kahn discloses a providing, a user interface indicating the first fluid property, the first client computing device being remote from the server system and the first computer system through its disclosure of a graphical user interface for monitoring fluid quality. Thus, Kahn discloses this claim element.
	[1.9] receiving, with the server system, from the first client computing device, a first command to	Kahn discloses a facility interface module, Sensor unit 110, including a processor that connects via a network to centralized data collection points. *See, e.g.,* 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-

	change a state of the first fluid-handling device; and	30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid-handling facilities. *See, e.g.,* 8:3-11, 8:21-24, 10:62-67; *see also* 14:35-15:2, 15:62-16:32, 34:7-12. A POSITA would recognize from the above disclosure that Kahn discloses receiving, with the server system, from the first client computing device, a first command to change a state of the first fluid-handling device where the command to changes a state of the fluid-handling devices is the recalibration solution. Thus, Kahn discloses this claim element.
	[1.10] causing, with the server system, the first computer system disposed at the first fluid handling site to effectuate the command by changing the state of the first fluidhandling device to a sequence of different target states that change over time.	Kahn discloses a facility interface module, Sensor unit 110, including a processor that connects via a network to centralized data collection points. *See, e.g.,* 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities. *See, e.g.,* 8:3-11, 8:21-24, 10:62-67; *see also* 14:35-15:2, 15:62-16:32, 34:7-12. A POSITA would recognize from Kahn's disclosure of changing the fluid and injecting by pumps that Kahn discloses receiving, with the server system, from the first client computing device, a first command to change a state of the first fluid-handling device. Thus, Kahn discloses this claim element. As such, Claim 1 is anticipated by Kahn or would be obvious to a POSITA in view of Kahn.
17.	[17.1] The system of claim 1, wherein the system further comprises: a plurality of fluids, the plurality of fluids comprising a second fluid;	Kahn discloses that the system measures various aspects of water or other fluids and fluids that tend to indicate the usefulness of or danger posed by a fluid, where either the other fluids or fluids that tend to indicate the usefulness of or danger posed by a fluid are the second fluid., 3:63-65, 5:1-3, 17:67-18:2 ("other fluids, such as natural gas").

		A POSITA would readily understand that Kahn discloses a plurality of fluids comprising a second fluid. Thus, Kahn discloses this claim element.
	[17.2] a plurality of computer systems disposed at a plurality of fluid-handling sites, the plurality of computer systems comprising a second computer system;	Kahn discloses the plurality of computer systems comprising a second computer system through its disclosure that the software components and/or functionality may be located on a single computer or distributed across multiple computers depending upon the situation at hand. 33:40-43. Additionally, Kahn discloses using a graphical computer interface at a second computer operated by the second user. 25:48-26:2, Claim 1. A POSITA would readily understand that Kahn discloses a plurality of computer systems comprising a second computer. Thus, Kahn discloses this claim element.
	[17.3] a plurality of fluid tanks, the plurality of fluid tanks comprising a second fluid tank; and	Kahn discloses plurality of fluid tanks comprising a second fluid tank in its disclosure of a "[d]istribution system" includes any system of fluid distribution, including systems of pipes and/or systems of reservoirs, channels, pipes and treatment plants, but also can include less typical distribution channels such as container water, well water within a watershed or a water table, and even large bodies of water, oceans. 4:12:-25. A POSITA would readily understand that Kahn discloses a plurality of fluid-handling devices including a second tank through its disclosure of multiple treatment systems for each of multiple tanks. Thus, Kahn discloses this claim element.
	[17.4] a plurality of fluid-handling devices, the plurality of fluid-handling devices comprising a second fluid-handling device.	A hallmark of the system in Kahn is the ability to identify the location of and communicate with the system's sensor units. 4:12-25. Kahn expressly discloses a second, and indeed larger numbers of fluid handling devices for detecting and locating physical events in the distribution system. 10:8-13 ("Physical events, such as a breakage of a pipe might be detected through a pattern of sensor units 110 reporting readings that deviate from historic norms, for example, reduced water pressure compared to historic norms, thereby identifying the exact location or proximate location of the

		breakage."); 23:51-62. Kahn discloses that sensors units be placed at the shut off valve located at the introduction of water supply into a house, business, industrial site or government site, for instance, and that they can be placed at each individual faucet or selected faucets where it is likely that the end user 23 might drink water or otherwise consume or cause fluids to be consumed. 11:2-15; *see also* FIG. 2, 16:67- 17:7. A POSITA would readily understand that Kahn discloses a plurality of fluid-handling devices, the plurality of fluid-handling devices comprising a second fluid-handling device. Thus, Kahn discloses this claim element. As such, Claim 17 is anticipated by Kahn or would be obvious to a POSITA in view of Kahn.
18.	[18.1] The system of claim 17, wherein: the first computer system, the first fluid-handling device and the first fluid tank are disposed at a water source;	Kahn discloses a facility interface module, Sensor unit 110, including a processor that connects via a network to centralized data collection points. *See, e.g.,* 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn discloses a first fluid tank in a contiguous distribution system of pipes and/or systems of reservoirs, channels, pipes and treatment plants. 4:12-17; *see also* FIG. 6. A POSITA would readily understand from the above disclosure in Kahn that the treatment plants have a first fluid tank disposed at a water source. Thus, Kahn discloses this claim element.
	[18.2] the second computer system, the second fluid-handling device, and the second fluid tank are disposed at a water receptacle; and	Kahn discloses the second fluid-handling device, in a contiguous distribution system of pipes and/or systems of reservoirs, channels, pipes and treatment plants. 4:12-17. A POSITA would readily understand from the distribution system disclosure in Kahn that the treatment plants have multiple tanks including a second fluid tank disposed at a water receptacle, i.e, pipes and/or systems of reservoir channels. Thus, Kahn discloses this claim element.
	[18.3] each of the first fluid and the second fluid comprises water.	Kahn discloses the first fluid and the second fluid comprises water through its disclosure of container water, well water within a watershed or a water

		table, and even large bodies of water, oceans, rivers, streams and/or tributaries. 4:18-20. A POSITA would readily understand from the above disclosure in Kahn that the first and second fluids comprise water. Thus, Kahn discloses this claim element. As such, Claim 18 is anticipated by Kahn or would be obvious to a POSITA in view of Kahn.
19.	[19.1] The system of claim 18, wherein: the plurality of fluids further comprising a third fluid;	Kahn discloses the plurality of fluids further comprising a third fluid through its disclosure of water or other fluids and fluids that tend to indicate the usefulness of or danger posed by a fluid, where either the other fluids or fluids that tend to indicate the usefulness of or danger posed by a fluid are the second fluid. 3:63-65, 5:1-3, 17:67-18:2 ("other fluids, such as natural gas"). A POSITA would readily understand that Kahn discloses a plurality of fluids comprising a third fluid through its disclosure of measurements of water and other fluids. Thus, Kahn discloses this claim element.
	[19.2] the plurality of computer systems further comprises a third computer system; and	Kahn discloses the plurality of computer systems further comprises a third computer through its disclosure that the software components and/or functionality may be located on a single computer or distributed across multiple computers depending upon the situation. 33:40-42. Kahn expressly discloses a second, and indeed larger numbers of fluid handling devices for detecting and locating physical events in the distribution system. 10:8-13 ("Physical events, such as a breakage of a pipe might be detected through a pattern of sensor units 110 reporting readings that deviate from historic norms, for example, reduced water pressure compared to historic norms, thereby identifying the exact location or proximate location of the breakage."); 23:51-62. Kahn discloses that Sensor unit 110 is a computer because it includes a processor that connects via a network to centralized data collection points. *See, e.g.,* 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3.

		A POSITA would readily understand that Kahn discloses a plurality of computer systems comprising a third computer from its disclosure of multiple computers. Thus, Kahn discloses this claim element.
	[19.3] the plurality of fluid-handling devices further comprises a third fluid-handling device comprising a process filter, wherein the third fluid-handling device is disposed down-stream of a fourth fluid-handling device and upstream of a fifth fluid handling device, receives from the fourth fluid-handling device the third-fluid, and is configurable to provide a fourth fluid to the fifth fluid-handling device.	Kahn discloses the plurality of fluid-handling devices further comprises a third fluid-handling device comprising a process filter through its disclosure that water treatment devices (e.g. filters) deployed among the system's valves and pump. 8:6-7, 8:19-30; 10:62-67, 11:2-5, 11:18-13:58, 13:34-36, 15:50-16:5, 16:56, 20:64-67, 21:1-2, FIG. 1C-FIG. 1D., FIG. 1F, FIG. 1G. Kahn discloses that the third fluid-handling device is disposed down-stream of a fourth fluid-handling device and upstream of a fifth fluid handling device, Kahn discloses that the fourth fluid-handling device receives the third-fluid through its disclosure of a first, intake sensor 114C is configured to be exposed to fluid that enters the filter unit 114 (pre-filtering fluid, or more generally, pre-treating fluid) and the second, output sensor (post-filtering fluid) 114D configured to be exposed to fluid filtered by the filter 114B (post-filtering fluid, or more generally, post-treating fluid). 11:22-27. Kahn discloses that the third fluid handling device is configurable to provide a fourth fluid to the fifth fluid-handling device through its disclosure that a third sensor unit 114F configured to be exposed to the fluid that enters the filter housing 114A can be employed, wherein the third sensor 114F is coupled to the processing unit 112A. 12:58-61. Finally, Kahn discloses a fluid control device such as a valve 15A is located on the input side of a senor unit 110. FIG. 1D, 8:19-21, 15:50-53. A POSITA would understand that Kahn discloses a third fluid-handling device comprising a process filter, wherein the third fluid-handling device is disposed down-stream of a fourth fluid-handling device and upstream of a fifth fluid handling device, receives from the fourth fluid-handling device the third-fluid, and is configurable to provide a fourth fluid to the fifth fluid-handling device from its

		disclosure of multiple individual sensors and values in the disclosed system. Thus, Kahn discloses this claim element. As such, Claim 19 is anticipated by Kahn or would be obvious to a POSITA in view of Kahn.
20.	[20.1] A tangible, non-transitory, machine-readable medium storing instructions that, when executed by a computer processor, effectuate operations comprising:	Kahn discloses each and every limitation of claim 20, anticipating claim 20. Claim 20's preamble is non-limiting. Claim 20's limitation 20.2 is analogous to limitation 1.2, limitation 20.3 is analogous to limitation 1.2, limitation 20.4 is analogous to limitation 1.2, limitation 20.5 is analogous to limitation 1.5, limitation 20.6 is analogous to limitation 1.6, limitation 20.7 is analogous to limitation 1.7, limitation 20.8 is analogous to limitation 1.8, limitation 20.9 is analogous to limitation 1.9, and limitation 20.10 is analogous to limitation 1.10. Each of Claim 20's limitations are disclosed by Kahn for reasons provided above, and incorporated here. Claim 20 is anticipated by Kahn.
	[20.2] measuring, with one or more sensors at a first fluid tank located at a first-fluid handling site, one or more properties associated with a first fluid;	
	[20.3] receiving, with a first computer system disposed at a first fluid handling site, information associated with the one or more properties associated with the first fluid;	
	[20.4] providing, with the first computer system, remote control of a first fluid-handling device of a plurality of fluid-handling devices, the first fluid-handling device comprising at least one of a first pump, a first filter, and a first valve;	
	[20.5] receiving, with a server system, from the first computer system, via a network, a first fluid property of the one or more properties associated with the first fluid sensed by a first sensor of the one or more sensors;	

	[20.6] obtaining, with the server system, credentials from a first client computing device;	
	[20.7] determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site, wherein the server system hosts data about other fluid handling sites the user is not authorized to interact;	
	[20.8] after the determination, providing, with the server system, via the network, information by which a first client computing device presents a user interface indicating the first fluid property, the first client computing device being remote from the server system and the first computer system;	
	[20.9] receiving, with the server system, from the first client computing device, a first command to change a state of the first fluid-handling device; and	
	[20.10] causing, with the server system, the first computer system disposed at the first fluid handling site to effectuate the command by changing the state of the first fluid-handling device to a sequence of different target states that change over time.	

Exhibit F-3

Invalidity Claim Chart for U.S. Patent No. 11,726,504 ("the 504 patent")

In view of

US 2015/0308244 ("Cardamone")

or US 7,424,399 (Kahn) alone or taken together with

SCADA: Supervisory Control and Data Acquisition, 4th Edition ("SCADA")

The asserted claims of '504 patent are anticipated and/or rendered obvious by Cardamone or Kahn alone or in combination with any of the other references listed below as identified in Defendant Preliminary Invalidity Contentions.

U.S. Patent No. 2015/0308244 ("Cardamone") was filed on November 26, 2013, published on October 29, 2015. This application is a National Stage Entry of PCT/US2013/071976, filled on November 26, 2013 that claim priority from a provisional application 61/729,815, filled on November 26, 2012. Cardamone is prior art under at least 35 U.S.C. 102(e).

U.S. Patent No. 7,424,399 ("Kahn") was filed on June 09, 2006, published on March 01, 2007 and issued on September 09, 2008. Kahn is prior art under at least 35 U.S.C. 102(a).

SCADA: Supervisory Control and Data Acquisition, 4th Edition ("SCADA") published on 2010. SCADA is prior art under at least 35 U.S.C. 102(a).

The citations to portions of any reference in this chart are exemplary only. Defendant will rely on the entirety of the reference cited in this chart, as well as any additional materials relevant to the reference identified through their ongoing investigation, to show that the asserted claims are invalid.

Claim#	Claim Language	Cardamone, Kahn and SCADA
2.	The system of claim 2, wherein: the sequence of different target states that change over time are configured to ramp up or down a speed of the first fluid-handling device.	Cardamone discloses that the "control algorithm may control the motor drive system and/or pump as a function of sensory data." ¶ 0009; *see also id*., Claims 11 ("control computer is programmed to provide an output command as a function of one or more of said operating parameters from said sensor system"), 12 ("the output command is a motor drive command"), 13 ("the motor drive command is a function of a change in pressure sensed by said pump inlet pressure sensor"). Cardamone further discloses that application 131 also allows the user to adjust the operating parameters of control computer 126 through "a command interface" to specify the "movement profile" for the pump system, including through a distance vs. time curve, or a force vs. time

		curve for an operation cycle of the pump. ¶ 0044; *see also id*., ¶ 0036. A POSITA would readily understand that adjusting pump operation based on measurements or predefined functions would necessarily include adjusting pump operation of ramping up or down of the fluid handling device as feedback to maintain the operating regimen. ¶ 63. As such, Claim 2 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone. SCADA discloses that "the signal would be more likely to act as the remote set point of a PID (proportional/integral/derivative) controller, and the output from the controller would control a valve, a louver, a machine speed, or any number of parameters that could be described by an analog value between 0 and 100 percent…the pulse control method…allows a stepper motor to be incremented or decremented by a specified number of steps. . . . Many end devices, such as sensors and actuators, are equipped with serial output and input capability." at 100-101. A POSITA would readily recognize that the recited controlling of machine speed by the controller and the recited using the pulse control method to a stepper motor to be incremented or decremented by a specified number of steps from the disclosure of SCADA is the sequence of different target states that change over time configured to ramp up or down a speed of the first fluid-handling device. A POSITA would recognize that the incrementing or decrementing of the stepper motor is ramping up or down of speed, i.e. a target state, of the first fluid-handling device. As described above, and incorporated by reference herein, a POSITA would be motivated to combine the disclosures of Cardamone and Kahn and SCADA for Claim 2. A POSITA would recognize that SCADA provides specific details of fluid

		processing systems and remote control of fluid handing devices of Cardamone and Kahn to process instrumentation, various communication methods, and computer applications. Thus, SCADA in combination with Cardamone or Kahn renders obvious the sequence of different target states that change over time are configured to ramp up or down a speed of the first fluid-handling device recited in the '504 Patent.
8.	The system of claim 7, wherein translating the plurality of commands comprises steps for translating commands.	Cardamone discloses data server 134 connected to network 132 linked to control and communication computer 126 through one of a variety of communication link types, including hardwire connection, or internet connection via wire, wifi, satellite modem, and/or cellular data connections. ¶¶ 0024, 0027. Whereas, the pump drive unit 318 interfaces with control and communication computer 126 over digital interface bus 326. ¶ 0031; *see also* ¶¶ 0029-31 (describing Pump System 122). Bus 326 has multiple protocols implemented including DeviceNet, RS485, F-NET, Modbus, FireWire, CANopen, Ethernet IP, ProfiNet, and SERCOS. ¶ 0031. These protocols, which include but are not limited to internet or computer networking protocols, drive the fluid-handling device. ¶ 0007. And other similar protocols may also be used as alternatives, through either analog or digital signal transfer. ¶ 0030-31. A POSITA would readily understand that the claimed translation of protocols is required to permit the data interface and bus to operate and communicate with various types of devices using multiple different types of protocols. As such, Claim 8 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone. SCADA also discloses "there are several languages that can be used between field instruments and RTUs." at 71 (describing physical wire communication). SCADA further discloses translators "called transducers in the process control

		industry...[that] change the language from electrical current (I) to air pressure (P)." at 72-73. A POSITA would understand that the use of different protocols by the protocol driver requires that the protocols be translated (i.e., from electrical signals to control signals) and that the translated instructions include the determined plurality of different target states as claimed in the '504 Patent. Thus, SCADA discloses this claim limitation. As described above, and incorporated by reference herein, a POSITA would be motivated to combine the disclosures of Cardamone and Kahn and SCADA for Claim 8. A POSITA would recognize that SCADA provides specific details of fluid processing systems and remote control of fluid handing devices of Cardamone and Kahn to process instrumentation, various communication methods, and computer applications. Thus, SCADA in combination with Cardamone or Kahn renders obvious the steps for translating commands recited in the '504 Patent. *Id*.
13.	The system of claim 7, wherein the plurality of different formats and protocols comprise command code format, an on-off signal format, and an application-program interface format.	Cardamone discloses the plurality of different formats and protocols comprise command code format, an on-off signal format, and an application-program interface format that the field bus interface may include DeviceNet, RS485, F-NET, Modbus, FireWire, CANopen, Ethernet IP, ProfiNet, SERCOS, 12-bit Analog IN, 16-bit Analog I/O, and/or other similar bus hardware and protocols. ¶ 0031. A POSITA would readily recognize that the above formats and protocols include command code format, an on-off signal format, and an application-program interface format. As such, Claim 13 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone. SCADA discloses that applications programs, operating on other computers and connected to the MTU, provide a form of supervisory control over

		SCADA. SCADA, 4th ed., at 14. SCADA further discloses RS232 as well as analog and digital signals comprising command code and an on-off signal format. *Id*. at 91. A POSITA would readily recognize that the recited the plurality of different formats and protocols comprise command code format, an on-off signal format, and an application-program interface format are disclosed by SCADA in its disclosure of the pulse control method…allows a stepper motor to be incremented or decremented by a specified number of steps which is an on-off signal format. As described above, and incorporated by reference herein, a POSITA would be motivated to combine the disclosures of Cardamone and Kahn and SCADA for Claim 13. A POSITA would recognize that SCADA provides specific details of fluid processing systems and remote control of fluid handing devices of Cardamone and Kahn to process instrumentation, various communication methods, and computer applications. Thus, SCADA in combination with Cardamone or Kahn renders obvious the plurality of different formats and protocols comprise command code format, an on-off signal format, and an application-program interface format recited in the ’504 Patent.

Exhibit F-4

Invalidity Claim Chart for U.S. Patent No. 11,726,504 ("the 504 patent")

In view of

US 2015/0308244 ("Cardamone")

Alone or in combination

64utah-SCADA

Brochure-VTScada-FeaturesByVersion

sys_wht_ppr-2a_new

CR1000 Datalogger – Brochure

TM 5-601 Supervisory Control

The asserted claims of '504 patent are anticipated and/or rendered obvious by Cardamone alone or in combination with 64utah-SCADA, Brochure-VTScada-FeaturesByVersion, scada_sys_wht_ppr-2a_new, CR1000 Datalogger – Brochure, TM 5-601 Supervisory Control as identified in Defendant Preliminary Invalidity Contentions.

U.S. Patent No. 2015/0308244 ("Cardamone") was filed on November 26, 2013, published on October 29, 2015. This application is a National Stage Entry of PCT/US2013/071976, filed on November 26, 2013 that claim priority from a provisional application 61/729,815, filed on November 26, 2012. Cardamone is prior art under at least 35 U.S.C. 102(e).

64utah-SCADA was published in 2012. 64utah-SCADA is prior art under at least 35 U.S.C. 102(a).

Brochure-VTScada-FeaturesByVersion was published in 2016 (continuously updated since 2007). Brochure-VTScada-FeaturesByVersion is prior art under at least 35 U.S.C. 102(a).

scada_sys_wht_ppr-2a_new was published in 2007. scada_sys_wht_ppr-2a_new is prior art under at least 35 U.S.C. 102(a).

CR1000 Datalogger – Brochure was published in June 2004 and 2008. CR1000 Datalogger – Brochure is prior art under at least 35 U.S.C. 102(a).

TM 5-601 Supervisory Control was published on January 21, 2006. TM 5-601 Supervisory Control is prior art under at least 35 U.S.C. 102(a).

The citations to portions of any reference in this chart are exemplary only. Defendant will rely on the entirety of the reference cited in this chart, as well as any additional materials relevant to the reference identified through their ongoing investigation, to show that the asserted claims are invalid.

Claim#	Claim Language	Cardamone
1.	[1.1] A fluid processing system, comprising:	To the extent that the preamble is found to be limiting, Cardamone discloses a system for remotely controlling a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station. *See, e.g.*, ¶¶ 0001, 0022; *see also id*., ¶ 0005 ("downhole pump"). A POSITA would readily recognize that the deep well linear pump system is a fluid processing system. Thus, Cardamone discloses this claim element. Further 64utah-SCADA discloses a fluid processing system. 64utah-SCADA recites, "The systems connect with numerous sensors via a Campbell multiplexer to monitor parameters such as flow and pressure from water sources into tanks, flow and pressure from tanks into the towns, tank level, and flood conditions at the building housing the system. The CR1000 uses a Campbell SDM-CD8S dc device controller to control pumps and valves, with each town controlling the valves to allow or disallow the water flowing to the other." *See* 64utah-Scada, page 2. Also, 64utah-Scada recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* 64utah-Scada, page 2. Further, Brochure-VTScada-FeaturesByVersion discloses fluid processing system. Brochure-VTScada-FeaturesByVersion recites, "The simplest way to access your process from smart phones or tablets. This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* Brochure-VTScada-FeaturesByVersion, page 4. Further scada_sys_wht discloses a system for fluid processing. Scada_sys_wht, recites, "Remote monitoring and control of oil and gas production, pumping, and storage at refineries from both

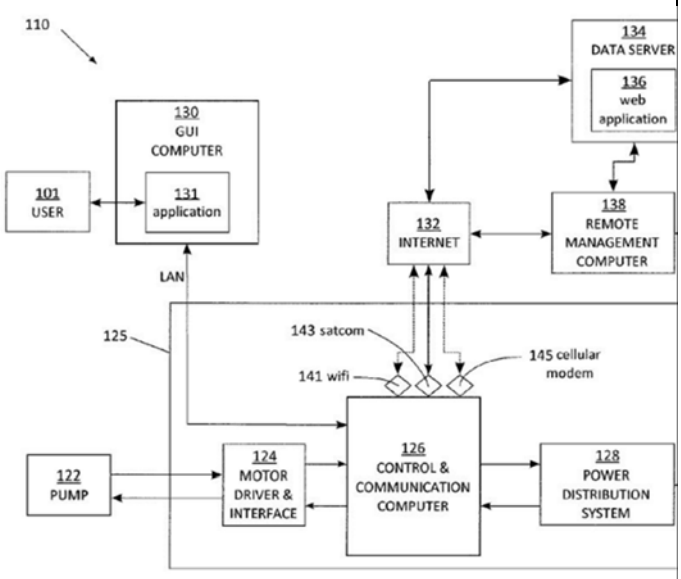
		offshore platforms and onshore wells". *See* page 2. Scada_sys_wht further recites, "The RTU or PLC acquires the site data, which includes meter readings, pressure, voltage, or other equipment status, then performs local control and transfers the data to the central SCADA system."
	[1.2] a first computer system disposed at a first fluid handling site, wherein the first computer system is configured to: receive information comprising one or more properties of a first fluid from one or more sensors disposed at a first fluid tank itself disposed at the first fluid-handling site, the fluid-handling site comprising one or more fluid-handling devices, the one or more fluid-handling devices comprising one or more of a first pump, a first filter, and a first valve; an:	Cardamone discloses control and communication computer 126 arranged at the surface of the deep oil well. ¶ 0024. Control and communication computer 126 includes data sampling and storage mechanisms for receiving and storing sensory data from both pump system 122 and motor driver 124. *Id*. The available data includes inlet pressure, which can be used to determine the depth of fluids remaining in the well, and monitoring pump frequency to monitor the volume of fluids extracted from the well. ¶¶ 0029-30, 0044-45, 0049. Cardamone discloses that the raw sensor signals collected by control and communication computer 126 include motor output force, motor position, motor temperature, pump inlet and outlet pressure, inlet temperature, pump inclination, motor driver state, motor driver output current, power distribution system state and temperature, and power distribution system output voltage and current. ¶ 0042. Cardamone discloses that the fluid handling site has a pump, valve, and tank that handles a fluid in its disclosure of down-hole pump 228 includes a standing valve, a traveling valve, a piston or plunger, inlet 227, and outlet 231. ⁋ 0029. A POSITA would understand that the deep oil system and oil wells described in Cardamone include a tank to store the oil that is pumped up the surface of the oil well. ⁋ 0022. Thus, Cardamone discloses this claim element. Further 64utah-SCADA discloses a controlling system disposed at the site. 64utah-SCADA recites, "The systems connect with numerous sensors via a Campbell multiplexer to monitor parameters such as flow and pressure from water sources into tanks, flow and pressure from tanks into the towns, tank level… The CR1000 uses a Campbell SDM-CD8S

		dc device controller to control pumps and valves, with each town controlling the valves to allow or disallow the water flowing to the other." *See* 64Utah-SCADA, page 2. Further CR1000 Datalogger – Brochure discloses a controlling system disposed at the site. CR1000 Datalogger – Brochure recites, "The module measures sensors, drives direct communications and telecommunications, reduces data, controls external devices, and stores data and programs in on-board, non-volatile storage." *See* page 2. Further TM 5-601 discloses a controlling system disposed at the site, "The RTUs were developed primarily to provide monitoring and control capability at unattended sites such as substations, metering stations, pump stations, and water towers." *See* page 3-4. Further scada_sys_wht_ppr-2a_new discloses a controlling system disposed at the site. Scada_sys_wht_ppr-2a_new recites, "RTUs that contain a 200 MHz, 500 Million Instructions per Second (MIPS) CPU with multiple communication port support are optimal for performing simultaneous communications, networking, and control tasks." *See* page 5.
	[1.3] provide remote control of a first fluid-handling device of the one or more fluid-handling devices; and	Cardamone discloses that data server 134 provides the functionality of GUI Computer 130. ¶ 0046. Cardamone discloses that users connect to GUI computer 130 to interface with control and communication computer 126, through application 131. ¶ 0042, *see also id*., ¶¶ 0011, 0021, 0026, 0041. Application 131 provides access to control and communication computer 126 to request data, including the current sensory data of pump control system 110. *Id*. Application 131 also allows the user to adjust the operating parameters with control computer 126 through "a command interface." ¶¶ 0044-45. Cardamone also discloses that data server 134 is connected to network 132 which is linked to control and communication computer 126 through a variety of network communication types. ¶ 0027.

		A POSITA would readily recognize Cardamone discloses the remote management computer and web application facilitates remote control of fluid handling devices. Thus, Cardamone discloses this claim element. 64utah-SCADA, discloses a remote system to receive data. 64utah-SCADA recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 2. Further Brochure-VTScada-FeaturesByVersion, discloses a server for user to control the site. Brochure-VTScada-FeaturesByVersion recites, "This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* page 4. Brochure-VTScada-FeaturesByVersion further recites, "This optional feature, introduced in 10, allows authorized users to see changes made on all servers, roll back to previous versions and merge versions together." *See* page 4.
	[1.4] a server system wherein the server system has memory storing instructions that, when executed, effectuate operations comprising;	Cardamone discloses data server 134, a server computer remote from the oil well. ¶ 0021. Data server 134 links to control and communication computer 126 through standard wired and wireless communication links. ¶ 0024. Data server 134 receives sensory data logs from control and communication computer 126 and contains a web server/web application 136 for providing a client interface for viewing the sensory data logs on remote management computer 138. ¶ 0027. Data server 134 acts as a data storage for sensory data and configuration commands. ¶¶ 0021, 0027, 0035, 0048. A POSITA would understand that Cardamone discloses a server system with a memory for storing instructions through its disclosure of a data storage from the disclosure of a data server and memory. Thus, Cardamone discloses this claim element.

		64utah-SCADA, discloses a remote system to receive data. 64utah-SCADA recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 2. Further Brochure-VTScada-FeaturesByVersion, discloses a server to receive data. Brochure-VTScada-FeaturesByVersion recites, "This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* page 4.
	[1.5] receiving, with the server system, from the first computer system, via a network, a first fluid property of the one or more properties associated with the first fluid sensed by a first sensor of the one or more sensors;	Control and communication computer 126 includes data sampling and storage mechanisms for receiving and storing sensory data from both pump system 122 and motor driver 124. ¶¶ 0002, 0024. The available data includes inlet pressure, pump frequency, and other properties associated with the fluids extracted from the well. ¶¶ 0029-30, 0044-45, 0049. Cardamone also discloses that the raw sensor signals collected by control and communication computer 126 include motor output force, motor position, motor temperature, pump inlet and outlet pressure, inlet temperature, pump inclination, motor driver state, motor driver output current, power distribution system state and temperature, and power distribution system output voltage and current. ¶ 0042. Cardamone discloses that the fluid properties are received via a network through its disclosure that the control and communication computer includes communication transceivers to provide a network link to a data server 134. ¶ 0024. A POSITA would understand from Cardamone's disclosure of a data server that receives sensory data logs from the first computer system, and that the sensory data logs include fluid properties sensed by the sensor. Thus, Cardamone discloses this claim element.

		64utah-SCADA, discloses getting a fluid level. 64utah-SCADA recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 2. Further Brochure-VTScada-FeaturesByVersion, discloses server receiving a fluid level. Brochure-VTScada-FeaturesByVersion recites, "This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch."
	[1.6] obtaining, with the server system, credentials from a first client computing device;	Cardamone discloses obtaining, with the server system, credentials from a first client computing device through its disclosure that application 131 queries user 101 for a username and password. ¶ 0042. The user queries GUI computer which, as discussed above, is connected to data server 134. *Id*. A POSITA would readily understand that querying a user for a username and password is the obtaining credentials from a first client computing device. Thus, Cardamone discloses this claim element. Further Brochure-VTScada-FeaturesByVersion discloses getting a user credential. Brochure-VTScada-FeaturesByVersion recites, "To reduce duplication and ensure consistency, accounts can now be shared across applications. The security database scheme now employs military-grade encryption as does the security information exchanged between the VTScada Internet Client and Server. Accounts can also now be disabled following repeated failed log-in attempts." *See* page 4. A POSITA would understand that for log-in attempts, the user has to provide with credential. Hence, Brochure-VTScada-FeaturesByVersion describes the sited claim element.
	[1.7] determining, with the server system, based on the	Cardamone discloses that application 131 queries user 101 for a username and password, which are

	credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site, wherein the server system hosts data about other fluid handling sites the user is not authorized to interact;	then provided to control and communication computer 126 for authentication. ¶ 0042. A POSITA would readily understand that, after querying a user for a username and password "for authentication," the system would only provide information about a fluid-handling device a user is authorized to interact with, and not provide access to information about a fluid-handling device a user is not authorized to interact with. A POSITA would further understand that the server discussed above in element 1.4 hosts user data for fluid-handling devices other than the limited set of fluid handling devices a particular user is authorized to access. Thus, Cardamone discloses this claim element. *Id*.
	[1.8] after the determination, providing, with the server system, via the network, information by which the first client computing device presents a user interface indicating the first fluid property, the first client computing device being remote from the server system and the first computer system;	Cardamone discloses that data server 134 provides the functionality of GUI Computer 130. ¶ 0046. Cardamone discloses that users connect to GUI computer 130 to interface with control and communication computer 126, through application 131. ¶ 0042, *see also id*., ¶¶ 0011, 0021, 0026 ("GUI computer 130 may be a portable computer brought by a service user 101 in order to provide on-site maintenance and/or monitoring"), 0041, FIG. 1.  FIG. 1

		The user queries GUI computer for access to the system which, as discussed above, is communicatively coupled to data server 134. ¶ 0035. Application 131 provides access to control and communication computer 126 to request data, including the current sensory data of pump control system 110. *Id*. Operational data includes sensory data from pump system 122, motor driver 124, power distribution system 128, and control and communication computer 126. ¶ 0026. Cardamone also discloses that data server 134 is connected to network 132 which is linked to control and communication computer 126 through a variety of network communication types. ¶ 0027. A POSITA would recognize that Cardamone's disclosure of the first client computing device is the GUI computer interfacing with the user, the server is data server 134, and the first computer system is control and communication computer 126. A POSITA would recognize that Cardamone's disclosure of web a GUI computer for providing a client interface for viewing the sensory data logs on remote management computer 138 is the presenting a user interface indicating the first fluid property found in claim of the '504 Patent. *Id*. Thus, Cardamone discloses this claim element. 64utah-SCADA, discloses indicating fluid level to user being in remote location. 64utah-SCADA recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 4. Further Brochure-VTScada-FeaturesByVersion, discloses indicating fluid level to user being in remote location. Brochure-VTScada-FeaturesByVersion recites, "This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and

		issue control commands with a touch or pinch." *See* page 4.
	[1.9] receiving, with the server system, from the first client computing device, a first command to change a state of the first fluid-handling device; and	Cardamone discloses that data server 134 provides the functionality of GUI Computer 130. ¶ 0046. Cardamone discloses that users connect to GUI computer 130 to interface with control and communication computer 126, through application 131. ¶ 0042, *see also* ¶¶ 0011, 0021, 0026, 0041. Application 131 provides access to control and communication computer 126 to request data, including the current sensory data of pump control system 110. *Id*. Application 131 also allows the user to adjust the operating parameters with control computer 126 through "a command interface." ¶¶ 0044-45; *see also id*., ¶ 0026 ("software application (131) for allowing a user (101) to view sensor data, and view and set control computer operating parameters and algorithms"). Cardamone also discloses that data server 134 is connected to network 132 which is linked to control and communication computer 126 through a variety of network communication types. ¶ 0027. A POSITA would readily recognize that that setting operational parameters disclosed in Cardamone is the receiving a first command to change a state of the first fluid-handling device in claim 1 of the '504 Patent. Thus, Cardamone discloses this claim element. 64utah-SCADA, discloses command to change the state. 64utah-SCADA recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 4. Further Brochure-VTScada-FeaturesByVersion, discloses command to change the state. Brochure-VTScada-FeaturesByVersion recites, "This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends,

		and issue control commands with a touch or pinch." *See* page 4.
	[1.10] causing, with the server system, the first computer system disposed at the first fluid handling site to effectuate the command by changing the state of the first fluidhandling device to a sequence of different target states that change over time.	Cardamone discloses the determining of different target states of a given one of the fluid-handling devices over time. ¶¶ 0009, 0021, 0022, 0025, 0026, 0029, 0036. Cardamone discloses that the "control algorithm may control the motor drive system and/or pump as a function of sensory data." ¶ 0009; *see also id*., Claims 11 ("control computer is programmed to provide an output command as a function of one or more of said operating parameters from said sensor system"), 12 ("the output command is a motor drive command"), 13 ("the motor drive command is a function of a change in pressure sensed by said pump inlet pressure sensor"). Cardamone discloses that data server 134 provides the functionality of GUI Computer 130. ¶ 0046. Cardamone discloses that users connect to GUI computer 130 to interface with control and communication computer 126, through application 131. ¶ 0042, *see also id*., ¶¶ 0011, 0021, 0026, 0041, FIG. 1. Cardamone further discloses that application 131 also allows the user to adjust the operating parameters of control computer 126 through "a command interface" to specify the "movement profile" for the pump system, including through a distance vs. time curve, or a force vs. time curve for an operation cycle of the pump. ¶ 0044. Application 131 allows the user to program the operating function to control computer 126 based upon sensory data. ¶ 0045. For example, user 101 may program control computer 126 to set the pump frequency to be equal to the inlet pressure times a constant, or more complex functions, based upon a whole range of sensory input conditions. *Id*. A POSITA would understand that the causing, with the server system, the first computer system disposed at the first fluid handling site to effectuate the command by changing the state of the first fluid-handling device to a sequence of different target states that change over time is provided by Cardamone in its disclosure of control computer being programmed to provide an output command as a function of one or more of said operating

		parameters (i.e. different target states) from said sensor system which is communicatively coupled to the data server. Thus, Cardamone discloses this claim element. As such, Claim 1 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone. 64utah-SCADA discloses controlling the pump to change the state. 64utah-SCADA recites, "The systems connect with numerous sensors via a Campbell multiplexer to monitor parameters such as flow and pressure from water sources into tanks, flow and pressure from tanks into the towns, tank level, and flood conditions at the building housing the system. The CR1000 uses a Campbell SDM-CD8S dc device controller to control pumps and valves, with each town controlling the valves to allow or disallow the water flowing to the other." *See* page 2. Further TM 5-601 Supervisory Control discloses changing the state of pump. TM 5-601 Supervisory Control recites, "The control output usually must act on the system through another device to effect the desired control action, such as varying the position of a valve, the speed of a motor, or the current through a heating element. The device that converts the control output into control action is the actuator." *See* page 2-1.
2.	The system of claim 1, wherein: the sequence of different target states that change over time are configured to ramp up or down a speed of the first fluid-handling device.	Cardamone discloses that the "control algorithm may control the motor drive system and/or pump as a function of sensory data." ¶ 0009; *see also id.*, Claims 11 ("control computer is programmed to provide an output command as a function of one or more of said operating parameters from said sensor system"), 12 ("the output command is a motor drive command"), 13 ("the motor drive command is a function of a change in pressure sensed by said pump inlet pressure sensor"). Cardamone further discloses that application 131 also allows the user to adjust the operating parameters of control computer 126 through "a command interface" to specify the "movement profile" for the pump system, including through a distance vs. time curve, or a force vs. time

		curve for an operation cycle of the pump. ¶ 0044; *see also id*., ¶ 0036. A POSITA would readily understand that adjusting pump operation based on measurements or predefined functions would necessarily include adjusting pump operation of ramping up or down of the fluid handling device as feedback to maintain the operating regimen. ¶ 63. As such, Claim 2 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone. 64utah-SCADA discloses controlling the pump to change the flow. 64utah-SCADA recites, "The systems connect with numerous sensors via a Campbell multiplexer to monitor parameters such as flow and pressure from water sources into tanks, flow and pressure from tanks into the towns, tank level, and flood conditions at the building housing the system. The CR1000 uses a Campbell SDM-CD8S dc device controller to control pumps and valves, with each town controlling the valves to allow or disallow the water flowing to the other." *See* page 2. Further TM 5-601 Supervisory Control discloses changing the speed of pump. TM 5-601 Supervisory Control recites, "The control output usually must act on the system through another device to effect the desired control action, such as varying the position of a valve, the speed of a motor, or the current through a heating element. The device that converts the control output into control action is the actuator." *See* page 2-1.
5.	The system of claim 1, wherein: the server system is configured to interface with both a web browser on the client computing device and a special-purpose application executing on the client computing device to present the user interface	Cardamone discloses claim 5 of the '504 Patent. Cardamone discloses the server system is configured to interface with both a web browser on the client computing device through its disclosure that control and communication computer 126 also contains communication systems for interacting with data server 134 and GUI computer 130. ¶ 0021. Cardamone further discloses that the server system is configured to interface special-purpose application executing on the client computing device

	indicating the first fluid property, wherein the first fluid property corresponds to a first fluid level.	through its disclosure that Data server 134 includes web application 134 which provides an interface to remote management computer 138. ¶ 0021. Cardamone discloses that the special-purpose application presents the user interface indicating a first fluid level through its disclosure that through interaction via web application 136, remote management computer 138 provides user 102 with a user interface for reviewing sensory data and setting operational parameters of control and communication computer 126. ¶ 0021. Cardamone discloses that inlet pressure can be monitored to determine the depth, i.e. level, of oil remaining in the oil well. ¶ 0030. A POSITA would readily understand that the server system is configured to interface with both a web browser on the client computing device and a special-purpose application executing on the client computing device to present the user interface indicating the first fluid property, wherein the first fluid property corresponds to a first fluid level is provided by Cardamone in its disclosure of the GUI computer 130, which contains a web browser and the web application 134 (special/purpose application) which provides an interface to remote management computer 138 to provide fluid properties, including inlet pressure, an indication of fluid level. As such, Claim 5 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone. 64utah-SCADA, discloses a server system to view data. 64utah-SCADA recites, "VTScada allows the town water managers to view the status of pumps, water levels, and door and hatch alarms. The software can send out alarms, and allows users to access their system information and control devices over the Internet as if they were sitting at the main PC at the town hall." *See* page 2. Further Brochure-VTScada-FeaturesByVersion, discloses a server a server system to view data.

		Brochure-VTScada-FeaturesByVersion recites, "This tactile browser-based interface allows you to securely view and acknowledge alarms, check levels, plot trends, and issue control commands with a touch or pinch." *See* page 4. Brochure-VTScada-FeaturesByVersion further recites, "This optional feature, introduced in 10, allows authorized users to see changes made on all servers, roll back to previous versions and merge versions together." *See* page 4.
6.	The system of claim 1, wherein: the first computer system is configured to communicate with the server system via a cellular wireless connection.	Cardamone discloses that data server 134 is connected to network 132 which is linked to control and communication computer 126 through one of a variety of communication link types, including hardwire connection, or internet connection via wire, wifi, satellite modem, and/or cellular data connections. ¶ 0027. A POSITA would understand that the communicating with the server system via a cellular wireless connection is provided by Cardamone in its disclosure of the communication link including cellular data connections. As such, Claim 6 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone. 64utah-SCADA discloses communicating via wireless connection. 64utah-SCADA recites, "LoggerNet and VTScada run on Windows 7 PCs and communicate with the CR1000 master unit over Ethernet connections." *See* page 2.
9.	The system of claim 7, wherein the plurality of different formats and protocols comprise: modbus remote terminal unit protocol; and analog electrical signals.	Cardamone discloses plurality of different formats and protocols comprising Modbus remote terminal unit protocol through its disclosure that Bus 326 has multiple protocols implemented including Modbus. ¶ 0007. Cardamone further discloses the plurality of different formats and protocols comprising analog electrical signals through its disclosure that the data interface may be implemented using alternative protocols for either analog or digital signal transfer. ¶ 0030. A POSITA would understand from the disclosures that Cardamone discloses a Modbus protocol and analog signals.

		As such, Claim 9 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone. Further CR1000 Datalogger discloses Modbus remote terminal unit protocol. CR1000 Datalogger recites, "The CR1000 also supports Modbus RTU protocol— both floating point and long formats. The datalogger can act as a slave, master, or both." *See* page 3.
14.	The system of claim 7, wherein the first computer system is configurable to operate in an automatic mode, a mixed automatic mode, and a manual mode.	Cardamone discloses the first computer system is configurable to operate in an automatic mode, a mixed automatic mode, and a manual mode through its disclosure that control computer 126 may be programmed to automatically adjust the movement profile based upon predefined conditions, such as the operating regimes defined in FIGS. 7 and 8. ¶ 0045; *see also id*., ¶¶ 0051-0052. A POSITA would readily understand the automatic adjustment of the movement profile is operating in an automatic mode. Cardamone also discloses that GUI computer 130 also provides user 101 with a mechanism for changing operational parameters of control and communication computer 126. *See, e.g*., ¶ 0026. A POSITA would readily understand that a user providing on-demand instructions is operating in a manual mode. The '504 Patent explains that in a mixed automatic mode "the user selects which devices are manually controlled while other devices are automatically controlled." 10:23-28. A POSITA would readily understand from Cardamone's disclosure of both automatic and manual operation, that a user could direct Cardamone's plurality of devices with some fluid handling devices in manual mode, and others in automatic mode.

		As such, Claim 14 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone. Further CR1000 Datalogger comprises of automatic mode. CR1000 Datalogger recites, “The CR1000 supports the PakBus® communication protocol. PakBus networks have the distributed routing intelligence to continually evaluate links. Continually evaluating links optimizes delivery times and, in the case of delivery failure, allows automatic switch over to a confi gured backup route.” *See* page 3.

Exhibit G-1

Invalidity Claim Chart for U.S. Patent No. 11,175,680 ("the 680 patent")

In view of

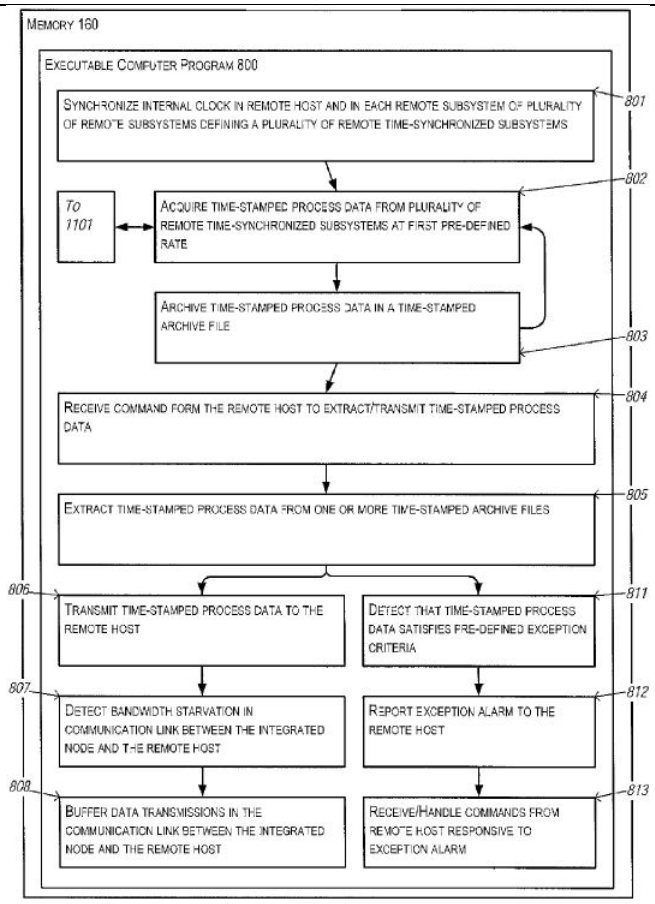
US 8,667,091 ("Almadi")

The asserted claims of '680 patent are anticipated and/or rendered obvious by Almadi as identified in Defendant Preliminary Invalidity Contentions.

U.S. Patent No. 8,667,091 ("Almadi") was filed on July 22, 2011, published on April 05, 2012 and issued on March 04, 2014. Almadi is prior art under at least 35 U.S.C. 102(a).

The citations to portions of any reference in this chart are exemplary only. Defendant will rely on the entirety of the reference cited in this chart, as well as any additional materials relevant to the reference identified through their ongoing investigation, to show that the asserted claims are invalid.

Claim#	Claim Language	Almadi
1.	[1.1] A non-transitory, machine-readable medium comprising instructions to effectuate operations, the operations comprising:	To the extent that the preamble is found to be limiting, Almadi discloses non-transitory, machine-readable medium comprising instructions to effectuate operations. Almadi discloses schematic flowcharts illustrating exemplary computer programs or computer program products according to embodiments of the present invention. FIGS. 8-11. Figure 8 discloses:

		 ***FIG. 8*** A POSITA would recognize that Almadi discloses the recited non-transitory machine-readable medium. Almadi discloses this claim limitation of the '680 Patent.
	[1.2] receiving, with a server, a command comprising a target value of a fluid-handling device from a computing device via a control interface, wherein the command is received in association with a record stored on a datastore;	Almadi discloses claim element 1.2. Almadi discloses receiving, with a server, a command comprising a target value of a fluid-handling device from a computing device via a control interface through its disclosure that integrated node 100 supports a local programming interface over a computer, such as through computer terminal having one or more input devices and one or more display devices that are accessible to a human user by using the remote host computer 110. 12:10-15. Almadi further discloses receiving a command in association with a record stored on a datastore through its disclosure that the PLC or RTU functions of the integrated node 100 enable data processing in the integrated node 100 and also enable data

		collection from, and control of, the plurality of remote subsystems 120. 11:51-63; *see also id.* 22:32-36 ("The DVRM 164 enhances the accuracy of data acquired by the integrated node 100, which also enhances the effectiveness of the integrated node 100 in controlling the plurality of remote subsystems 120."). A POSITA would understand Almadi discloses the recited receiving commands from the server comprising a target value to control specific fluid handling devices of the '680 Patent through its disclosure of receiving commands from a user through remote host 110, which connects through integrated node 100 to individually addressable remote subsystems 120 for controlling operation of well site components. Thus, Almadi discloses this claim limitation.
	[1.3] determining, with the server, a network address of a network based on the record, wherein the network address identifies a controller of the fluid-handling device, and wherein the controller accesses a sensor to measure a fluid being handled by the fluid-handling device and an actuator of the fluid-handling device;	Almadi discloses claim element 1.3. Almadi discloses determining, with the server, a network address of a network based on the record through its disclosure that the integrated node 100 includes a network interface 103 for routing network connections with a remote host and a number of subsystems. The local network interface 103 can be, for example, a network switch including a network bridge for processing and routing functions at the data link layer. 12:60-65. Almadi also discloses that the network address identifies a controller of the fluid-handling device through its disclosure that intelligent sensors, actuators, and controllers can be connected to a network by means of communication buses, interface boards, cables, and accessories. 12:40-43. Almadi discloses that the controller accesses a sensor to measure a fluid being handled by the fluid-handling device and an actuator of the fluid-handling device through its disclosure that the integrated node 300 acquires data, including subsurface sensor and subsystem data, from the remote subsystem 320, at a pre- defined rate 360 by polling the remote subsystem 320. 15:62-67.
	[1.4] sending, with the server, the target value to	Almadi discloses claim element 1.4 through its disclosure that integrated node can also, for

	the network address via the network;	example, employ an Ethernet switch to support networking over multiple communication interfaces and transmit process data to a remote host server over TCP/IP. 3:13-17; *see also*, FIGS. 8-11. A POSITA would understand that transmitting process data via an Ethernet switch is the sending, with the server, the target value to the network address via the network as claimed in the '680 Patent. Thus, Almadi discloses this claim limitation.
	[1.5] receiving, with the controller, a measurement of the fluid by the sensor;	Almadi discloses claim element 1.5 through its disclosure of integrated node 100 as illustrated in FIGS. 1A-1B, having a central processing unit 105 and a memory 160 to allow a remote host 110 to interface with a plurality of remote subsystems 120. 11:18-21. Almadi discloses that modern field devices monitor and collect data, such as measurements of fluid pressure, temperature, or flow, reflective of the operations of the automated process. 1:28-57. Almadi further discloses a data verifier to substitute out-of-bounds measurements in the time-stamped data with new measurements responsive to a preconfigured filtering scheme and to suspend data acquisition upon detecting an out-of-bounds measurement, thereby defining a plurality of verified measurements. 9:1-7. A POSITA would understand Almadi's disclosure that the disclosed controller receives a measurement of fluid from the system's sensor, based on its discussion of modern field devices and its disclosed data verifier and data reconciler that determine the operating state of remote sub-systems based on sensor readings, as taught by the '680 Patent. Thus, Almadi discloses this claim limitation.
	[1.6] determining, with the controller, whether the measurement satisfies the target value;	Almadi discloses claim element 1.6. Almadi discloses commands used by the local controller to drive the fluid handling device to a particular target state: "field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps." 1:45-49; *see also id.* 25:26-37 ("switching a pump off if the flow is below

		a certain limit or activating some bounds or streams based on some readings/conditions"). Almadi also discloses a data verifier to substitute out-of-bounds measurements with new measurements responsive to a preconfigured filtering scheme and to suspend data acquisition upon detecting an out-of-bounds measurement. 9:1-7. A POSITA would understand from Almadi's disclosure that the disclosed controller determines whether the measurement satisfies the target value. Thus, Almadi discloses this claim limitation.
	[1.7] in response to a determination that the measurement does not satisfy the target value, obtaining, with the controller, a set point based on the command; and	Almadi discloses claim element 1.7. Almadi discloses obtaining a set point based on the command in response to a determination that the measurement does not satisfy a target value through its disclosure of a data verifier to substitute out-of-bounds measurements with new measurements responsive to a preconfigured filtering scheme and to suspend data acquisition upon detecting an out-of-bounds measurement. 9:1-11. More specifically, Almadi discloses commands used by the local controller to drive the fluid handling device to a particular target state; "field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps." 1:45-49; *see also id.* 25:26-37 ("switching a pump off if the flow is below a certain limit or activating some bounds or streams based on some readings/conditions"). A POSITA would recognize that limits or bounds apply a set point, which would be set by a user in a command. A POSITA would recognize that to verify measurements and determine whether a measurement was out-of-bounds, a set point would have to be obtained by the data verifier located on the controller and compared by the data reconciler also located on the controller. *Id.* Thus, Almadi discloses this claim limitation.
	[1.8] controlling, with the controller, the actuator based on the set point.	Almadi discloses claim element 1.8. Almadi discloses controlling, with the controller, the actuator based on the set point through its disclosure

		that integrated node 100, as illustrated in FIGS. 1A-1B, which describes how remote host 110 interfaces with a plurality of remote subsystems 120. 11:18-21. Almadi further discloses commands used by the local controller to drive the fluid handling device to a particular target state: "field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps." 1:45-49; *see also id.* 25:26-37 ("switching a pump off if the flow is below a certain limit or activating some bounds or streams based on some readings/conditions"). A POSITA would understand that Almadi discloses the controlling of the actuator based on the set point of the '680 Patent through its disclosure of the intelligent field systems and the data verifier and reconciler. A POSITA would understand that the data is verified and reconciled and that a command can be sent by the controller to control any number of actuators in intelligent field systems within limits or bounds, i.e. set points. Claim 1 is anticipated by Almadi or would be obvious to a POSITA in view of Almadi.
2.	[2.1] The medium of claim 1, wherein: the controller is a site master controller;	Almadi discloses claim element 2.1. Almadi discloses the controller is a site master controller through its disclosure that the plurality of remote subsystems 120 can include, for example, intelligent field systems such as permanent downhole monitoring ("PDHM") systems, electrical submersible pump ("ESP") systems, smart well completion ("SWC") systems, and flow meter systems, and any of the types of Intelligent Equipment Devices ("IED"). 1:18-57, 12:27-59. A POSITA would understand that Almadi discloses the site master controller of the '680 Patent through its disclosure of the plurality of remote sub-systems which can perform tasks including processing of measurement and control data and signal conversion. Thus, Almadi discloses this claim element.
	[2.2] the site master-controller controls a	Almadi discloses claim element 2.2. Almadi discloses the site master- controller controls a

	plurality of local controllers, the plurality of local controllers comprising a first local controller in communication with the actuator;	plurality of local controllers through its disclosure that a plurality of remote subsystems 120 can include, for example, intelligent field systems. 1:18-57, 12:27-59. Remote subsystems 120 can perform tasks including processing of measurement and control data and signal conversions. 12:27-59. Almadi further discloses the plurality of local controllers comprising a first local controller in communication with the actuator through its disclosure that remote subsystems 120 communicate with other field devices independent of the integrated node, such as intelligent sensors, actuators, and controllers. 12:37-44. A POSITA would understand that permanent downhole monitoring systems, electrical submersible pump systems, and smart well completion systems have actuators that can be remotely controlled by a computer. Additionally, a POSITA would understand that Almadi discloses a first local controller in communication with an actuator of the '680 Patent through its disclosure of the functionality of remote subsystems 120 that include intelligent field devices controlling intelligent sensors, actuators, and other controllers. *Id.* Thus, Almadi discloses this claim element.
	[2.3] controlling the actuator with the controller based on the set point comprises: sending the set point from the site master-controller to the first local controller; and	Almadi discloses claim element 2.3. Almadi discloses sending the set point from the site master-controller to the first local controller through its disclosure that field devices are connected to machines known as controllers that operate at the system level to process the data collected and issue commands back to the field devices, or other field devices, in response to processing the collected data. The repeated process of receiving collected data and issuing commands constitutes control over the operation of the automated process. 1:35-41. Almadi discloses commands used by the local controller to drive the fluid handling device to a particular target state: "field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for

		example, through motors and pumps." 1:45-49; *see also id.* 25:26-37. A POSITA would understand that Almadi discloses sending a set point from a site-master controller to the first local controller through its disclosure that field devices can obtain operational information and variables and deliver that information to system-level controller devices. Thus, Almadi discloses this claim element.
	[2.4] actuating, with the first local controller, the actuator based on the set point.	Almadi discloses claim element 2.4. Almadi discloses that field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps based on set points. 25:26-37. The sensor and actuator functions, at the process level, are supported by a controller or several controllers, at the system level, which receive information from the sensors and transmit information to the actuators. 1:45-52. A POSITA would understand that Almadi discloses actuating the actuator based on a set point through its disclosure that field devices can obtain operational information and variables (set point) and issue commands back to the field devices, including the actuator. Claim 2 is anticipated by Almadi or would be obvious to a POSITA in view of Almadi.
3.	[3.1] The medium of claim 1, wherein: obtaining the set point comprises determining a sequence of set points based on the command; and	Almadi discloses claim element 3.1. Almadi discloses commands used by the local controller to drive the fluid handling device to a particular target state: "field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps." 1:45-49; *see also id.* 25:26-37. Almadi discloses determining a sequence of set points based on the command through its disclosure that "[t]he repeated process of receiving collected data and issuing commands thereby constitutes control over the operation of the automated

		process." 1:39-41 (emphasis added). Field devices perform sensor functions to sense operational information and variables such as temperature, pressure, pH, or flow rate and deliver that information to the system-level controller devices. 1:45-52. A POSITA would understand Almadi discloses determining a sequence of set points based on a command through its disclosure of field devices that are connected to controllers that perform sensor functions to sense operational information and variables such as temperature, pressure, pH, or flow rate and deliver that information to the system-level controller devices. Thus, Almadi discloses this claim element.
	[3.2] controlling the actuator comprises controlling the actuator to a plurality of different states based on the sequence of set points.	Almadi discloses claim element 3.2, "the sensor and actuator functions, at the process level, are supported by a controller or several controllers, at the system level, which receives information from the sensors and transmits information to the actuators." 1:49-52 (emphasis added). Almadi discloses control over a plurality of different states through its disclosure that field devices perform sensor functions to sense operational information and variables across multiple variables, including temperature, pressure, pH, or flow rate, and deliver that information to the system-level controller devices. *Id*. A POSITA would understand from the above disclosure that Almadi discloses controlling the actuator to a plurality of different states based on the sequence of set points through its disclosure of the field devices being capable of collecting operational information and variables (set points) and performing actuator functions. Claim 3 is anticipated by Almadi or would be obvious to a POSITA in view of Almadi.
6.	[6.1] The medium of claim 1, wherein: the set point is a first set point;	Almadi discloses claim element 6.1. Almadi discloses that the set point is a first point through its disclosure that field devices monitor and collect data, such as measurements of fluid pressure, temperature, or flow, reflective of the operations of the automated process. 1:32-35, 25:26-37. Almadi

		further discloses that field devices perform sensor functions to sense operational information and variables such as temperature, pressure, pH, or flow rate and deliver that information to the system-level controller devices. 1:41-45. A POSITA would recognize that Almadi discloses a first point through its disclosure of monitoring and collection, measurement, operational information, and variables. A POSITA would further understand that a first set point is included in the collected data. *Id.* Thus, Almadi discloses this claim element.
	[6.2] the command comprises the first set point and a second set point;	Almadi discloses claim element 6.2. Almadi discloses the command comprises the first set point and a second set point through its disclosure that field devices use multiple data streams, such as measurements of fluid pressure, temperature, or flow, reflective of the operations of the automated process to control said process. 1:32-35, 25:26-37. Almadi further discloses that field devices perform sensor functions to sense operational information and variables such as temperature, pressure, pH, or flow rate and deliver that information to the system-level controller devices. 1:41-45. A POSITA would recognize that Almadi discloses set points through its disclosure of monitoring and collection, measurement, operational information, and variables. A POSITA would further understand that the collected operational information and variables can include first and second set points. *Id.* Thus, Almadi discloses this claim element.
	[6,3] obtaining the first set point comprises obtaining the first set point and the second set point from the command;	Almadi discloses claim element 6.3. Almadi discloses obtaining the first set point and the second set point from the command through its disclosure that field devices use multiple data streams to control automated processes, including measurements of fluid pressure, temperature, or flow, reflective of the operations of the automated process. 1:32-35; 25:26-37. A POSITA would recognize that Almadi discloses obtaining first and second set points from a command through its disclosure of monitoring and collection, measurement, operational information, and variables. A POSITA would further understand

		the operational information includes commands to obtain first and second set points. *Id.* Thus, Almadi discloses this claim element.
	[6.4] the measurement is a first measurement;	Almadi discloses the measurement is a first measurement. Almadi discloses that these field devices monitor and collect data, such as measurements of fluid pressure, temperature, or flow, reflective of the operations of the automated process. 1:32-35. A POSITA would recognize that Almadi discloses a first measurement through its disclosure of monitoring and collection, measurement, operational information, and variables. Thus, Almadi discloses this claim element.
	[6.5] the operations further comprises: receiving, with the controller, a second sensor measurement after controlling the actuator based on the first set point;	Almadi discloses claim element 6.5. Almadi discloses receiving, with the controller, a second sensor measurement after controlling the actuator based on the first set point through its disclosure that field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps. 1:41-49, 25:26-37. A POSITA would recognize Almadi discloses receiving a second sensor measurement after controlling the actuator disclosure of monitoring and collection, measurement, operational information, and variables. A POSITA would further understand that the controller continues to transmit sensor measurements after controlling the actuator. Thus, Almadi discloses this claim element.
	[6.6] determining, with the controller, whether the second sensor measurement satisfies a criterion based on the first set point; and	Almadi discloses claim element 6.6. Almadi discloses determining, with the controller, whether the second sensor measurement satisfies a criterion based on the first set point through its disclosure that these field devices monitor and collect data, such as measurements of fluid pressure, temperature, or flow, reflective of the operations of the automated process. 1:32-35. These field devices are connected to machines known as controllers that operate at the system level to process the data collected and issue commands back to the field devices, or other field devices, in response to processing the collected data. 1:35-39; 25:26- 37.

		A POSITA would recognize that Almadi discloses determining whether the second sensor measurement satisfies a criteria through its disclosure of monitoring and collection, measurement, operational information, and variables. A POSITA would further understand that determining measurements satisfy certain criteria is included in the monitoring of collected data. *Id.* Thus, Almadi discloses this claim element.
	[6.7] in response to a determination that the first set point is satisfied, controlling the actuator based on the second set point.	Almadi discloses claim element 6.7. Almadi discloses in response to a determination that the first set point is satisfied, controlling the actuator based on the second set point through its disclosure that field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps. 1:41-45; 25:26-37. A POSITA would recognize that Almadi discloses a controlling the actuator based on a second set point through its disclosure of monitoring and collection, measurement, operational information, and variables and its disclosure that the field devices can perform actuator functions. A POSITA would further understand that a first set point is included in the data collected. *Id.* Claim 6 is anticipated by Almadi or would be obvious to a POSITA in view of Almadi.
14.	The medium of claim 1, wherein the sensor comprises a level sensor of a separation tank to indicate a level at which a first fluid phase meets a second fluid phase.	Almadi discloses claim 14 of the '680 Patent. Almadi discloses a level sensor of a separation tank to indicate a level at which a first fluid phase meets a second fluid phase through its disclosure that a plant-wide model 704, for example, can be configured for any group of units and can define a mass balancing loop for the plant- based on crude switches, operation scenarios, and open and closed transactions (for example, *when* there is a change in the level status of tanks or the operation of pumps). 25:11-16. Almadi further discloses the plant-wide model can reflect balancing calculations and methods for a user-initiated allocation of tanks, for example, when a service change occurs. 25:22-25.

		Almadi teaches a configuration interface to identify process streams between plants and different numbers and types of process units, such as tanks, crude switches, and other process units that will be known to those having skill in the art. 23:51-24:53. For comparison, the '680 Patent broadly recites that "the fluid-handling devices may be a valve, a pump, a process chamber (for instance oil/water separation tank)." A POSITA would understand that a process chamber as recited in the '680 Patent is the same as the "process unit" disclosed by Almadi. POSITA would recognize an oil/water separation tank as a standard process unit/chamber in oil processing streams. *Id.* Almadi's configuration interface, e.g., balances calculations for inputs, outputs, and inventories of receipts, charges, processing, intermediate products, and final products. 24:4-26:19. A POSITA would understand that Almadi discloses the sensor comprises a level sensor of a separation tank to indicate a level at which a first fluid phase meets a second fluid phase the tanks disclosed in Almadi include a separation tank through its disclosure of the change in the level of tanks and allocation of tanks. Claim 14 is anticipated by Almadi or would be obvious to a POSITA in view of Almadi.
17.	The medium of claim 1, wherein controlling the actuator based on the set point comprise steps for controlling the actuator.	Almadi discloses claim 17 of the '680 Patent. Almadi discloses commands used by the local controller to drive the fluid handling device to a particular target state: "field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps." 1:45-49; *see also* 25:26-37. A POSITA would recognize that Almadi discloses controlling the actuator based on the set point comprises steps for controlling the actuator through its disclosure that the sensor and actuator functions,

		at the process level, are supported by a controller or several controllers, at the system level, which receives information from the sensors and transmits information to the actuators based on limits or readings/conditions. Claim 17 is anticipated by Almadi or would be obvious to a POSITA in view of Almadi.
19.	The medium of claim 1, wherein the controller is communicatively coupled to the fluid-handling device via a frame-based carrier-sense multiple access protocol.	Almadi discloses claim 19. Almadi discloses the controller is communicatively coupled to the fluid-handling device via a frame-based carrier- sense multiple access protocol. *See, e.g.*, 12:60-13:25. A POSITA would understand that the controller would be coupled to a fluid- handling device frame-based carrier-sensor multiple access protocol. *Id.* Claim 19 is anticipated by Almadi or would be obvious to a POSITA in view of Almadi.
20.	[20.1] A method comprising: [20.2] receiving, with a server, a command comprising a target value of a fluid-handling device from a computing device via a control interface, wherein the command is received in association with a record stored on a datastore; [20.3] determining, with the server, a network address of a network based on the record, wherein the network address identifies a controller of the fluid-handling device, and wherein the controller accesses a sensor to measure a fluid being handled by the fluid-handling device and an actuator of the fluid-handling device; [20.4] sending, with the server, the target value to	Almadi discloses every limitation of Claim 20. Claim 20's preamble is analogous to limitation 1.1, limitation 20.2 is analogous to limitation 1.2, limitation 20.3 is analogous to limitation 1.3, limitation 20.4 is analogous to limitation 1.4, limitation 20.5 is analogous to limitation 1.5, limitation 20.6 is analogous to limitation 1.6, limitation 20.7 is analogous to limitation 1.7, and limitation 20.8 is analogous to limitation 1.8. Supra section VIII(A)(1), Claim 20 is anticipated by Almadi or would be obvious to a POSITA in view of Almadi.

	the network address via the network;	
	[20.5] receiving, with the controller, a measurement of the fluid by the sensor;	
	[20.6] determining, with the controller, whether the measurement satisfies the target value;	
	[20.7] in response to a determination that the measurement does not satisfy the target value, obtaining, with the controller, a set point based on the command; and	
	[20.8] controlling the actuator based on the set point.	

Exhibit G-2

Invalidity Claim Chart for U.S. Patent No. 11,175,680 ("the 680 patent")

In view of

US 2015/0308244 ("Cardamone")

The asserted claims of '680 patent are anticipated and/or rendered obvious by Cardamone as identified in Defendant Preliminary Invalidity Contentions.

U.S. Patent No. 2015/0308244 ("Cardamone") was filed on November 26, 2013, published on October 29, 2015. This application is a National Stage Entry of PCT/US2013/071976, filed on November 26, 2013 that claim priority from a provisional application 61/729,815, filed on November 26, 2012. Cardamone is prior art under at least 35 U.S.C. 102(e).

The citations to portions of any reference in this chart are exemplary only. Defendant will rely on the entirety of the reference cited in this chart, as well as any additional materials relevant to the reference identified through their ongoing investigation, to show that the asserted claims are invalid.

Claim#	Claim Language	Cardamone
1.	[1.1] A non-transitory, machine-readable medium comprising instructions to effectuate operations, the operations comprising:	To the extent that the preamble is found to be limiting, Cardamone discloses a tangible, non-transitory machine-readable medium storing instructions that when executed by a data processing apparatus cause the data processing apparatus to perform operations. Ex. 1006, ¶¶ 0041-42. Cardamone discloses that software application 131 may also be used to adjust the operating parameters of control computer 126. *Id*. After viewing sensory data, user 101 may decide that the pump should be operating at a decreased frequency. Application 131 provides user with a command interface to set a new operating frequency. *Id*. More specifically, application 131 allows user 101 to specify the exact movement profile for pump system 122. *Id*. A POSITA would understand that Cardamone discloses a tangible computer- readable medium from its disclosure of software applications. Ex. 1002, ¶ 90. Thus, Cardamone discloses a tangible, non-transitory machine-readable medium. This claim element is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone.
	[1.2] receiving, with a server, a command comprising a target value	Cardamone discloses that data server 134 provides the functionality of GUI Computer 130. ¶ 0046. Cardamone discloses that users connect to GUI

	of a fluid-handling device from a computing device via a control interface, wherein the command is received in association with a record stored on a datastore;	computer 130 to interface with control and communication computer 126, through application 131. *Id*., ¶ 0042. Cardamone also discloses that Application 131 provides access to control and communication computer 126 to request data, including the current sensory data of pump control system 110. *Id.* Application 131 also allows the user to adjust the operating parameters with control computer 126 through "a command interface." *Id*., ¶ 0044-45. Data server 134 provides the functionality of GUI Computer 130, acts as a data storage and backup facility, as well as a mechanism to provide periodic data to control and communications computer 126. *Id*., ¶ 0046. Cardamone discloses data server 134, a server computer remote from the oil well. *Id*., ¶ 0021. Data server 134 links to control and communication computer 126 through standard wired and wireless communication links. *Id*., ¶ 0024. Data server 134 receives sensory data logs from control and communication computer 126 and contains a web server/web application 136 for providing a client interface for viewing the sensory data logs on remote management computer 138. *Id*., ¶ 0027. Data server 134 acts as a data storage for sensory data. *Id*., ¶ 0027; *see also id.*, Claim 30, ¶ 0041. A POSITA would understand that Cardamone discloses the receiving target status of a fluid-handling device from a computing device through its disclosure of a data server that can receive sensory data from fluid-handling devices and acts as data storage for sensory data. Thus, Cardamone discloses this claim limitation.
	[1.3] determining, with the server, a network address of a network based on the record, wherein the network address identifies a controller of the fluid-handling device, and wherein the controller accesses a sensor to measure a fluid being	Cardamone discloses determining, with the server, a network address of a network based on the record through its disclosure that data server 134 is connected to network 132 which is linked to control and communication computer 126 through one of a variety of communication link types, including hardwire connection, or internet connection via wire, wifi, satellite modem, and/or cellular data connections. ¶ 0024.

	handled by the fluid-handling device and an actuator of the fluid-handling device;	GUI Computer 130 includes a software application 131 to provide an interface for connecting to control and communication computer 126 which presents "a graphical geographical view of known pumps," and provides "basic operation statuses for each of the known pumps," thereby disclosing "multiple user accounts" according to the Claim. ¶ 0041. More specifically, Cardamone discloses the network address identifying an individual controller of the fluid-handling device through its disclosure that sensory data from lines 237 and 239 is relayed to computer 126 over bus 326, allowing computer 126 to relay drive commands to motor drive unit 318. ¶ 0031. Cardamone discloses that application 131 provides access to control and communication computer 126 to request data, including the current sensory data of pump control system 110. ¶ 0042, *see also id.* ¶¶ 0011, 0021, 0026, 0041. Application 131 also allows the user to adjust the operating parameters with control computer 126 through "a command interface." ¶¶ 0044-45; *see also id.* ¶ 0006, Claim 1. A POSITA would understand that determining the network address of a controller and measuring a fluid is disclosed by Cardamone in its disclosure of using a local area network of controller computer to view sensory data and adjust the operating parameters of the control computer. Thus, Cardamone discloses this limitation.
	[1.4] sending, with the server, the target value to the network address via the network;	Cardamone discloses sending, with the server, the target value to the network address via the network through its disclosure that software application 131 may also be used to adjust the operating parameters of control computer 126. ¶¶ 0044-0045. After viewing sensory data, user 101 may decide that the pump should be operating at a decreased frequency. *Id*., ¶ 0044. Application 131 provides user 101 with a command interface to set a new operating frequency. *Id*. Cardamone also discloses that users "set thresholds." *Id*., ¶ 0045. A POSITA would understand that setting a threshold, or a new operating frequency specifying an exact movement that a pump system is to be

		driven at sends a target value to the network address. Ex. 1002, ¶ 93. Thus, Cardamone discloses this claim limitation.
	[1.5] receiving, with the controller, a measurement of the fluid by the sensor;	Cardamone discloses GUI Computer 130 includes software application 131 to provide an interface for connecting to control and communication computer 126 for viewing live and stored sensor data. ¶ 0041. The available data includes inlet pressure, which can be used to determine the depth of fluids remaining in the well, and monitoring pump frequency to monitor the volume of fluids extracted from the well. ¶¶ 0029-30, 0044-45, 0049. A POSITA would understand that inlet and outlet pressure sensor data being streamed to the control computer disclosed in Cardamone is the receiving of a measurement of fluid by a sensor. Thus, Cardamone discloses this claim limitation.
	[1.6] determining, with the controller, whether the measurement satisfies the target value;	Cardamone discloses the determining a plurality of different target states of a given one of the fluid-handling devices over time. ¶¶ 0009, 0021, 0022, 0025, 0026, 0029, 0036. Cardamone discloses that the "control algorithm may control the motor drive system and/or pump as a function of sensory data." *Id*., ¶ 0009. Cardamone further discloses that application 131 also allows the user to adjust the operating parameters of control computer 126 through "a command interface" to specify the "movement profile" for the pump system, including through a distance vs. time curve, or a force vs. time curve for an operation cycle of the pump. *Id*., ¶ 0044. Application 131 allows the user to program the operating function to control computer 126 based upon sensory data. *Id*., ¶ 0045. User 101 may program control computer 126 to set the pump frequency to be equal to the inlet pressure times a constant . . . or more complex functions . . . based upon a whole range of sensory input conditions. *Id*. A POSITA would understand that establishing a movement profile or adjusting operating function based upon the receipt of sensory data described above determines a plurality of different target states of a given one of the fluid-handling devices over

		time. Thus, Cardamone discloses this claim limitation.
	[1.7] in response to a determination that the measurement does not satisfy the target value, obtaining, with the controller, a set point based on the command; and	Cardamone discloses that the control and communication computer includes a control algorithm for controlling the motor drive system, and/or pump system. The control algorithm may control the motor drive system and/or pump as a function of sensory data, as discussed above for element 1.6 and incorporated herein. The "movement profile" control disclosed by Cardamone controls the pump system by adjusting parameters when a measurement indicates that a value has moved out of a set range, to maintain a distance vs. time curve, or a force vs. time curve for an operation cycle of the pump. ¶ 0044. Cardamone further discloses that the control computer is programmed to provide an output command as a function of one or more of said operating parameters from said sensor system. *Id.*, Claim 4. A POSITA would understand that the central algorithm operating on the control computer can determine a set point in response to sensing operational parameters not satisfying a target value. Thus, Cardamone discloses this claim limitation.
	[1.8] controlling, with the controller, the actuator based on the set point.	Cardamone discloses controlling, with the controller, the actuator based on the set point through its disclosure that the control and communication computer may have a control algorithm for controlling the motor drive system, and/or pump system. The control algorithm may control the motor drive system and/or pump as a function of sensory data, as discussed above for elements 1.6-1.7, and incorporated herein. *See, e.g.*, ¶¶ 0009, 0044-0045. A POSITA would understand that motor drive systems and pump systems include actuators. A POSITA would further understand that the sensory data from the pump system includes measurement data for optimal operation of the system (i.e., set point). *Id.*

		Claim 1 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone.
9.	The medium of claim 1, wherein the measurement comprises at least one of a fluid flow rate, a fluid temperature, or a fluid pressure.	Cardamone discloses the measurement of a fluid flow rate, a fluid temperature, or a fluid pressure through its disclosure that inlet 227 has temperature sensor 225 for providing the temperature at the inlet and pressure sensor 226 for providing oil or fluid pressure at the inlet. Ex. 1006, ¶ 0030. A POSITA would understand that Cardamone discloses a measurement comprising at least one of a fluid flow rate, a fluid temperature, or a fluid pressure through its disclosure of a temperature sensor 225 for providing the temperature and a pressure sensor 226. Claim 9 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone.
10.	[10.1] The medium of claim 1, wherein the fluid-handling device is a first fluid-handling device of a plurality of fluid- handling devices, the operations further comprising: polling, with the controller, the plurality of fluid-handling devices to collect a set of data comprising the measurement; and	Cardamone discloses application 131 providing access to control and communication computer 126 to request data, including the current sensory data of pump control system 110. ¶ 0042, *see also id.* ¶¶ 0011, 0021, 0026, 0041. A POSITA would understand that the collecting of raw sensor signals (which includes measurements) disclosed in Cardamone is the polling fluid handling device to collect a set of measurement data. Thus, Cardamone discloses this claim limitation.
	[10.2] sending the set of data from the controller to the server.	Cardamone discloses claim element 10.2. Cardamone discloses data server 134, a server computer remote from the oil well. ¶ 0021. Data server 134 receives sensory data logs from control and communication computer 126 and contains web server/web application 136 for providing a client interface for viewing the sensory data logs on remote management computer 138. ¶ 0027, Claim 28 Data server 134 acts as a data storage for sensory data. *Id*. Cardamone also discloses sending the set of data from the controller to the server through its disclosure that the control computer 126 may send daily data logs to data server 134. *Id*., ¶ 0048. A POSITA would understand that Cardamone discloses sending the set of data from the controller

		to the server through its disclosure of a control computer 126 that sends daily data logs, a set of data, to a data server. Claim 10 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone.
11.	The medium of claim 1, wherein the network comprises a wireless network, and sending the command comprises sending the command via a wireless signal.	Cardamone discloses a wireless network through its disclosure that control and communication computer 126 includes communications transceivers including wifi modem 141, satellite modem 143, and cellular data modem 145. The communications transceivers provide a network link to data server 134. ¶ 0024; *see also id.* FIG. 1. Cardamone discloses sending the command comprises sending the command via a wireless signal through its disclosure that the disclosed system provides for remote monitoring and control via various redundant communications channels including internet, wifi, cellular data, or satcom. ¶ 0052. A POSITA would recognize that Cardamone discloses a wireless network, and sending the command comprises sending the command via a wireless signal through its disclosure of a wifi modem 141, satellite modem 143, and cellular data modem 145. Claim 11 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone.
12.	[12.1] The medium of claim 1, wherein: the measurement is a first measurement of a plurality of measurements of the sensor;	Cardamone discloses claim element 12.1. Cardamone discloses that the raw sensor signals collected by control and communication computer 126 are forwarded to application 131 including motor output force, motor position, motor temperature, pump inlet and outlet pressure, inlet temperature, pump inclination, motor driver state, motor driver output current, power distribution system state and temperature, and power distribution system output voltage and current. ¶ 0042. Cardamone also discloses that the "control algorithm may control the motor drive system and/or pump as a function of sensory data." *Id.*, ¶ 0009. Cardamone further discloses that application 131 also allows the user to adjust the operating parameters of control computer 126 through "a command interface" to

		specify the "movement profile" for the pump system, including through a distance vs. time curve, or a force vs. time curve for an operation cycle of the pump. *Id.,* ¶ 0044. Application 131 allows the user to program the operating function to control computer 126 based upon sensory data. *Id*., ¶ 0045. User 101 may program control computer 126 to set the pump frequency to be equal to the inlet pressure times a constant . . . or more complex functions . . . based upon a whole range of sensory input conditions. *Id*. A POSITA would recognize that Cardamone discloses that measurement is a first measurement of a plurality of measurements of the sensor through its disclosure that any of the measurements raw sensor signals collected by control and communication computer 126 is a first measurement, as well as multiple-based on the disclosure of control algorithm's movement profile control. Thus, Cardamone discloses this claim element.
	[12.2] wherein the target value is a value of a pattern of values; and	Cardamone discloses claim element 12.2. Cardamone discloses that the "control algorithm may control the motor drive system and/or pump as a function of sensory data." ¶ 0009. Cardamone further discloses that application 131 also allows the user to adjust the operating parameters of control computer 126 through "a command interface" to specify the "movement profile" for the pump system, including through a distance vs. time curve, or a force vs. time curve for an operation cycle of the pump. *Id*., ¶ 0044. Application 131 allows the user to program the operating function to control computer 126 based upon sensory data. *Id*., ¶ 0045. User 101 may program control computer 126 to set the pump frequency to be equal to the inlet pressure times a constant . . . or more complex functions . . . based upon a whole range of sensory input conditions. *Id*. A POSITA would understand that Cardamone discloses the target value is a value of a pattern of values through its disclosure of the movement profile determined from the operating parameters and used to drive the pump system. Thus, Cardamone discloses this claim element.

	[12.3] determining whether the measurement satisfies the target value comprises determining whether the plurality of measurements satisfies the pattern of values.	Cardamone discloses claim element 12.3. As detailed above for elements 12.1 and 12.2, and incorporated herein by reference, Cardamone comprises determining whether the plurality of measurements satisfies the pattern of values based on sensory data through user-defined movement profiles. ¶ 0009, 0044, 0045. A POSITA would understand that determining the measurement profile to command a motion driver based on a range of sensory inputs is determining whether the plurality of measurements satisfies the pattern of values. ¶ 104. Claim 12 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone.
13.	The medium of claim 12, wherein the pattern of values comprises a pattern of valve configurations.	Cardamone discloses the pattern of values comprises a pattern of valve configuration through its disclosure that standard operating profiles include traveling valve leak or upstroke pump wear, standing valve leak or worn standing valve, combination of leaking standing and traveling valve and gas compression, tubing movement, inoperative pump, pump hitting, fluid friction and drag friction. Ex. 1006, ¶ 0009, Claim 17. A POSITA would recognize that standard operating profiles for the pipes, pumps, and valves disclosed in Cardamone is a pattern of valve configurations. Ex. 1002, ⁋ 105. Claim 13 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone.
15.	[15.1] The medium of claim 1, wherein: the server comprises a web server; and	Cardamone discloses claim element 15.1. Cardamone discloses data server 134, a server computer remote from the oil well. Ex. 1006, ¶ 0021. Data server 134 links to control and communication computer 126 through standard wired and wireless communication links. *Id*., ¶ 0024. Data server 134 receives sensory data logs from control and communication computer 126 and contains web server/web application 136 for providing a client interface for viewing the sensory data logs on remote management computer 138. *Id*., ¶ 0027. A POSITA would understand that Cardamone discloses the server comprising a web server through

		its disclosure of web server/web application 136. Ex. 1002, ⁋ 108. Thus, Cardamone discloses this claim limitation.
	[15.2] the controller comprises a site server distinct from the web server	Cardamone discloses claim element 15.2. Cardamone discloses the controller comprises a site server distinct from the web server through its disclosure that system 110 generally includes deep well pump system 122, motor driver 124, control and communication computer 126, and power distribution system 128. Cardamone discloses control and communication computer 126 arranged at the surface of the deep oil well. Ex. 1006, ¶ 0024. Control and communication computer 126 includes data sampling and storage mechanisms for receiving and storing sensory data from both pump system 122 and motor driver 124. *Id*. A POSITA would recognize the control and communications computer of Cardamone can be a server and is distinct from the data server. Ex. 1002, ⁋ 109. Claim 15 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone.
16.	[16.1] The medium of claim 15, wherein: the server communicates with a plurality of user devices via a first network port of the web server, wherein the plurality of user devices comprises the computing device; and	Cardamone discloses claim element 16.1. Cardamone discloses the server communicates with a plurality of user devices via a first network port of the web server through its disclosure that the control and communication computer system may include a router (419), a switch (421), ***a wifi access port*** (141), GSM modem (145), a satcom modem or port (143), and a single board computer (410). Ex. 1006, ¶ 0008; FIG. 4. Cardamone further discloses the plurality of user devices comprises the computing device through its disclosure that GUI computer 130 may be a portable computer brought by a service user 101 to provide on-site maintenance and/or monitoring. *Id*., ¶ 0026. A POSITA would understand that Cardamone discloses this limitation through its disclosure of the control and communication computer system including a wifi access port and the disclosure of GUI computers. Ex. 1002, ¶ 110. Thus, Cardamone discloses this claim limitation.
	[16.2] the site server communicates with	Cardamone discloses the site server communicates with facilities via a second network port of the

	facilities via a second network port of the computing device, wherein the second network port being different from the first network port, and wherein a facility of the facilities comprises the fluid-handling device.	computing device through its disclosure that the control and communication computer system may include a router (419), a switch (421), a wifi access port (141), GSM modem (145), a satcom modem or port (143), and a single board computer (410). The control computer may include an Ethernet (423) for linking each of its components. ¶ 0008. Further, Cardamone discloses the second network port being different from the first network port through its disclosure of a wifi access port that is different from the satcom port. *Id*., ¶ 0008. Finally, Cardamone discloses the facilities comprising the fluid-handling device through its disclosure system (110) for operating a downhole pump with a linear motor, including a pump system (122), a motor drive system (124), a control and communication computer system (126), and a power distribution system (128). *Id*., ¶ 0005. A POSITA would understand that Cardamone discloses a second network port of the computing device, wherein the second network port (satcom port) being different from the first network port (wifi port). A POSITA would further understand that a facility of the facilities comprises the fluid-handling device through its disclosure of a downhole pump including a pump system. Claim 16 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone.
17.	The medium of claim 1, wherein controlling the actuator based on the set point comprise steps for controlling the actuator.	Cardamone discloses claim 17. Cardamone discloses that the control algorithm controls the motor drive system and/or pump as a function of sensory data, as discussed above for element 1.6 and incorporated herein. The "movement profile" control disclosed by Cardamone controls the pump system by adjusting parameters when a measurement indicates that a value has moved out of a set range, to maintain a distance vs. time curve, or a force vs. time curve for an operation cycle of the pump. ¶ 0044. The sensory data may be data from the pump system, the motor drive system, the power distribution system, and/or the data server. ¶ 0009. A POSITA would understand that the adjusting control of the motor drives as a function of operating regimes includes steps for controlling the actuator.

		Claim 17 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone.
18.	The medium of claim 1, wherein receiving the command comprises receiving the command via a web interface on the computing device.	Cardamone discloses claim 18. Cardamone discloses that users connect to GUI computer 130 to interface with control and communication computer 126, through application 131. ¶ 0042, *see also id.* ¶¶ 0011, 0021, 0026, 0041. Application 131 provides access to control and communication computer 126 to request data, including the current sensory data of pump control system 110. *Id*. Application 131 also allows the user to adjust the operating parameters with control computer 126 through "a command interface." ¶¶ 0044-45, *see also id.*, ⁋ 0021; FIG. 1. A POSITA would recognize that Cardamone discloses receiving the command via a web interface on the computing device through its disclosure of a web application 134 which provides an interface to remote management computer 138. Claim 20 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone.
20.	[20.1] A method comprising: [20.2] receiving, with a server, a command comprising a target value of a fluid-handling device from a computing device via a control interface, wherein the command is received in association with a record stored on a datastore; [20.3] determining, with the server, a network address of a network based on the record, wherein the network address identifies a controller of the fluid-handling device, and wherein the controller accesses a sensor to measure a fluid being handled by the fluid-handling device and an	Cardamone discloses every limitation of claim 20. Claim 20's preamble is analogous to limitation 1.1, limitation 20.2 is analogous to limitation 1.2, limitation 20.3 is analogous to limitation 1.3, limitation 20.4 is analogous to limitation 1.4, limitation 20.5 is analogous to limitation 1.5, limitation 20.6 is analogous to limitation 1.6, limitation 20.7 is analogous to limitation 1.7, and limitation 20.8 is analogous to limitation 1.8. Each of Claim 20's limitations are disclosed by Cardamone for reasons provided above and incorporated here. *Supra* Section VII (B)(1). To the extent that the preamble is found to be limiting, Cardamone discloses a method. ⁋⁋ 0049-0050. Claim 20 is anticipated by Cardamone or would be obvious to a POSITA in view of Cardamone.

	actuator of the fluid-handling device;	
	[20.4] sending, with the server, the target value to the network address via the network;	
	[20.5] receiving, with the controller, a measurement of the fluid by the sensor;	
	[20.6] determining, with the controller, whether the measurement satisfies the target value;	
	[20.7] in response to a determination that the measurement does not satisfy the target value, obtaining, with the controller, a set point based on the command; and	
	[20.8] controlling the actuator based on the set point.	

Exhibit G-3

Invalidity Claim Chart for U.S. Patent No. 11,175,680 ("the 680 patent")

In view of

US 9,709,995 ("Gutierrez")

The asserted claims of '680 patent are anticipated and/or rendered obvious by Gutierrez as identified in Defendant Preliminary Invalidity Contentions.

U.S. Patent No. 9,709,995 ("Gutierrez") was filed on December 22, 2014, published on April 16, 2015 and issued on July 18, 2017. This application is a continuation of US patent application Ser. No. 12/794,898 filled on June 7, 2010. Gutierrez is prior art under at least 35 U.S.C. 102(a) and 35 U.S.C. 102(e).

The citations to portions of any reference in this chart are exemplary only. Defendant will rely on the entirety of the reference cited in this chart, as well as any additional materials relevant to the reference identified through their ongoing investigation, to show that the asserted claims are invalid.

Claim#	Claim Language	Gutierrez
1.	[1.1] A non-transitory, machine-readable medium comprising instructions to effectuate operations, the operations comprising:	Gutierrez discloses controller 130 that includes a combination of software, middleware, and hardware configured as the communication module 140, translation module 145, and processor. 150. 8:39-42. Thus, Gutierrez discloses this claim element.
	[1.2] receiving, with a server, a command comprising a target value of a fluid-handling device from a computing device via a control interface, wherein the command is received in association with a record stored on a datastore;	Gutierrez discloses a server receiving values for operational parameters of the transmission system based on a command received from a user, as well as transmitting commands based on one or more operational parameters to adjust control parameters in the system, such as the speed of a motor. 3:40-45, 5:58-67, 6:1-10, 6:13-23, 6:24-44, 9:21-25, 9:55-64, 10:27-30, 10:39-43, 11:18-26, 13:9-26. Gutierrez discloses the command is received in association with a record stored on a datastore through its disclosure that the memory may also include any other appropriate data such as data classes or object interfaces, and software sub-applications or sub-systems. 8:50-52. Gutierrez discloses receiving, with a server, a command comprising a target value of a fluid-handling device from a computing device via a control interface through its disclosure that a graphical user interface receives the commands, and sends them to the fluid-

		handling system. 11:16-33 ("the system 300 includes a computer 305 displaying a graphical user interface (GUI) 315, one or more remote chemical injection systems 310"), 13:9-26. Gutierrez discloses that the production sites are unique, disclosing separate control systems for "each system." 6:28-35; 10:22-24, 10:34-38, 10:43-59 ("data may be wirelessly transmitted directly to each chemical injection system . . . some or all of the processing of data and command generation may occur at the remote control center 220 rather than each individual chemical injection system 220."), 11:55-61 ("each computer 305 may monitor, receive data from, and/or generate commands transmitted to a single chemical injection system 310 or multiple chemical injection systems 310."), 11:62-12:3, 13:10-26 ("a user or operator may utilize the GUI 315 to control one or more components of the chemical injection system 310"); Claim 1. A POSITA would recognize that Gutierrez discloses receiving a command including a target value of a fluid-handling device as recited in the '680 Patent because the disclosed GUI transmits commands including a target value of a fluid-handling device, i.e, components of the chemical injection system. Gutierrez discloses this limitation of the '680 Patent.
	[1.3] determining, with the server, a network address of a network based on the record, wherein the network address identifies a controller of the fluid-handling device, and wherein the controller accesses a sensor to measure a fluid being handled by the fluid-handling device and an actuator of the fluid-handling device;	Gutierrez discloses records that include network communications addresses for the monitoring and control equipment in various fluid-handling facilities through its disclosures that the production sites are uniquely addressable by the network connection through individualized control systems for "each." 6:28-35; 10:22-24, 10:34-38, 10:43-59, 11:55-61, 11:62-12:3, 13:10-26; Claim 1. Gutierrez discloses monitoring and control equipment including sensors configured to measure fluid handled at respective fluid-handling facilities. 9:4-13 ("one or more electronic sensors monitoring the pipeline"); 9:21-25 ("wireless sensors may detect various operations parameters of the pipeline 120, such as line pressure and/or chemical concentrate"), 10:7-16 ("a wireless pressure sensor"), 10:40-46, 13:12-17.

		Gutierrez discloses monitoring and control equipment including actuators configured to manipulate fluid flow at respective fluid-handling facilities. 6:45-8:38 (describing chemical injection system with controllers for activating pumps to manipulate fluid flow), 9:54-10:16, 11:62-12:29, 13:23-26. Gutierrez discloses that fluid-handling facilities have sets of both sensors and actuators. 6:45-7:2, 9:65-10:16, 10:17-11:4, 11:16-33, 11:55-61, 13:9-26. A POSITA would recognize that Gutierrez discloses determining the network address of a network, where the network address identifies the controller of fluid- handling devices in the '680 Patent because the network address would have to be known for commands to be sent to that fluid-handling device. Gutierrez discloses this limitation of the '680 Patent.
	[1.4] sending, with the server, the target value to the network address via the network;	Gutierrez discloses transmitting commands based on one or more operational parameters to adjust control parameters in the system, such as the speed of a motor. 3:40-45, 5:58-67, 6:1-10, 6:13-23, 6:24-44, 9:21-25, 9:55-64, 10:27-30, 10:39-43, 11:18-26, 13:9-26. Gutierrez discloses sending, with the server, the target value to the network address via the network through its disclosure that the user computing device interfaces with the fluid handling system to send instructions to control the actuators of the fluid handling system. 11:16-33, 13:9-12, 315, 13:21-26. A POSITA would recognize from the above disclosures that Gutierrez discloses sending the target value to the network address as recited in the '680 Patent. Gutierrez discloses this limitation of the '680 Patent.
	[1.5] receiving, with the controller, a measurement of the fluid by the sensor;	Gutierrez discloses claim element 1.5. Gutierrez discloses monitoring and control equipment including sensors configured to measure fluid handled at respective fluid-handling facilities. 9:4-13 ("one or more electronic sensors monitoring the pipeline"); 9:21-25 ("wireless sensors may detect various operations parameters of the pipeline 120,

		such as line pressure and/or chemical concentrate"), 10:7-16 ("a wireless pressure sensor"), 10:40-46, 13:12-17. A POSITA would recognize the enterprise or secured networks require individual user log-in, and that Gutierrez inherently discloses a plurality of accounts including first-group accounts with access permitted for control. Gutierrez discloses this limitation of the '680 Patent.
	[1.6] determining, with the controller, whether the measurement satisfies the target value;	Gutierrez discloses determining, with the controller, whether the measurement satisfies the target value through its disclosure of monitoring and control equipment including sensors configured to measure fluid handled at respective fluid-handling facilities. 9:4-13, 9:21-25, 10:7-16, 10:40-46, 13:12-17. Gutierrez discloses that fluid-handling facilities have sets of both sensors and actuators. 6:45-7:2, 9:65-10:16, 10:17-11:4, 11:16-33, 11:55-61, 13:9-26. A POSITA would recognize from the above disclosures that Gutierrez discloses determining whether the measurements satisfy the target value as recited in the '680 Patent. Gutierrez discloses this limitation of the '680 Patent.
	[1.7] in response to a determination that the measurement does not satisfy the target value, obtaining, with the controller, a set point based on the command; and	Gutierrez discloses obtaining, with the controller, a set point based on the command through its disclosure monitoring and control equipment including sensors configured to measure fluid handled at respective fluid-handling facilities. 9:4-13, 9:21-25, 10:7-16, 10:40-46, 13:12-17. Gutierrez discloses that fluid-handling facilities have sets of both sensors and actuators. 6:45-7:2, 9:65-10:16, 10:17-11:4, 11:16-33, 11:55-61 ("each computer 305 may monitor, receive data from, and/or generate commands transmitted to a single chemical injection system 310 or multiple chemical injection systems 310"), 13:9-26. A POSITA would recognize that Gutierrez discloses obtaining a set point based on a determination that a measurement does not satisfy a target value in the '680 Patent. Gutierrez discloses this limitation of the '680 Patent.

	[1.8] controlling, with the controller, the actuator based on the set point.	Gutierrez discloses controlling, with the controller, the actuator based on the set point through its disclosure of monitoring and control equipment including actuators configured to manipulate fluid flow at respective fluid-handling facilities. *See, e.g.*, 6:45-8:38 (describing chemical injection system with controllers for activating pumps to manipulate fluid flow), 9:54-10:16, 11:62-12:29, 13:23-26. Gutierrez discloses that fluid-handling facilities have sets of both sensors and actuators. 6:45-7:2, 9:65-10:16, 10:17-11:4, 11:16-33, 11:55-61, 13:9-26. A POSITA would recognize from the above disclosure that Gutierrez discloses controlling the actuator based on a set point as recited in the '680 Patent. Gutierrez discloses this limitation of the '680 Patent. Claim 1 is anticipated by Gutierrez or would be obvious to a POSITA in view of Gutierrez.
7.	The medium of claim 1, wherein the record is a first record, the operations further comprising sending sensor data from the sensor to a plurality of records that comprises the first record, wherein the plurality of records is associated with a user.	Gutierrez discloses Claim 7 of the '680 Patent. Gutierrez discloses the sending sensor data from the sensor to a plurality of records that comprises the first record through its disclosures that the communication bus 140, generally, is a wired communication connection operable to carry data between the communication module and a remote source, such as one or more electronic sensors monitoring the pipeline 120, the motor 110, the pump 105, or other component or apparatus. 9:6-11. Gutierrez further discloses that wireless sensors may detect various operational parameters of the pipeline 120, such as line pressure and/or chemical concentrate, and transmit such data to the controller 130 via the wireless antenna 160. 9:21-25. Gutierrez discloses the plurality of records is associated with a user the translation module 145 may allow a user or operator to connect to the controller 130 and receive feedback data (e.g., operational data of the motor 110, pump 105, or any other component of the system 100) without regard to a particular protocol understood by the user's device (i.e., computer, laptop, PDA, cell phone). 9:54-59.

		A POSITA would recognize that Gutierrez inherently discloses a first record from the operational parameters sensed by the sensor and that sending sensor data from the sensor to a plurality of records comprising the first record is the transmitting of operational data parameters to the controller 130. Further, a POSITA would recognize that Gutierrez inherently discloses the plurality of records is associated with a user through its disclosure of a user or operator connecting to the controller 130 and receiving feedback data (e.g., operational data of the motor 110, pump 105, or any other component of the system 100) with the user's device (i.e., computer, laptop, PDA, cell phone. *Id*. Further, a POSITA would understand that the plurality of records accessed by the user on a user device would be associated with that user. *Id*., ¶ 124. Claim 7 is anticipated by Gutierrez or would be obvious to a POSITA in view of Gutierrez.
20.	[20.1] A method comprising: [20.2] receiving, with a server, a command comprising a target value of a fluid-handling device from a computing device via a control interface, wherein the command is received in association with a record stored on a datastore; [20.3] determining, with the server, a network address of a network based on the record, wherein the network address identifies a controller of the fluid-handling device, and wherein the controller accesses a sensor to measure a fluid being handled by the fluid-handling device and an actuator of the fluid-handling device;	Gutierrez discloses every limitation of Claim 20. Claim 20's preamble is analogous to limitation 1.1, limitation 20.2 is analogous to limitation 1.2, limitation 20.3 is analogous to limitation 1.3, limitation 20.4 is analogous to limitation 1.4, limitation 20.5 is analogous to limitation 1.5, limitation 20.6 is analogous to limitation 1.6, limitation 20.7 is analogous to limitation 1.7, and limitation 20.8 is analogous to limitation 1.8. Each of Claim 20's limitations are disclosed by Gutierrez for reasons provided above and incorporated here. *Supra* Section VIII(A)(1). Claim 20 is anticipated by Gutierrez or would be obvious to a POSITA in view of Gutierrez.

	[20.4] sending, with the server, the target value to the network address via the network;	
	[20.5] receiving, with the controller, a measurement of the fluid by the sensor;	
	[20.6] determining, with the controller, whether the measurement satisfies the target value;	
	[20.7] in response to a determination that the measurement does not satisfy the target value, obtaining, with the controller, a set point based on the command; and	
	[20.8] controlling the actuator based on the set point.	

Exhibit G-4

Invalidity Claim Chart for U.S. Patent No. 11,175,680 ("the 680 patent")

In view of

SCADA: Supervisory Control and Data Acquisition, 4th Edition ("SCADA")

The asserted claims of '680 patent are anticipated and/or rendered obvious by SCADA: Supervisory Control and Data Acquisition, 4th Edition as identified in Defendant Preliminary Invalidity Contentions.

SCADA: Supervisory Control and Data Acquisition, 4th Edition ("SCADA") published on 2010. SCADA is prior art under at least 35 U.S.C. 102(a).

The citations to portions of any reference in this chart are exemplary only. Defendant will rely on the entirety of the reference cited in this chart, as well as any additional materials relevant to the reference identified through their ongoing investigation, to show that the asserted claims are invalid.

Claim#	Claim Language	SCADA
1.	[1.1] A non-transitory, machine-readable medium comprising instructions to effectuate operations, the operations comprising:	To the extent that the preamble is found to be limiting, SCADA discloses non-transitory, machine-readable medium comprising instructions to effectuate operations. SCADA discloses that "Modern RTUs are essentially microcomputers with special equipment at one end to interface with the long-range communications link and with special equipment at the other end to interface with the sensors, actuators, and calculators in the process. While the RTU is in receive mode, part of the communications interface equipment (the modem...) receives a serial signal from the communications medium...Modern RTUs accomplish these functions with the protocol driver program run by the RTU's central processing unit." SCADA, at 92-93; Ex. 1008, ¶ 128. SCADA discloses this claim limitation of the '680 Patent.
	[1.2] receiving, with a server, a command comprising a target value of a fluid-handling device from a computing device via a control interface, wherein the command is received in association with a record stored on a datastore;	SCADA discloses claim element 1.2. "Figure 2-1 shows the major elements of a SCADA system. At the center is the operator, who interfaces with the system through some form of input/output (I/O) device. The I/O device in turn communicates with the master terminal unit (MTU). The MTU communicates with one or more remote terminal units (RTUs), each of which communicates with sensors or actuators at the process..." SCADA, at 12; *see also id*. at 73.

		SCADA further discloses receiving in command in association with a record stored on a datastore. SCADA, at 92-93. A POSITA would understand that SCADA discloses the recited receiving commands from the server comprising a target value to control specific fluid handling devices of the '680 Patent through its disclosure of receiving signal through the MTU, which connects via communications interface equipment to individually addressable RTU for controlling operation of well site components. Thus, SCADA discloses this claim limitation.
	[1.3] determining, with the server, a network address of a network based on the record, wherein the network address identifies a controller of the fluid-handling device, and wherein the controller accesses a sensor to measure a fluid being handled by the fluid-handling device and an actuator of the fluid-handling device;	SCADA discloses determining, with the server, a network address of a network based on the record: "The RTU also communicates with sensors that measure field equipment conditions and with actuators that change field equipment conditions…To do this, the RTU must know the language, or protocol, each device uses. It must know the name, or address, of each field device. If it is to gather information from field devices, it must know where to store the information so that it will be able to send the information onward when told to do so by the MTU." SCADA, at 14-15. SCADA also discloses that the network address identifies a controller of the fluid-handling device through its disclosure above the RTU above. SCADA, at 14- 15. SCADA discloses that the controller accesses a sensor to measure a fluid being handled by the fluid-handling device and an actuator of the fluid-handling device through its disclosure that if it is to gather information from field devices, it must know where to store the information so that it will be able to send the information onward when told to do so by the MTU." SCADA, at 14-15. A POSITA would understand that SCADA's disclosure of monitoring and collecting data, such as measurements of fluid pressure, temperature, or flow determines a plurality of different target states of a given one of the fluid-handling devices over time as

		claimed in the ’680 Patent. Thus, SCADA discloses this claim limitation.
	[1.4] sending, with the server, the target value to the network address via the network;	SCADA discloses sending, with the server, the target value to the network address via the network through its disclosure that: “the remote terminal unit (RTU) will sample this variable and will store it in a memory register. The RTU will also sample analog variables from other flowmeters, level transmitters, or temperature transmitters, and will sample discrete variables from fire alarms and the like. Each of these variables will be sampled and stored in its memory location…Third, the RTU must listen for a request from the master terminal unit (MTU), which will periodically tell each of the RTUs in the system to report what it knows. When it receives such an order, the RTU must then confirm that the message is indeed for it and not for some other RTU. Then it must put together a message that includes all of the information requested by the MTU…Fourth, the MTU must receive this data; check it to determine if any communication errors have occurred; store the data in predetermined memory locations; and present any alarms, reports, or data screens to the process operator.” SCADA, at 34-35. A POSITA would understand that transmitting process data via an Ethernet switch is the sending, with the server, the target value to the network address via the network as claimed in the ’680 Patent. Thus, SCADA discloses this claim limitation.
	[1.5] receiving, with the controller, a measurement of the fluid by the sensor;	SCADA discloses claim element 1.5. SCADA discloses receiving, with the controller, a measurement of the fluid by the sensor through its disclosure about the RTU sampling variables and listening for a request from MTU. SCADA, at 34-35. A POSITA would understand SCADA’s disclosure that the disclosed controller receives a measurement of fluid from the system’s sensor, based on its discussion of modern field devices and its disclosed data verifier and data reconciler that determine the operating state of remote sub-systems based on

		sensor readings, as taught by the '680 Patent. Ex. 1002, ¶ 140. Thus, SCADA discloses this claim limitation.
	[1.6] determining, with the controller, whether the measurement satisfies the target value;	SCADA discloses the determining, with the controller, whether the measurement satisfies the target value through its disclosure that "the RTU also communicates with sensors that measure field equipment conditions and with actuators that change field equipment conditions." SCADA, at 14-15. A POSITA would understand from SCADA's disclosure that the disclosed controller determines whether the measurement satisfies the target value. Thus, SCADA discloses this claim limitation.
	[1.7] in response to a determination that the measurement does not satisfy the target value, obtaining, with the controller, a set point based on the command; and	SCADA discloses obtaining a set point based on the command in response to a determination that the measurement does not satisfy a target value through its disclosure that "the RTU also communicates with sensors that measure field equipment conditions and with actuators that change field equipment conditions." SCADA, at 14-15. A POSITA would recognize that limits or bounds apply a set point, which would be set by a user in a command. A POSITA would recognize that to verify measurements and determine whether a measurement was out-of- bounds, a set point would have to be obtained by the data verifier located on the controller and compared by the data reconciler also located on the controller. *Id.* Thus, SCADA discloses this claim limitation.
	[1.8] controlling, with the controller, the actuator based on the set point.	SCADA discloses controlling, with the controller, the actuator based on the set point through its disclosure of Figure 2-1, the I/O device in turn communicating with the MTU. And the MTU communicates with one or more remote terminal units (RTUs), each of which communicating "with sensors or actuators at the process." SCADA, at 12. A POSITA would understand that SCADA discloses the controlling of the actuator based on the set point of the '680 Patent through its disclosure of the intelligent field systems and the data verifier and reconciler. A POSITA would understand that the data is verified and reconciled and that a command can be sent by the controller to control any number

		of actuators in intelligent field systems within limits or bounds, i.e., set points. Thus, SCADA discloses this claim element. Claim 1 is anticipated by SCADA or would be obvious to a POSITA in view of SCADA.

Exhibit H-1

Invalidity Claim Chart for U.S. Patent No. 12,019,461 ("the 461 patent")

In view of

US 7,424,399 (Kahn)

alone or taken together with

US 9,709,995 ("Gutierrez"), and

US 8,887,901 ("Almadi"),

SCADA: Supervisory Control and Data Acquisition, 4th Edition ("SCADA")

The asserted claims of '461 patent are anticipated and/or rendered obvious by Kahn alone or in combination with Gutierrez, in further view of Almadi and SCADA as identified in Defendant Preliminary Invalidity Contentions.

U.S. Patent No. 7,424,399 ("Kahn") was filed on June 09, 2006, published on March 01, 2007 and issued on September 09, 2008. Kahn is prior art under at least 35 U.S.C. 102(a).

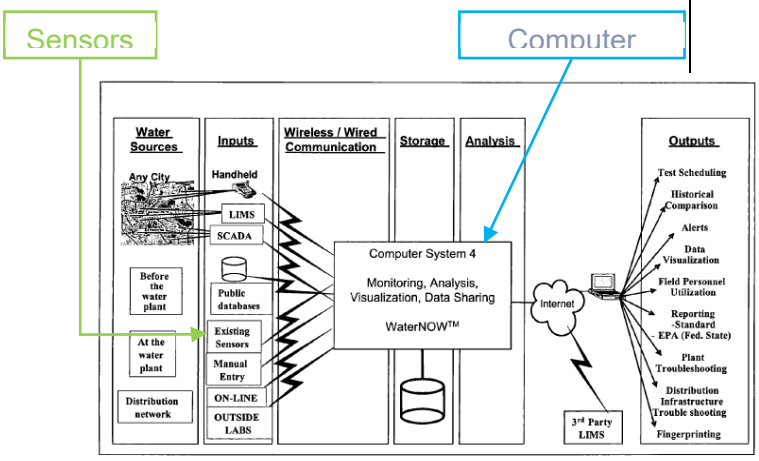
U.S. Patent No. 9,709,995 ("Gutierrez") was filed on December 22, 2014, published on April 16, 2015 and issued on July 18, 2017. This application is a continuation of US patent application Ser. No. 12/794,898 filled on June 7, 2010. Gutierrez is prior art under at least 35 U.S.C. 102(a) and 35 U.S.C. 102(e).

U.S. Patent No. 8,667,091 ("Almadi") was filed on July 22, 2011, published on April 5, 2012. Almadi is prior art under at least 35 U.S.C. 102(a).

SCADA: Supervisory Control and Data Acquisition, 4th Edition ("SCADA") published on 2010. SCADA is prior art under at least 35 U.S.C. 102(a).

The citations to portions of any reference in this chart are exemplary only. Defendant will rely on the entirety of the reference cited in this chart, as well as any additional materials relevant to the reference identified through their ongoing investigation, to show that the asserted claims are invalid.

Claim#	Claim Language	Kahn, Gutierrez, Almadi and SCADA
1.	[1.1] A fluid processing method, comprising:	To the extent that the preamble is found to be limiting, Kahn, Gutierrez, Almadi, and SCADA disclose fluid processing methods. A POSITA would recognize that the method for fluid sensing, quality sensing, data sharing, and data visualization is a method frequently deployed in the processing of various types of fluids. ¶47; Title, 1:28-36, Claims 1-29. Similarly, regarding Gutierrez, a method of injecting chemicals into a hydrocarbon pipeline is a fluid processing method. ¶47;, 14:5-16, Claim 1.

		Further, Almadi discloses a fluid processing method, i.e., the control of, and acquisition of data from, remote and in-plant industrial processes. 1:18-22. This includes measurement of fluid and flow, including oil and gas. Id., 1:28-35; 12:19-23. SCADA explains that the processes applicable to SCADA technology include oil or gas production facilities, including wells, pipelines, and fluid measurement equipment. pp. 10-11. Thus, each of Kahn, Gutierrez, Almadi, and SCADA disclose this element.
	[1.2] receiving, with a first computer system disposed at a first fluid-handling site, information comprising one or more properties of a first fluid from one or more sensors disposed at a first fluid tank itself disposed at the first fluid-handling site, the fluid-handling site comprising one or more fluid-handling devices, the one or more fluid-handling devices comprising one or more of a first pump, a first filter, and a first valve;	Kahn discloses a computer system disposed at a first fluid-handling site. Kahn Fig. 6 depicts "Computer System 4" on the "site" side of the Internet, indicating that the disclosed computer system is at or near the site sensors.  FIG. 6 Kahn explains that the "water sources" on the left side of Fig. 6 are fluid-handling sites, in that they may include "an internal chemistry laboratory of a municipal water authority," "a physical power plant or other industrial plant." 27:1-15. Kahn also discloses the use of sensor units. 11:14-19. Kahn also discloses information about properties of a fluid from sensors at a fluid tank. 25:25-34. Kahn also discloses that a fluid-handling site comprising fluid-handling devices, such as a filter (11:19-24) and a first pump, a first filter, and a first valve. EX1005, 8:6-7, 8:19-30; 10:62-67, 11:2-5, 11:18-13:58,

		13:34-36, 15:50-16:5, 16:56, 20:64-67, 21:1, FIG. 1C-FIG. 1D., FIG. 1F, FIG. 1G. A POSITA would understand that Kahn discloses receiving information comprising fluid level properties from one or more sensors disposed at a first fluid- handling site through its disclosure of a computer system that receives first fluid test data from sensors. Kahn discloses "[m]easures have been taken for monitoring the quality of drinking water including placing monitors at various points in the source water, in water treatment plants, and/or at selected distribution points of water distribution pipe networks." 1:53-58. A POSITA would understand that monitoring the quality of drinking water inherently requires measuring fluid properties. A POSITA would understand that the systems involving water treatment plants and distribution systems disclosed in Kahn include tanks through its disclosure of distribution systems that includes reservoirs, water treatment plants, and contain water, all of which includes tanks. Gutierrez discloses "a chemical injection system for a hydrocarbon transmission system." 1:54-56. A POSITA would understand that, in oil and gas, chemical injection systems (e.g., for corrosion inhibitors, demulsifiers) rely on tank level monitoring to ensure continuous operation. Measuring fluid in the chemical reservoir tank is a common practice to optimize injection and avoid downtime. Additionally, Almadi discloses that field devices connected to the integrated node measure fluid-related properties (e.g., pressure, temperature, flow rate), which are typical fluid measurements in industrial processes involving "modern oil and gas field applications." 1:28-39, 41-44. Almadi further discloses intelligent oilfield systems for oil and gas extraction and handling. 11:18-12:59; *see also* Abstract; 1:18-22, 1:28-35; 12:27-35

		(explaining "intelligent field systems"). The field devices perform sensor and actuator functions, at the process level, supported by a controller or a number of controllers, at the system level, which receive information from the sensors and transmit information to the actuators. 1:41-52. The sensors measure temperature, pressure, pH, flow rate, tank level, and deliver that information to the system-level controller devices. 1:41-45, 12:27-32, 25:11-25. Almadi thus discloses the use of sensors at a fluid tank. 25:11-16 Almadi discloses the first tank having a first fluid-level sensor with which the first computer system is configured to communicate to obtain a level of the first fluid in the first tank through its disclosure of a plant-wide model 704, that defines a mass balancing loop for the plant based on crude switches, operation scenarios, and open and closed transactions ("for example, when there is a change in the level status of tanks or the operation of pumps"). 25:11-17. Almadi discloses the first valve through its disclosure of intelligent field systems include PDHM systems, ESP systems, SWC systems, and flow meter systems, and any of the types of IED. 1:45-49, 12:27-59, Claim 3. Almadi discloses detection and analysis of key performance indicators, including loss identification, oil accounting, performance monitoring, loss management, i.e., for calculating an amount of losses incurred at the unit or plant level. 27:11-23; *see also id*., 27:61-28:10 ("Reports may be generated, for example, according to yield and loss accounting (i.e., charge/feed balancing); environmental compliance of drainage, tank vaporization, and percentage of unaccountable or accountable losses; performance monitoring; and data/model analysis"); 25:38-26:20 (discussing data libraries such as "Standard Volume," "Mass and Heat Balance Optimization Calculations," and "Pressure and Molecule Balance"). A POSITA would understand that Almadi discloses a first computer system that is configured to communicate to obtain a tank fluid level through its

		disclosure of remote subsystems 120, intelligent field devices which include tank level sensors that can detect changing the level status of tanks. Thus, Almadi discloses this claim element. SCADA discloses a first computer system disposed at a first fluid-handling site, information comprising one or more properties of a first fluid from one or more sensors disposed at a first fluid tank itself disposed at the first fluid-handling site. at 12, Figure 2-1 (disclosing remote terminal units (RTUs aka computer systems) at a fluid-handling site). SCADA also discloses monitoring a sensor disposed at a fluid tank. at 153 ("The SCADA system should … be able to present analog values, representing such things as level in tanks"). SCADA also discloses fluid-handling devices including pumps (EX1008 at 11, 17) and valves (at 10-12). Thus, each of Kahn, Gutierrez, Almadi, and SCADA disclose or suggest this element.
	[1.3] providing, with the first computer system disposed at a first fluid handling site, remote control of a first fluid-handling device of the one or more fluid-handling devices;	Gutierrez discloses providing, with a computer system disposed at a first fluid handling site, remote control of a fluid-handling device. Gutierrez discloses a "[c]ontroller… communicably coupled to the motor controller… provid[ing] microprocessor-based control of the motor controller [] and thus motor and pump." 8:16-19. A POSITA would understand that a microprocessor is a computer. A POSITA would further understand that a pump is a fluid-handling device. Gutierrez discloses the computer (microprocessor) being disposed at the fluid-handling site. 8:26-30 ("Generally, controller 130 receives inputs and/or instructions and commands *from a remote source* and, according to the commands, controls the operation and/or speed of the motor 110 and pump 105 to inject chemicals into the pipeline 120.") (emphasis added). In addition, Gutierrez discloses "[m]onitoring module 225 ... may detect the relative amount of chemical additives injected into the pipeline 205 by the one or more chemical injection systems 210. Such data may be wirelessly transmitted directly to each chemical injection system 210 and/or the remote control center 220. ... The remote control center 220 may then wirelessly issue commands to one or more of

		the chemical injection systems 210. Such commands may include a command to stop injecting chemical additive into the pipeline 205 and/or a command to inject a specified amount of chemical additive into the pipeline 205 ... Upon receipt of such data, the chemical injection systems 210 may process the data and inject more or less chemical additive into the pipeline 205, as appropriate..." 10:40-67 – 11:1-3. Thus, Gutierrez discloses the claim element "providing, with the first computer system disposed at a first fluid handling site, remote control of a first fluid-handling device of the one or more fluid-handling devices". Almadi discloses that "intelligent field devices" (i.e. remote subsystems 120) include the ability to process data, self-monitor, self-regulate, self-calibrate, or provide early warnings with respect to malfunctions or predictive maintenance. 1:18-57, 3:4-9, 12:27-32. Almadi discloses processing by remote subsystems … including a processor. 4:6-16, 4:51-57, 6:49-53, 7:3-9, 11:18-21, 18:57. Remote subsystems can also adapted to be programmed so as to communicate with other field devices that a processor is required. 12:35-43. Almadi further discloses commands used by the local controller to drive the fluid handling device to a particular target state, e.g. "field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps." 1:45-49, 12:27-59; *see also id*., 25:26-37. A POSITA would understand that Almadi discloses a first computer system that is configured to communicate to obtain a tank fluid level and provide remote control of a pump or valve of the '461 Patent through its disclosure of remote subsystems 120, intelligent field devices. Thus, Almadi discloses this claim element.

		SCADA provides, with the first computer system disposed at the fluid handling site, remote control of one or more of the fluid-handling devices. SCADA discloses that the remote RTUs communicate with sensors or actuators at the fluid handling site. at 12. Thus, each of Kahn, Gutierrez, Almadi, and SCADA disclose or suggest this element.
	[1.4] receiving, with a server system, from the first computer system, via a network, a first fluid property of the one or more properties associated with the first fluid sensed by a first sensor of the one or more sensors;	Kahn discloses receiving, with a server system, from the first computer system, via a network, fluid properties. 23:24-37 ("Raw fluid quality data and/or processed food quality data can then be communicated from the wireless transceivers 416A-416B to a centralized data collection system 418 (e.g., an internet server) via suitable communication channels 419 (e.g., existing wireless, wired, optical networks, power-grid networks, or combinations thereof). Raw fluid quality data and/or processed fluid quality data and/or fluid quality measures derived therefrom can then be communicated to interested parties 420A-420D other than the separate entities 412A-412D via any suitable communication channel 421."). A POSITA would understand that "[r]aw fluid quality data" is a fluid property. Kahn discloses that "fluid quality data can be measured using portable sensor units." 22:50-51, Thus, Kahn discloses a fluid property sensed by a sensor. Kahn discloses a data collection network with centralized data collection points. 8:51-59, 9:53-58, 17:18-30, 18:48-52, 63-65, 19:5-23, 19:58-65, 23:27-31. Kahn discloses that the centralized data collection points receive sensor information via a network from a facility interface module, Sensor unit 110. 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. In addition, Kahn discloses receiving, with a server system, from the first computer system, the fluid property from the sensors (as shown below in the annotated FIG. 3).

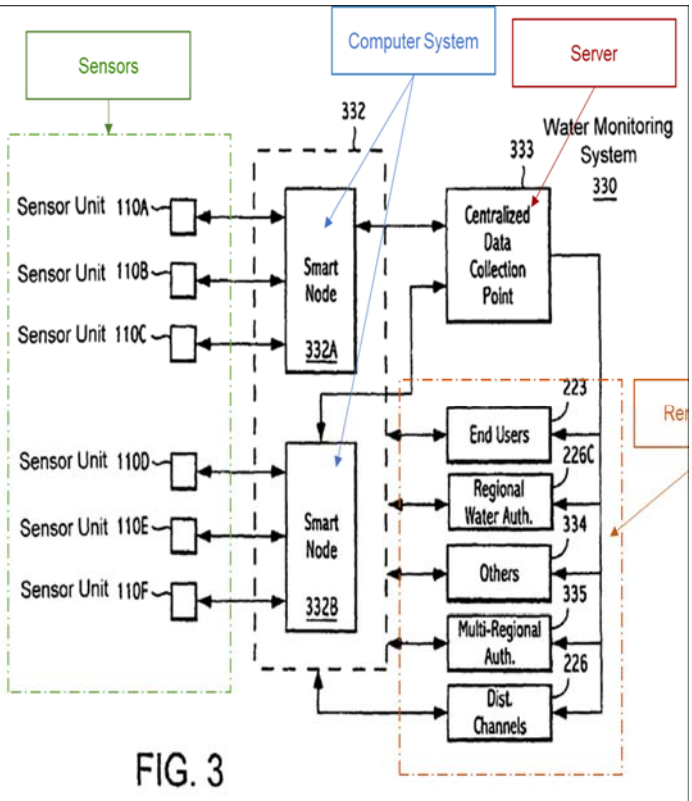


FIG. 3

Kahn discloses that sensor units 110 detect breakage of a pipe, for example the level of a first fluid, based on reduced water pressure in the pipe. 10:8-16. Kahn discloses that its method can be applied to monitor any fluid (gas or liquid) including those present in a distribution system, reservoir, or feed source in need of monitoring. 4:4-7, 4:12-48.

A POSITA would understand from the above disclosure and figures that Kahn discloses receiving, with the server system, from the first computer system, via a network, a first fluid property associated with the first fluid sensed by a first sensor of one or more sensors. Thus, Kahn discloses this claim element.

In addition, Gutierrez discloses "... the controller 130 is communicably coupled to a communication bus 155 at the communication module 140. The communication bus 140, generally, is a wired communication connection operable to carry data between the communication module and a remote source, such as one or more electronic sensors monitoring the pipeline 120..." 9:4-10.

		Further, Gutierrez discloses "...the computer 305 may be located at a remote monitoring station, such as the station 220. Further computer 305 may be one of several computers at the remote monitoring station, where each computer 305 may monitor, receive data from, and/or generate commands transmitted to a single chemical injection system 310 or multiple chemical injection systems 310. Each chemical injection system 310 may be positioned at or near a wellsite and/or a pipeline transporting hydrocarbon fluid." 11:55-64. Thus, Gutierrez discloses the claim element "receiving, with a server system, from the first computer system, via a network, a first fluid property of the one or more properties associated with the first fluid sensed by a first sensor of the one or more sensors." Almadi discloses integrated node 100, as illustrated in FIGS. 1A-1B, having a central processing unit 105 and a memory 160 to allow a remote host 110 to interface with a plurality of remote subsystems 120. 11:18-21. Integrated node 100 is a programmable logic controller ("PLC"), meaning any PLC, remote terminal unit ("RTU"), computer, server, system, node, or unit. 11:18-28. Almadi discloses that the integrated node 100 collects data from remote subsystems 120. 11:51-55; 13:47-14:9. Integrated node 100 has memory storing instructions that, when executed, effectuate operations. 4:55-57, 6:49-53, 17:42-49, 18:54-60.

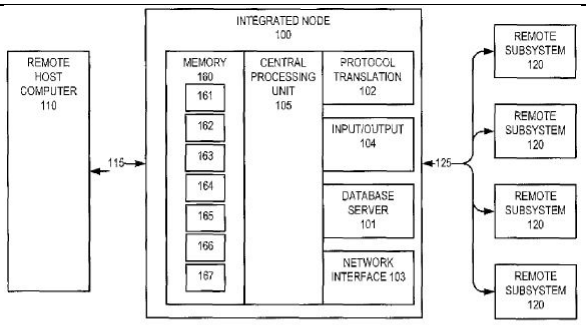


FIG. 1A

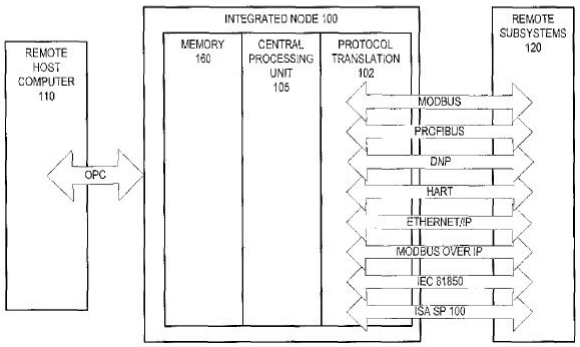


FIG. 1B

The field devices perform sensor functions to sense operational information and variables such as temperature, pressure, pH, flow rate, tank level, and deliver that information to the system-level controller devices. 1:41-45, 25:11-25. Almadi discloses the first tank having a first fluid-level sensor with which the first computer system is configured to communicate to obtain a level of the first fluid in the first tank through its disclosure of a plant-wide model 704, that defines a mass balancing loop for the plant based on crude switches, operation scenarios, and open and closed transactions (for example, when there is a change in the level status of tanks or the operation of pumps). 25:11-17.

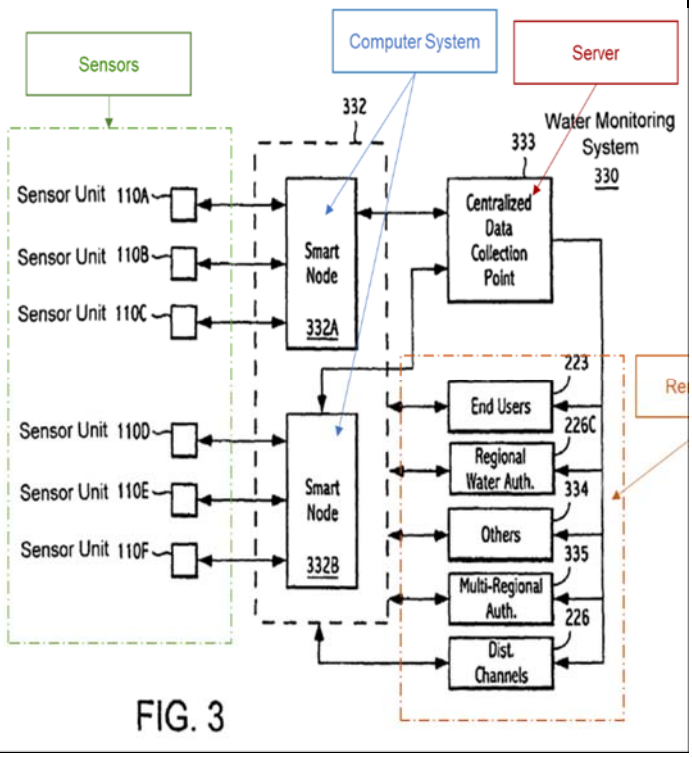
Almadi discloses that the integrated node 100 collects data from remote subsystems 120. 11:51-55; 13:47-14:9. The level status of the tank is sent to the remote subsystems where it is then transmitted to the server. Figures 1A, 1B.

Almadi also discloses a first fluid level sensed by the fluid-level sensor, as discussed above, and incorporated herein by reference. A POSITA would understand that Almadi discloses receiving a first

		fluid level sensed by the fluid level sensor of the '461 Patent. Thus, Almadi discloses this claim element. SCADA discloses a server system that receives fluid properties from a sensor via the first computer system. Specifically, SCADA discloses that an operator interfaces with a master terminal unit (MTU aka server system) that communicates with a remote terminal unit (RTU aka computer system) which communicates with sensors. at 12. Thus, each of Kahn, Gutierrez, Almadi, and SCADA disclose or suggest this element.
	[1.5] obtaining, with the server system, credentials from a first client computing device;	Kahn discloses the server system obtaining credentials from a client computing device. 25:48-53 (explaining that a user may be authorized via the Internet at a user's computer). A POSITA would recognize from its disclosure that any suitable technique can be used to verify that the identity of a present user is an authorized user of the device. 25:1-2; 28:35- 37 ("After the user has "logged in" to the service by inputting a username and password in a conventional manner"). Kahn further discloses that an authorized Account A (first user 5 a) can be authorized by a first entity. 25:48-51. Finally, Kahn discloses that an authorized Account B (second user 5 b) second user can beauthorized by a second entity. 25:55-58. A POSITA would understand from Kahn's disclosure of authenticated accounts and suitable techniques for verification of the identity of present users as authorized users that Kahn discloses that credentials can be obtained from a first client computer. Thus, Kahn discloses this claim element. Gutierrez discloses receiving, at a remote server system, via a network, user credentials from a user device through its disclosure that the base transceiver 325 may communicate with the computer 305 over a communications network 330, which is an enterprise or secured network, as well as a VPN (virtual private network) between computer 305 and other computing devices communicably coupled to the base transceiver 325. 12:53-64. A

		POSITA would recognize Gutierrez's disclosure of a secured network and a VPN that user credentials are required to access a user device. Thus, Gutierrez discloses this claim element. Almadi discloses obtaining, with the server system, credentials from a first client computing device through its disclosure of an embodiment of an integrated node 100, as illustrated in Figures 1A, 1B, having a central processing unit 105 and a memory 160 to allow a remote host 110 to interface with a plurality of remote subsystems 120. 11:18-21. Almadi discloses a system intended to serve in various networking operating environments, including, for example, intelligent fields for oil and gas, substations/power grid, and remote security, and can be utilized and can be extended for enterprise applications. 12:48-59, 13:20-25. Almadi further discloses "[t]hose having skill in the art will appreciate various techniques to ensure no file access violations during the process of accessing the file, for example, by the remote host 300." 16:65-67. A POSITA would understand that Almadi discloses obtaining credentials from a first client computing device of the '461 Patent through its disclosure of the integration node's application in secure enterprise network environments ensuring that no file access violations occur. Thus, Almadi discloses this claim element. Thus, each of Kahn, Gutierrez, and Almadi disclose or suggest this element.
	[1.6] determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site, wherein the server system hosts data about other fluid handling sites the user is not authorized to interact;	Kahn discloses determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site through its disclosure that an authorized Account A (first user 5a) can be authorized by a first entity. 25:48-26:67. Kahn further discloses that an authorized Account B (second user 5b) second user can be authorized by a second entity. 25:55-58. Kahn discloses that "separate entities provide their fluid test data to the computer system 4 controlled by the service provider (an entity different from the first and

		second entities), and the first and second entities can control access to data generated by their respective sensors." 25:63-66. Kahn discloses that the server system hosts data about other fluid handling sites the user is not authorized to interact through its disclosure that only fluid test measurements which the user is authorized to see are displayed. 28:43- 45, 25:48-26:67, *see also id*., 2:50-60, 19:58-65, 21:50-22:44, 22:62-23:50, 24:44-25:2, 25:5-12, 27:39-28:7. A POSITA would recognize that Kahn discloses determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site from its disclosure of multiple- user accounts which only permits access to certain aspects of test data and the computer system. A POSITA would further understand that the server system hosts data about other fluid handling sites with which the user is not authorized to interact. *Id.* Thus, Kahn discloses this claim element. Almadi discloses determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site through its disclosure that an embodiment of an integrated node 100 can be shown, as illustrated in FIGS. 1A-1B, having a central processing unit 105 and a memory 160 to allow a remote host 110 to interface with a plurality of remote subsystems 120. 11:18-21. Integrated node is a server system. *Id*. Almadi discloses a system intended to serve in various networking operating environments, including, for example, intelligent fields for oil and gas and can be utilized and can be extended for enterprise applications. 12:48-59, 13:20-25. Almadi discloses that "those having skill in the art will appreciate various techniques to ensure no file access violations during the process of accessing the file, for example, by the remote host 300." 16:65-67.

		A POSITA would understand that Almadi discloses determining whether a user is authorized to interact with the fluid-handling device of the '461 Patent through its disclosure of the integrated node 100 and the various techniques to ensure no file access violations occur during the process of accessing the file by the remote host. Thus, Almadi discloses this element. Thus, each of Kahn and Almadi disclose or suggest this element.
	[1.7] after the determination, providing, with the server system, via the network, information by which the first client computing device presents a user interface indicating the first fluid property, the first client computing device being remote from the server system and the first computer system;	Kahn discloses, after the authorization determination, providing, with the server system via the network, a graphical user interface showing the fluid property. 26:3-7 ("the computer system **4** permits Account A to visualize first information associated with the first fluid test data overlaid on a geographical map displayed on the graphical computer interface (e.g., a web browser) of Account A's computer. "). Kahn discloses the first client computing device being remote from the server system and the first computer system, as depicted below in annotated FIG. 3, FIG. 5, and Fig. 6.  FIG. 3

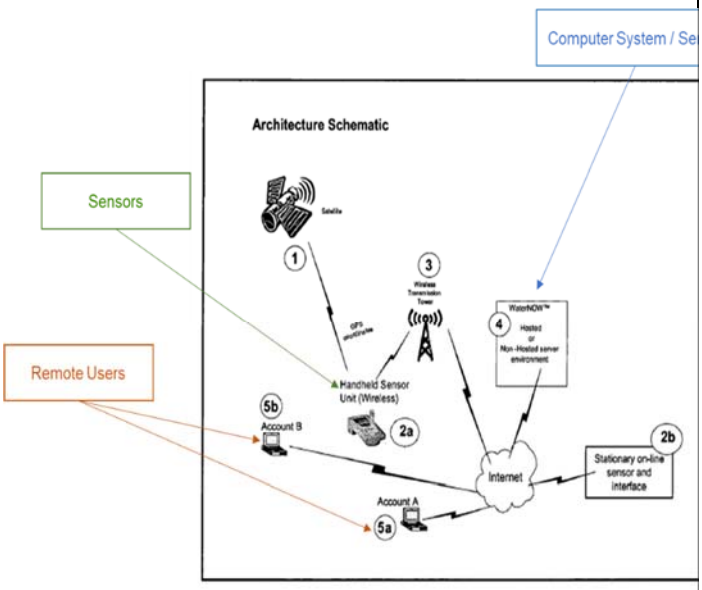


FIG. 5

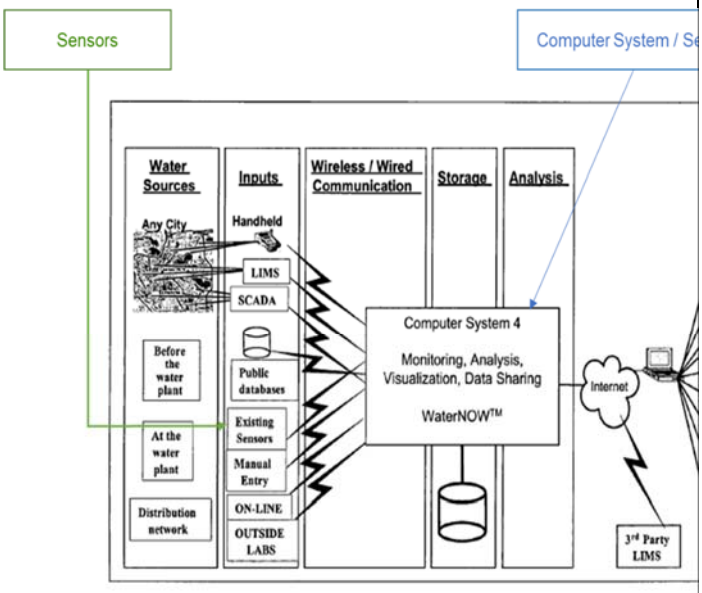


FIG. 6

Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system's sensors. Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8-25, 29:5-37. Kahn discloses that sensor unit 110 connects via a network to centralized data collection points. 5:62-6:2, 9:37-

		43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn discloses that the centralized data collection points are a server. 10:54-56, 23:29-30. Kahn discloses that users log into the system on respective user computing devices. 2:50-45, 25:5-12, 28:35-37, 30:45-49. Kahn discloses a variety of users and entities having different levels of authorized access. 25:48- 26:67, *see also id.*, 2:50-60, 19:58-65, 21:50-22:44, 22:62-23:50, 24:44-25:2, 25:5- 12, 27:39-28:7. Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid- handling facilities, to facilitate the measurement of data requested through the graphical user interface. 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. Kahn discloses that sensor units 110 detect breakage of a pipe, i.e., level of a first fluid, based on reduced water pressure in the pipe. 10:8-16. Kahn discloses that its method can be applied to monitor any fluid (gas or liquid) including those present in a distribution system, reservoir or feed source in need of monitoring. 4:4-7, 4:12-48. The sensor outputs are presented to the user through the GUI on the remote user's computer. 2:50-54, 2:61-65, 25:5-12, 26:3-7, Claim 36, FIG. 5, FIG. 6.

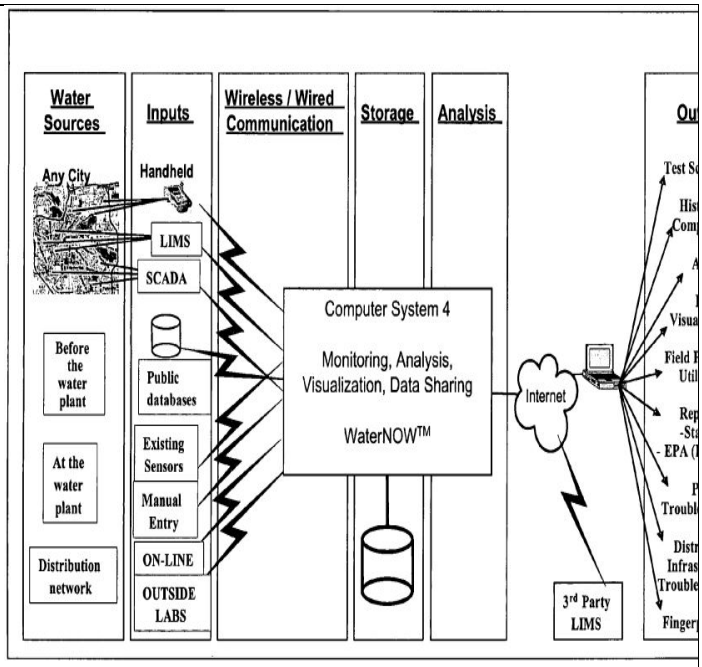


FIG. 6

A POSITA would recognize Kahn discloses providing, a user interface indicating the first fluid level, the first client computing device being remote from the server system and the first computer system through its disclosure of a graphical user interface for monitoring fluid quality.

Furthermore, a POSITA would recognize from Claim 36 Kahn discloses providing, with the server system, via the network, information by which a first client computing device presents a user interface indicating the first fluid property, the first client computing device being remote from the server system and the first computer system. 2:50-54, 2:61-65, 25:5-12, 26:3-7, Claim 36, FIG. 5, FIG. 6. Thus, Kahn discloses this claim element.

Almadi discloses the first client computing device being remote from the server system and the first computer system through its disclosure that the DRM 166 can output any of the measurements or values by storing to a storage medium such as memory 160 or database 101, by transmitting to remote host computer 110, or by transmitting to any other computer or interface in communication with

		the integrated node 100 over the input/output unit, such as the local interface 190 or any computer terminal having a graphical user interface. 27:2-11. More specifically, Almadi discloses the configuration interface 190, an object-oriented *graphical user interface* ("GUI") having a built-in library of objects required to develop unit models and plant-wide models. 24:32-53. Almadi discloses that the configuration interface identifies routing and process streams between plants and different numbers and types of process units, such as tanks, crude switches, and other process units. *Id*. The configuration interface also allows a user to assign to a model various types of data, including reconciled readings, key performance indicators, confidence/accuracy factors, and unreconciled data (real- time and historical). *Id*. The model is also configured for any group of units and can define a mass balancing loop for the plant based on crude switches, operation scenarios, and open and closed transactions (for example, when there is a change in the level status of tanks or the operation of pumps). 25:11-17. A POSITA would understand that Almadi's user interface indicates the first fluid property. Thus, Almadi discloses this claim element. SCADA discloses a server system that receives fluid properties from a sensor via the first computer system over the network. Specifically, SCADA discloses that an operator interfaces with a master terminal unit (MTU aka server system) using some form of input/output device (I/O aka user interface) that communicates with a remote terminal unit (RTU aka computer system) which communicates with sensors. at 12, and Fig. 2-1. Thus, each of Kahn, Almadi, and SCADA disclose or suggest this element.
	[1.8] receiving, with the server system, from the first client computing device, a first command to	Gutierrez discloses receiving, with the server system, from a client computing device, a command to change a state of a fluid-handling device. Gutierrez discloses "[t]he computer 305 and/or a user operating the computer 305 may then issue

	change a state of the first fluid-handling device; and	commands to one or more of the chemical injection systems 310. Such commands may include a command to stop injecting chemical additive into the pipeline and/or a command to inject a specified amount of chemical additive into the pipeline." 13:21-26. Thus, a POSITA would understand that a user may change the state of a fluid-handling device. The "central controller" disclosed in Gutierrez is a server. Gutierrez's central controller performs server functions, such as receiving commands, processing them, executing actions, and sending feedback. 2:18-25. Gutierrez's central controller is "communicably coupled to the remote computing system and the sensor." 2:39-41. Gutierrez's "remote computing device," i.e., a client computing device, acts as a client in interactions with the central controller. Gutierrez's "base transceiver" receives commands destined for the chemical injection systems from Gutierrez's "computer 305," the client computing device. 12:48-55. A POSITA would understand from Gutierrez that a user command is received to change a state of the first fluid-handling device. Thus, Gutierrez discloses receiving, with the server system, from a client computing device, a command to change a state of a fluid-handling device. Almadi discloses that integrated node 100 supports a local programming interface over a computer, such as through computer terminals having one or more input devices and one or more display devices that are accessible to a human user by using the remote host computer 110. 11:18-21, 12:10-15. The remote host 110 can be any type of remote host computer for management or hosting of process automation functions, for example, a SCADA host. 12:55-59. Almadi discloses that the PLC or RTU functions of the integrated node 100 enable data processing in the integrated node 100 and also enable data collection from, and control of, the plurality of remote subsystems 120. 11:51-63; 22:32-36 ("The DVRM 164 enhances the accuracy of data acquired by the integrated node 100, which also enhances the effectiveness of the integrated node 100 in

		controlling the plurality of remote subsystems 120."). Almadi discloses commands used by the local controller to drive the fluid handling device to a particular target state, e.g. "field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps." 1:45-49, 12:27-59; *see also* 25:26-37 ("switching a pump off if the flow is below a certain limit or activating some bounds or streams based on some readings/conditions"). A POSITA would understand from Almadi that a user command is received to change a state of the first fluid-handling device. Thus, Almadi discloses this claim element. SCADA discloses a server system (MTU aka server system) that receives commands from some form of input/output device (I/O device aka a client computing device) to change a state of a fluid-handling device. at 12-14, and Fig. 2-1. SCADA discloses that the user can control actuators, which include fluid-handling devices. at 42 (disclosing that the MTU sends commands for control of valves and motors). SCADA further explains that "when the MTU instructs, the RTU sends signals to open and close valves, or turn switches on and off, outputs analog or digital signals that may represent set points, and outputs pulse trains to move stepping motors." at 91. Thus, each of Gutierrez, Almadi, and SCADA disclose or suggest this element.
	[1.9] causing, with the server system, the first computer system disposed at the first fluid handling site to effectuate the command by changing the state of the first fluid-handling device to a sequence of different target	Gutierrez discloses that its central controller receives operational commands or data signals from the remote computing device, processes them by translating protocols and analyzing data, and provides responses by issuing commands to the motor controller or sending feedback. 2:41-47. This aligns with server functions, such as receiving client requests (commands), processing them, and executing actions (controlling the system). For

	states that change over time.	example, it can adjust the motor's rotational speed based on remote commands, which is akin to a server managing and responding to client requests in real-time. Gutierrez also discloses that the motor controller may include a variable frequency drive ("VFD"), which varies the frequency of electrical power to the motor, allowing for variable rotational speeds. 8:6-12; 12:18-22. A POSITA would understand that VFDs are standard in industrial applications for smooth speed control, including ramping up and down to prevent mechanical stress. . Gutierrez also discloses reducing the speed of the motor, i.e., to a different target state, when the sensed pressure in a pipeline falls below a minimum threshold indicative of a pipeline break. 10:8-16. In addition, Kahn discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid-handling facilities. 8:3-11, 8:19-21, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. Kahn discloses first sensor having actuators controlling valves and pumps to manipulate fluid flow. *Id.* Kahn discloses sensors having actuators controlling valves and pumps to change the target states (sensing, recalibrating) over time. *Id*. A POSITA would recognize from Kahn's disclosures that Kahn discloses the limitation regarding changing the state of the first fluid-handling device. Thus, Kahn discloses this claim element. Almadi discloses commands used by the local controller to drive the fluid handling device to a particular target state, e.g., "field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps." 1:45-49, 12:27-59; *see also* 25:26-37. A POSITA would understand that changing the state of the first pump of the '461 Patent is disclosed by

		Almadi's disclosure of changing the state of the pump based on readings/conditions including switching a pump off (from on) if the flow is below a certain limit. Thus, Almadi discloses this claim element. SCADA discloses a server system (MTU aka server system) that receives commands from some form of input/output device (I/O device aka a client computing device) to change a state of a fluid-handling device. at 12-14, and Fig. 2-1. SCADA discloses that the user can control actuators, which include fluid-handling devices. at 42 (disclosing that the MTU sends commands for control of valves and motors). In SCADA, the "target states" are known as "set points" and are sent from the server system (MTU). at 89, 237. SCADA further explains that "when the MTU instructs, the RTU sends signals to open and close valves, or turn switches on and off, outputs analog or digital signals that may represent set points, and outputs pulse trains to move stepping motors." at 91. Thus, each of Gutierrez, Almadi, and SCADA disclose or suggest this element. Claim 1 is rendered obvious by the combination of Kahn and Gutierrez in further view of Almadi and SCADA.
2.	The method of claim 1, wherein: the sequence of different target states that change over time are configured to ramp up or down a speed of the first fluid-handling device.	As explained for Element [1.9] above, Gutierrez discloses a motor controller including a variable frequency drive ("VFD"), which varies the frequency of electrical power to the motor, allowing for variable rotational speeds. 8:6-12; 12:18-22. A POSITA would understand that VFDs are standard in industrial applications for smooth speed control, including ramping up and down to prevent mechanical stress. Gutierrez also discloses reducing the speed of the motor, i.e., to a different target state, when the sensed pressure in a pipeline falls below a minimum threshold indicative of a pipeline break. 10:8-16. SCADA discloses the use of pulse control outputs, that can be used to instruct a stepping motor to

		increase or decrease a valve's openness by steps. at 100, 243. Thus, each of Gutierrez and SCADA disclose or suggest this element.
3.	The method of claim 1, wherein: the sequence of different target states that change over time are determined with steps for mitigating shocks to up-stream or down-stream fluid-handling devices relative to the first pump.	As explained for Element [2] above, Gutierrez discloses a motor controller including a variable frequency drive ("VFD"), which varies the frequency of electrical power to the motor, allowing for variable rotational speeds, *as system operating conditions warrant*. 8:6-12; 12:18-22 (emphasis added). A POSITA would understand that VFDs are standard in industrial applications for smooth speed control, including ramping up and down to prevent mechanical stress. Gutierrez also discloses reducing the speed of the motor, i.e., to a different target state, when the sensed pressure in a pipeline falls below a minimum threshold indicative of a pipeline break. 10:8-16. Kahn discloses the sequence of different target states that change over time are determined, as discussed above for Claim 1, and incorporated herein. Moreover, Kahn discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid-handling facilities. 8:3-11, 8:19-21, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. Kahn also discloses mitigating shocks such as physical events in the distribution system. 10:8-13 ("Physical events, such as a breakage of a pipe might be detected through a pattern of sensor units 110 . . . reduced water pressure . . . thereby identifying the exact location or proximate location of the breakage."); 23:51-62; 10:62-67 ("shutting off the supply of fluid upon the detection of emergency events"). Kahn's sensor units can be upstream or downstream, and at multiple locations in the fluid supply. 11:2-15; *see also id.*, FIG. 2, 16:67-17:7. A POSITA would recognize from Kahn's disclosures that Kahn discloses the limitation regarding changing the state over time. Thus, Kahn discloses this claim element. Thus, each of Kahn and Gutierrez disclose or suggest this element.

4.	The method of claim 1, wherein: at least some of the sequence of different target states that change over time are determined by the first computer system in response to a rate of change in the first fluid property, wherein the first fluid property corresponds to a level of the first fluid in the first tank.	In addition to the arguments provided for Element [2] above, Gutierrez discloses "the controller 130 may receive data representative of pipeline conditions, such as line pressure, amount of chemicals present in the pipeline 120, and motor operating conditions, and in turn, control the pump 105 to inject more or less chemicals into the pipeline 120." 8:34-38. In view of the disclosure of controlling the pump 105 based on pipeline conditions, a POSITA would understand that Gutierrez describes the claim element "at least some of the sequence of different target states that change over time are determined by the first computer system in response to a rate of change in the first fluid property, wherein the first fluid property corresponds to a level of the first fluid in the first tank". 8:34-37; Thus, Gutierrez discloses this element. Almadi discloses commands used by the local controller to drive the fluid handling device to a particular target state, e.g., "field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps." 1:45-49, 12:27-59; *see also id*., 25:26-37, 12:27-59, 20:25, 23:20-25. Almadi discloses different states corresponding to different times through its disclosures related to the collection, storage, and retrieval of time-stamped process data., Abstract, FIG. 6, FIGS. 8-11; 4:30-34, 5:4-6:53, 7:26-34, 7:59-64, 8:6-45, 9:1-33, 15:38-16:50, 17:1-14, 17:29-35, 7:50-65, 19:8-14, 19:26-38, 21:23- 27, 23:10-15. A POSITA would understand that Almadi's disclosure of monitoring and collecting time-stamped process data can be done automatically or manually at different times to determine a plurality of different target states corresponding to different times, as claimed in the '461 Patent.

		A POSITA would understand from Almadi's disclosure of the sequence of different target states that change over time are determined by the first computer system in response to a rate of change in the first fluid property, wherein the first fluid property corresponds to a level of the first fluid in the first tank. Thus, Almadi also discloses this element. Additionally, SCADA discloses the automatic control of water level in a tank, which is controlled automatically by the use of valves. at 45, Example 4-6, and 46, Fig. 4-5. SCADA discloses that a fill valve can be cycled to opened and closed target states that change over time, in response to a rate of change in the first fluid property, wherein the first fluid property corresponds to a level of the first fluid in the first tank. at 46, Fig. 4-5; depicting changes in the tank level and the fill valve position. Thus, each of Kahn, Gutierrez, and SCADA disclose or suggest this element.
5.	The method of claim 1, wherein: the server system is configured to interface with both a web browser on the client computing device and a special-purpose application executing on the client computing device to present the user interface indicating the first fluid property, wherein the first fluid property corresponds to a first fluid level.	Kahn discloses that the computer system 4 permits Account A to visualize first information associated with the first fluid test data overlaid on a geographical map displayed on the graphical computer interface (e.g., a web browser) of Account A's computer. 26:3-13. Kahn discloses that the computer system 4 can provide either a hosted environment (e.g., act as an application service provider as known in the art such that Account A needs primarily only a suitable web browser) or a non-hosted environment wherein appropriate software issued by the service provider is run on Account A's computer to access computer system 4. *Id*. a POSITA would recognize Kahn discloses a system configured to interface with a web browser on an account's computing device indicating the first fluid level. In addition, Gutierrez discloses a GUI executed using a special-purpose application. 12:65-13:8. A POSITA could easily combine the capability of using a web-based GUI along with a special-purpose application running a GUI, to provide a user a choice of GUI platforms.

		Thus, this element is disclosed by the combination of Kahn and Gutierrez.
6.	The method of claim 1, wherein: the first computer system is configured to communicate with the server system via a cellular wireless connection.	Gutierrez discloses communication via a cellular wireless connection. 12:32-38 ("For example, in some embodiments, data may be transmitted between the communication station 320 and the chemical injection system… over a certain communication form (e.g., cellular, RF, satellite, or other type of communication form"). Kahn also disclosed communication via cellular. 10:25-31 ("long-range communication over … cellular communication networks… .). In addition, Almadi further discloses that each of the computer components, including integrated node 100, remote subsystems 120, and remote host computer 110, communicates through available wireless systems and services, including corporate Wi-Fi networks (IEEE 802.11a/b/g/n) in conjunction with cellular networks (GSM/TETRA). 13:47-60, *see also* Abstract. A POSITA would recognize that Almadi discloses the first computer system is configured to communicate with the server system via a cellular wireless connection. Thus, Gutierrez, Kahn, and Almadi disclose this element.
7.	The method of claim 1, wherein the first computer system is configured to translate a plurality of commands from the server system, including the command, from an input format to a plurality of different formats and protocols configured to effectuate changes in states of a plurality of different fluid-handling devices at the first fluid handling site.	Gutierrez discloses translating commands from one protocol to another. 2:41-47. Gutierrez discloses performing the translation at the central controller. *Id*. However, the central controller is a client to the motor controller, which is a server in that it is a computing device that provides services to the central controller, such as in a client-server architecture. 2:48-60. Thus, Gutierrez discloses a first computer (the central controller) that translates commands from one protocol to one or more other protocols (i.e., "transmitting the second operational command at the second communication protocol from the controller to the motor controller") configured to effectuate changes in states of a plurality of different fluid-handling devices (motors) at the first fluid handling site. 2:48-60. A POSITA

		would understand that the use of different protocols by the protocol translator requires that the protocols including command must be identified and translated to be used by various fluid-handling devices. Thus, Gutierrez discloses this claim element. In addition, Almadi discloses that integrated node 100 includes a protocol translator or translation server 102 to translate communications with each of the remote subsystems 120 according to any one or more of a plurality of messaging protocols (as can be shown with reference to the arrows connecting protocol translator or translation server 102 and the plurality of remote subsystems 120). 14:10-17, FIG. 1B; *see also* 11:35-41. Almadi discloses a command, from an input format to a plurality of different formats and protocols configured to effectuate changes in states of a plurality of different fluid-handling devices at the first fluid handling site, the different fluid- handling devices including the first pump or the first valve through its disclosure that the protocol translator or translation server 102 supports communications according to various protocols, including serial and Ethernet physical interfaces. 14:17-28; *see also* FIG. 2D. Almadi discloses translated commands used by the local controller to drive the fluid handling device to a particular target state. 1:45-49, 12:27-59, 14:10-32, 25:26-37. A POSITA would understand that the use of different protocols by the protocol translator requires that the protocols including command must be identified and translated to be used by various fluid-handling devices. A POSITA would further understand that the translated protocols include commands to change the states in the fluid-handling devices including pump or valves as claimed in the '461 Patent.

		Thus, both Gutierrez and Almadi disclose this element.
8.	The method of claim 7, wherein translating the plurality of commands comprises steps for translating commands.	In view of the arguments provided for Claim 7 above, a POSITA would understand that Gutierrez discloses steps for translating commands. 2:48-60;. Thus, Gutierrez discloses this element. In addition, Almadi discloses translating the plurality of commands comprises steps for translating commands through its disclosure that integrated node 100 can further include a protocol translator or translation server 102 to translate communications with each of the remote subsystems 120 according to any one or more of a plurality of messaging protocols. 14:10-17, FIG. 1B; see also 11:35-41. Almadi discloses that the protocol translator or translation server 102 can be configurable, such as being configured by a user. 14:17-28; see also FIG. 2D. Almadi discloses translated commands used by the local controller to drive the fluid handling device to a particular target state, e.g. "field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps." 1:45-49, 12:27-59, 14:10-32, 25:26-37. A POSITA would understand that use of different protocols by the integrated node and remote subsystems involves the protocol translator performing steps for translating commands as claimed in the '461 Patent. SCADA discloses translating commands. at 243, Exercise 7-3 ("Protocol drivers are programs written to instruct a computer about the order of steps that must be taken in order to complete some task. … Changing from the language that one instrument understands to a language that the RTU understands, requires a protocol driver to accomplish."). Thus, each of Gutierrez, Almadi, and SCADA disclose this element.

9.	The method of claim 7, wherein the plurality of different formats and protocols comprise: modbus remote terminal unit protocol; and analog electrical signals.	Gutierrez discloses a translation module 145 that supports communications according to various protocols, including Modbus serial communication protocol, such as Modbus RTU, Modbus ASCII, Modbus TCP/IP, Modbus TCP, Modbus over TCP/IP, Modbus over TCP, and/or Modbus Plus. 9:45-50. A POSITA would understand that a plurality of different formats and protocols comprise: analog electrical signals as the Modbus serial communication protocol can be used for communicating both analog and digital data. Thus, Gutierrez discloses this element. In addition, Almadi discloses that a protocol translator or translation server 102 can be configurable and supports communications according to various protocols, including Serial Modbus, Modbus over IP (Internet Protocol). 14:17-28, FIG. 1B. Almadi also discloses remote terminal units (RTUs) as integral components. 1:58-63, 2:22-33. A POSITA would understand that Modbus RTU is a primary protocol for RTUs in serial communication. Almadi further discloses a plurality of different formats and protocols comprise: analog electrical signals through its disclosure that the input/output unit 104 can support, for example, any of analog inputs, analog outputs, digital inputs, digital outputs, pulse inputs, and pulse outputs for both wired and wireless instrumentation interfaces. 13:64-67. A POSITA would understand that Almadi discloses the modbus RTU protocol and analog electrical signals. SCADA discloses the use of Modbus RTU. at 140, Fig. 9-2. SCADA also discloses the use of analog electrical signals. at 243, Exercise 7-1 (“Most RTUs, in addition to gathering discrete signals from electrical switches that show status or alarm conditions, can also accept analog signals that indicate the amount of level or pressure or temperature.”). SCADA also provides examples explaining the proportional control of valve openness using analog signals. at 243, Exercise 7-2

		("Analog signals can be sent to valve actuators instructing them to open to 65 percent or close to 33 percent."). A POSITA would understand that SCADA discloses the modbus RTU protocol and analog electrical signals. Thus, each of Gutierrez, Almadi, and SCADA disclose this element.
10.	The method of claim 7, wherein at least some of the plurality of different fluid-handling devices comprise proportional-integral-derivative controllers configured to drive respective fluid-handing devices to different target setpoints determined by the first computer system responsive to corresponding commands from the server system.	A POSITA would understand that proportional-integral-derivative (PID) controllers are feedback-based control loop mechanisms that are commonly used in industrial systems to regulate temperature, pressure, and speed. A POSITA would further understand that PID controllers are standard in chemical process control to regulate variable such as those described in Gutierrez, i.e., flow and pressure. *See* 10:1-7. Accordingly, it would have been obvious to a POSITA to combine Gutierrez with PID control. Additionally, Almadi discloses that integrated node 100 is a PLC, meaning any programmable logic controller PLC, remote terminal unit (RTU), computer, server, system, node, or unit. 11:18-28. Almadi also discloses that integrated node 100 supports proportional-integral-derivative control (PID), closed loop control, open loop control, and logic and sequence functions. 12:15-17. Almadi discloses that the fluid-handling devices also include PLC, meaning any PLC, RTU, PLC with RTU functionality, RTU with PLC functionality, or any type of computer, terminal, server, system, node, or unit that can incorporate PLC or RTU functionality or both. 11:22-27. Almadi discloses that the local controller uses commands to drive the fluid handling device to a particular target state. 1:45-49, 12:27-59, 14:10-32, 25:26-37. A POSITA would understand that the fluid handling device's programmable logic controller of Almadi is a proportioned integrated derivative controller because they are used to regulate temperature, flow pressure, spool, and other process variables in the control system.

		Thus, both Gutierrez and Almadi disclose this element.
11.	[11.1] The method of claim 7, wherein: the first computer system is coupled to at least some of the plurality of different fluid-handling devices via a bus; and	Gutierrez discloses the first computer system coupled to fluid-handling devices via a bus. 9:4-11 ("the controller … is … coupled to a communication bus … to carry data between the communication module and … the motor … pump … or other … apparatus."); 9:43-45 (disclosing Modbus, Fieldbus, and Profibus). Thus, Gutierrez discloses this element. Additionally, Almadi discloses coupling through a bus through its disclosure that network communication links 125 includes a logical bus. 11:31-35, 13:26-30, FIG. 1A. Almadi also discloses that in addition to analog communications using the standard analog signal, digital networks can be used to communicate, such as the Field Bus type 61158. 14:3-9. Thus, Almadi also discloses this element. SCADA discloses the use of a bus through its disclosure of Fieldbus and Profibus, which inherently uses a bus topology. at 86 (identifying Fieldbus and Profibus as "bus-based communication standards."). Fieldbus and Profibus were designed for "communication between field instruments and control equipment." *Id*. In addition, a POSITA would understand that the choice between a protocol using a bus topology or a star topology is simply a design choice. Thus, each of Gutierrez, Almadi, and SCADA disclose this element.
	[11.2] the first computer system comprises means for controlling which fluid handling devices are permitted to transmit signals on the bus at a given point in time.	Kahn and Almadi disclose remotely communicating to control fluid handling devices in Element [1.7], above, herein incorporated by reference. Gutierrez discloses the use of Modbus. 9:43-45 (disclosing Modbus, Fieldbus, and Profibus). A POSITA would understand that Modbus is a master-slave protocol, where the master initiates all communication, controlling when slaves respond by polling slaves for data or sending commands, which inherently controls when the fluid-handling devices can transmit. *see also* p. 2 ("MODBUS is a

		request/reply protocol"). Thus, Gutierrez discloses this claim element. Additionally, Almadi discloses the first computer system comprises means for controlling which fluid handling devices are permitted to transmit signals on the bus at a given point in time through its disclosure that network communication links125 may include a logical bus; 13:26-30; *see also id*., 14:3-9. A POSITA would understand that commands can be sent via a bus at any given time and that Almadi's disclosure using analog signals and digital networks to communicate via a bus is the transmission of signals on a bus at a given time at the '461 Patent. SCADA discloses that the RTU (computer system) controls which field device (fluid handling device) is permitted to transmit signals on the bus at a given point in time. This is because the RTU acts as a master, and signals the field devices to respond. at 104. SCADA also discloses the HART communication system which uses a master-slave system to ensure that the sensor only talks in response to an order from the controller. at 78. A POSITA would understand that SCADA discloses these master-slave protocols. Thus, each of Gutierrez, Almadi, and SCADA disclose this element.
12.	The method of claim 7, wherein the plurality of different formats and protocols comprise three different protocols communicated over three different types of control busses to corresponding fluid handling devices among the plurality of different fluid-handling devices.	Kahn and Almadi disclose a plurality of different fluid handling devices. *See* Claim 1 (Kahn), above, and, 11:18-21, herein incorporated by reference. Gutierrez discloses three different protocols communicated using three different protocols over three different types of control busses to corresponding fluid handling devices among the plurality of different fluid handing devices through its disclosure of various protocols, including over serial and Ethernet physical interfaces. 9:41-53. A POSITA would understand that Gutierrez discloses at least three protocols communicated over at least three control busses to fluid-handling devices. Thus, Gutierrez discloses this element.

		Additionally, Almadi discloses three different protocols communicated over three different types of control busses to corresponding fluid handling devices among the plurality of different fluid handing devices through its disclosure of various protocols, including over serial and Ethernet physical interfaces (including at least (1) serial Modbus, (2) Modbus over IP, and (3) TCP/IP, a network-based control bus). 14:22-28, 3:16-17. A POSITA would recognize that Almadi discloses three different protocols over three different control busses in the above disclosure. SCADA discloses three different protocols communicated over three different types of control busses, e.g., the HART, Fieldbus, and Profibus protocols. at 77-78, 86. A POSITA would recognize that SCADA discloses three different protocols over three different control busses in the foregoing disclosures. Thus, each of Gutierrez, Almadi, and SCADA disclose this element.
13.	The method of claim 7, wherein the plurality of different formats and protocols comprise command code format, an on-off signal format, and an application-program interface format.	As explained above for Element [11.2], Gutierrez discloses the use of Modbus. 9:43-45 (disclosing Modbus, Fieldbus, and Profibus). A POSITA would understand that Modbus uses command code formats. *see also*, p. 2 ("MODBUS is a request/reply protocol and offers services specified by function codes."). For example, function codes (e.g., 03 for read, and 06 for write) are confirmed by the Modbus specification (p. 11):

MODBUS Application Protocol Specification V1.1b3 Modbus

5.1 Public Function Code Definition

				Function Codes code	Sub code	(hex)	Se
Data Access	Bit access	Physical Discrete Inputs	Read Discrete Inputs	02		02	
		Internal Bits Or Physical coils	Read Coils	01		01	
			Write Single Coil	05		05	
			Write Multiple Coils	15		0F	
	16 bits access	Physical Input Registers	Read Input Register	04		04	
		Internal Registers Or Physical Output Registers	Read Holding Registers	03		03	
			Write Single Register	06		06	
			Write Multiple Registers	16		10	
			Read/Write Multiple Registers	23		17	
			Mask Write Register	22		16	
			Read FIFO queue	24		18	
	File record access		Read File record	20		14	
			Write File record	21		15	
	Diagnostics		Read Exception status	07		07	
			Diagnostic	08	00-18,20	08	
			Get Com event counter	11		OB	
			Get Com Event Log	12		0C	
			Report Server ID	17		11	
			Read device Identification	43	14	2B	
	Other		Encapsulated Interface Transport	43	13,14	2B	
			CANopen General Reference	43	13	2B	

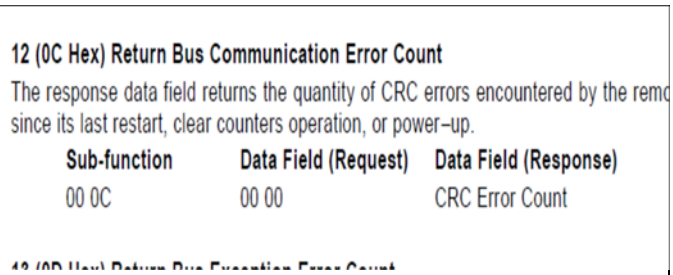
Gutierrez also discloses the use of Modbus, DeviceNet, Profibus, RS-232, RS-485, and Fieldbus. 9:43-45. A POSITA would understand that each of these protocols uses binary high/low states for communication, which constitute on-off signal formats. Thus, Gutierrez discloses this claim element.

Additionally, Almadi discloses the plurality of different formats and protocols, including Modbus, as disclosed above in Claim 12 and incorporated herein by reference. *See*, 14:17-28. Accordingly, because Almadi discloses the use of Modbus, Almadi discloses this element for the same reasons as described above for Gutierrez.

		Additionally, SCADA also discloses use of Modbus, and therefore discloses this element for the same reasons as described above for Gutierrez. at 140, Fig. 9-2; Thus, each of Gutierrez, Almadi, and SCADA disclose this element.
14.	The method of claim 7, wherein the first computer system is configurable to operate in an automatic mode, a mixed automatic mode, and a manual mode.	Kahn discloses manual and automatic mode for the reasons stated in Elements 1.3, 1.9, 2, and 3, above. The '461 Patent explains that in a mixed automatic mode "the user selects which devices are manually controlled while other devices are automatically controlled." 10:18-23. A POSITA would understand that Kahn's discloses manual and automatic mode and Kahn also discloses mixed automatic mode within the meaning of the '461 Patent because Kahn discloses a plurality of fluid handling devices that may be separately controlled. Thus, Kahn discloses this claim element. Additionally, Gutierrez discloses manual and automatic modes. 3:35-48. In the first mode, Gutierrez discloses "adjusting a rotational speed of the motor." *Id*., 3:35-39. In the second mode, Gutierrez discloses "automatically adjusting the motor controller to adjust a rotational speed of the motor in response to receiving the signal representative of the operational parameter." *Id*., 3:40-48. A POSITA would understand that Gutierrez discloses manual and automatic mode and Gutierrez also discloses mixed automatic mode within the meaning of the '461 Patent because Gutierrez discloses a plurality of fluid handling devices that may be separately controlled. claims 2 and 8, 14:49-54; 16:7-17. Thus, Gutierrez also discloses this claim element. Additionally, Almadi discloses the first computer system is configured to operate in an automatic mode, a mixed automatic mode, and a manual mode through its disclosure that field devices incorporate robust functionality, such as the ability to process data, self-monitor, self-regulate, self-calibrate, or provide early warning with respect to malfunctions or predictive maintenance. 1:53-57.

		Almadi also discloses automatically acquiring data periodically (every second, per claim 11, 32:66-33:11), detects exceptions, and issues commands (e.g., alarms, suspensions, per claims 1 and 20, 28:54-29:67, 36:7-21) based on predefined criteria, forming an autonomous control loop (11:61-63). A POSITA would understand that Almadi's disclosure of self-monitoring, self-regulating and self-calibrating is equivalent to the operation of the first computer system in an automatic mode of the '461 Patent. Additionally, SCADA discloses the automatic control of water level in a tank, which is controlled automatically by the use of valves. at 45, Example 4-6, and 46, Fig. 4-5. SCADA discloses that a fill valve can be cycled to opened and closed target states that change over time, in response to a rate of change in the first fluid property, wherein the first fluid property corresponds to a level of the first fluid in the first tank. at 46, Fig. 4-5; depicting changes in the tank level and the fill valve position. Finally, a POSITA would further understand that a computer system configured to operate in an automatic mode can also be configured to operate in a manual mode and a mixed automatic/manual mode. Thus, each of Kahn, Gutierrez, Almadi, and SCADA disclose this element.
15.	The method of claim 7, wherein translating the plurality of commands comprises steps for identifying protocols and control busses.	Gutierrez discloses that the translator can determine the protocol based on what is received, ensuring compatibility. For example, Gutierrez discloses that users can connect without knowing the protocol. 9:54-64. A POSITA would understand that Gutierrez thereby provides auto-detection based on the device. . A POSITA would further understand that this aligns with industry practices where protocol choice depends on factors such as location or power source. Thus, Gutierrez discloses this element. Additionally, Almadi discloses steps for identifying protocols and control busses through its disclosure

		that a protocol translator or translation server 102 can be configurable, for example through a configuration tool interface, to support communications according to various protocols, including various protocols over serial and Ethernet physical interfaces. 14:17-28. A POSITA would understand that configuring the protocol translator includes steps for identifying protocols and control busses. Thus, Almadi discloses steps for identifying protocols and control buses. SCADA also discloses identifying protocols. at 243, Exercise 7-3 ("Protocol drivers are programs written to instruct a computer about the order of steps that must be taken in order to complete some task. … Changing from the language that one instrument understands to a language that the RTU understands, requires a protocol driver to accomplish."). Thus, SCADA expressly discloses protocol drivers, which are steps to be followed "if the message is to be decoded properly." *Id*. Accordingly, each of Gutierrez, Almadi, and SCADA disclose this element.
16.	The method of claim 1, wherein the first computing system is configured to receive and transmit data and commands via a remote terminal unit protocol wherein the data and commands comprise redundant bits.	Kahn and Almadi disclose remotely communicating to control fluid handling devices in Element [1.7] above, herein incorporated by reference. Gutierrez discloses receiving and transmitting data and commands using remote terminal unit (RTU) protocol. 9:45-50 (disclosing Modbus RTU). A POSITA would understand that Modbus RTU is a standard RTU protocol for serial communications in industrial systems. A POSITA would further understand that Modbus RTU includes a Cyclic Redundancy Check (CRC) for error detection. at p. 5 (disclosing a 2-byte CRC used by Modbus PDU for serial line communication);. A CRC consists of redundant bits, often appended to the end of a message, added to ensure data integrity. at p. 112 (depicting 16 CRC bits added to the end of a message);.; see also the Modbus protocol specification (, at p. 23):

		 **12 (0C Hex) Return Bus Communication Error Count** The response data field returns the quantity of CRC errors encountered by the remo since its last restart, clear counters operation, or power–up. **Sub-function** **Data Field (Request)** **Data Field (Response)** 00 0C 00 00 CRC Error Count Thus, this element is disclosed by Gutierrez. Additionally, Almadi discloses that a protocol translator or translation server 102 can be configurable and supports communications according to various protocols, including Serial Modbus, Modbus over IP (Internet Protocol). 14:17-28, FIG. 1B. Modbus uses redundant bits for CRC as explained for Gutierrez above. Almadi also discloses the use of 100BaseTX. 13:26-27. A POSITA would understand that 100BaseTX includes a CRC for error detection, which are redundant bits added to ensure data integrity. at p. 53; *see also* EX1008, at p. 112 (depicting 16 CRC bits added to the end of a message). Almadi discloses the plurality of different formats and protocols comprise binary frames with redundant bits used to detect errors through its disclosure that the DRM 166 includes instructions to detect gross errors in reconciled measurements 715 to determine a confidence level for reconciled values and a probability of gross error existence and, further, can flag 716 values that exceed a preselected confidence level 713. EX1006., 26:41-49. Almadi further discloses that DRM 166 has instructions for eliminating gross errors by removing measurements 717 with detected gross errors according to a preselected priority scheme 718, which includes: (i) giving the priority to remove measurements with larger magnitude of corrections; or (ii) giving the priority to 60 remove measurements with highest impact on the total sum of reconciliation run penalty. 26:50-61.

		A POSITA would understand that Almadi's disclosure of the detection and elimination of errors in data suggests that the system disclosed in Almadi sends redundant bits with the reconciled measurement data, with the redundant bits added by the sender and removed by the receiver to allow the receiver to detect or correct corrupted bits. SCADA discloses the addition of CRC bits at the end of a data message. at 112 (depicting 16 CRC bits added to the end of a message). Thus, SCADA discloses this element for the same reasons as those cited above. Thus, each of Gutierrez, Almadi, and SCADA disclose this element.
17.	[17.1] A method, comprising:	Kahn, Gutierrez, Almadi, and SCADA disclose methods as explained in Element [1.1] above.
	[17.2] measuring, with one or more sensors at a first fluid tank located at a first fluid-handling site, one or more properties associated with a first fluid;	As explained in Element [1.2] above, each of Kahn, Gutierrez, Almadi, and SCADA disclose or suggest the use of one or more sensors used with a fluid tank at a fluid-handling site, and the measurement of one or more properties using the sensors.
	[17.3] receiving, with a first computer system disposed at a first fluid handling site, information associated with the one or more properties associated with the first fluid;	As explained in Element [1.2] above, and incorporated herein, each of Kahn, Gutierrez, Almadi, and SCADA disclose or suggest receiving, with a first computer system disposed at a first fluid handling site, information associated with the one or more properties associated with the first fluid. As explained in Element [1.2], Kahn discloses a computer system disposed at a first fluid-handling site. As also explained in Element [1.2], Kahn discloses the use of sensor units, and information about properties of a fluid from sensors at a fluid tank. 11:14-19, 25:25-34. As also explained in Element [1.2], Kahn discloses measuring the quality of drinking water, which inherently requires measuring fluid properties. As also explained in Element [1.2], a POSITA would understand that Kahn discloses receiving information associated with one or more properties associated with the first fluid site through its disclosure of a computer system that receives first fluid test data from sensors.

		As explained in Element [1.2], Gutierrez discloses "a chemical injection system for a hydrocarbon transmission system" which relies on tank level (information about properties of a fluid) monitoring to ensure continuous operation and avoid downtime. 1:54-56. As explained in Element [1.2], Almadi discloses field devices that provide sensor functions to sense operational information and variables such as temperature, pressure, pH, flow rate, tank level, and deliver that information to the system-level controller devices. 1:41-45, 12:27-32, 25:11-25. Almadi also discloses the use of sensors at a fluid tank. 25:11-16. As also explained in Element [1.2], a POSITA would understand that Almadi discloses a first computer system disposed at a first fluid handling site, that is configured to collect information associated with one or more properties associated with a first fluid through its disclosure of remote subsystems 120, intelligent field devices which include tank level sensors that can detect changing the level status of tanks. Thus, Almadi discloses this claim element. As explained in Element [1.2], SCADA discloses receiving with a first computer system disposed at a first fluid-handling site, information comprising one or more properties of a first fluid from one or more sensors disposed at a first fluid tank itself disposed at the first fluid-handling site. at 12, Figure 2-1 (disclosing remote terminal units (RTUs aka computer systems) at a fluid-handling site). Thus, each of Kahn, Gutierrez, Almadi, and SCADA disclose this element.
	[17.4] providing, with the first computer system, remote control of a first fluid-handling device of a plurality of fluid-handling devices, the first fluid-handling device comprising at least one of a first pump, a first filter, and a first valve;	Kahn, Gutierrez, Almadi, and SCADA disclose Element [17.4] for the reasons explained above in Elements [1.2] and [1.3], and incorporated herein. More specifically, the limitation "providing, with the first computer system, remote control of a first fluid-handling device of a plurality of fluid-handling devices" is subsumed within Element [1.3] which recites "providing, with the first computer system disposed at a first fluid handling site, remote control

		of a first fluid-handling device of the one or more fluid-handling devices." The limitation "the first fluid-handling device comprising at least one of a first pump, a first filter, and a first valve" is subsumed within Element [1.2] which recites, in relevant part, "the one or more fluid-handling devices comprising one or more of a first pump, a first filter, and a first valve." Thus, each of Kahn, Gutierrez, Almadi, and SCADA disclose this element.
	[17.5] receiving, with a server system, from the first computer system, via a network, a first fluid property of the one or more properties associated with the first fluid sensed by a first sensor of the one or more sensors;	Kahn, Gutierrez, Almadi, and SCADA disclose Element [17.5] for the reasons discussed above in Element [1.4] and incorporated herein.
	[17.6] obtaining, with the server system, credentials from a first client computing device;	Kahn, Gutierrez, and Almadi disclose element Element [17.6] for the reasons discussed above for Element [1.5] and incorporated herein.
	[17.7] determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site, wherein the server system hosts data about other fluid handling sites the user is not authorized to interact;	Kahn and Almadi disclose Element [17.7] for the reasons discussed above for Element [1.6] and incorporated herein.
	[17.8] after the determination, providing, with the server system, via the network, information by which the first client computing device presents a user interface indicating the first fluid property, the first client computing device being remote from	Kahn, Almadi, and SCADA disclose Element [17.8] for the reasons discussed above in Element [1.7] and incorporated herein.

	the server system and the first computer system;	
	[17.9] receiving, with the server system, from the first client computing device, a first command to change a state of the first fluid-handling device; and	Gutierrez, Almadi, and SCADA disclose Element [17.9] for the reasons discussed above in Element [1.8] and incorporated herein.
	[17.10] causing, with the server system, the first computer system disposed at the first fluid handling site to effectuate the command by changing the state of the first fluid-handling device to a sequence of different target states that change over time.	Gutierrez, Almadi, and SCADA disclose Element [17.10] for the reasons discussed above in Element [1.9] and incorporated herein. Thus, Claim 17 is rendered obvious by the combination of Kahn and Gutierrez in further view of Almadi and SCADA.