

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TANKLOGIX, LLC

Petitioner,

v.

SITEPRO, INC.

Patent Owner

U.S. Patent No. 12,321,184

Issued: May 21, 2025

Filed: May 8, 2024

Inventor: Aaron Phillips

Title: Remote Control of Fluid-Handling Devices

PETITION FOR POST-GRANT REVIEW OF

U.S. PATENT NO. 12,312,184

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	MANDATORY NOTICES, GROUNDS FOR STANDING, AND FEE PAYMENT	1
A.	Real Party-In-Interest (37 C.F.R. §42.8(b)(1))	1
B.	Related Matters (37 C.F.R. §42.8(b)(2)).....	1
C.	Lead and Backup Counsel (37 C.F.R. §42.8(b)(3)).....	2
D.	Service Information (37 C.F.R. §42.8(b)(4))	2
E.	Grounds for Standing (37 C.F.R. §42.204).....	2
F.	Time for Filing (37 C.F.R. §42.202).....	3
G.	Payment of Fees (37 C.F.R. §42.15(a))	3
III.	THE '184 PATENT.....	3
A.	Prosecution History	4
B.	Priority.....	7
IV.	THE '184 PATENT IS ELIGIBLE FOR PGR.....	8
A.	The Pre-AIA Application Fails to Provide Support for the Permission Control Functionality of Claim 2.....	9
B.	The Pre-AIA Application Fails to Provide Support for “water handling facility” of Claim 11 and Claim 31.....	11
C.	The Pre-AIA Application Fails to Provide Support for changing target states “in response to a rate of change in a level of a fluid in a tank” of Claim 14.....	12
D.	AIA Applicability.....	14
V.	LEVEL OF ORDINARY SKILL	14
VI.	CLAIM CONSTRUCTION	15
VII.	PRECISE RELIEF REQUESTED AND GROUNDS RAISED.....	15
A.	Statutory Grounds for Cancellation	15

B.	Status of References as Prior Art	16
C.	Kahn (EX1007)	17
D.	Almadi (EX1008).....	17
E.	Gutierrez (EX1009).....	18
F.	SCADA (EX1010)	19
VIII.	GROUND 1: CLAIMS 1-31 ARE UNPATENABLE ABSTRACT IDEAS	
	19	
A.	Representative Claim	20
B.	Alice Step 1 – The claims are directed to the abstract idea of controlling fluid-handling devices.....	22
C.	<i>Alice</i> Step 2 – The claims do not add substantially more than the abstract idea	27
	i. The Claims Do Not Embody an Inventive Concept	28
	ii. Remote Access is Not Inventive.....	29
	iii. Access Control is Not Inventive	30
	iv. The Claimed Functions Do Not Require Specialized Devices.....	30
D.	All other claims are also ineligible.....	32
E.	Related Decisions.....	35
IX.	GROUND 2: CLAIMS 1-31 ARE RENDERED OBVIOUS BY THE CITED COMBINATION	35
	A. Motivation to Combine References:	35
	B. Claims.....	38
X.	GROUND 3: CLAIMS 2, 11, 14, and 31 LACK WRITTEN DESCRIPTION SUPPORT	86
XI.	SECONDARY CONSIDERATIONS	87
XII.	CONCLUSION.....	89

CERTIFICATE OF SERVICE 91

TABLE OF AUTHORITIES

<i>Alice Corp. Pty. Ltd. v. CLS Bank Int’l</i> , 134 S. Ct. 2347, 2358 (2014) 23, 26, 27, 31	
<i>BASCOM Global Internet Services, Inc. v. AT&T Mobility LLC</i> , 827 F.3d 1341 (Fed. Cir. 2016)	23
<i>buySAFE, Inc. v. Google, Inc.</i> , 765 F.3d 1350 (Fed. Cir. 2014)	23
<i>ChargePoint, Inc. v. SemaConnect, Inc.</i> , 920 F.3d 759 (Fed. Cir. 2019)	23
<i>Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat. Ass’n</i> , 776 F.3d 1343 (Fed. Cir. 2014).....	30
<i>Cyber- Source Corp. v. Retail Decisions, Inc.</i> , 654 F.3d 1366 (Fed. Cir. 2011)	21
<i>FairWarning IP, LLC v. Iatric Sys.</i> , 839 F.3d 1089 (Fed. Cir. 2016)	22
<i>Intell. Ventures I LLC v. Cap. One Fin. Corp.</i> , No. 8:14-cv-00111-PWG (D. Md. Sep. 2, 2015) <i>aff’d</i> <i>Intell. Ventures I LLC v. Cap. One Fin. Corp.</i> , 850 F.3d 1332 (Fed. Cir. 2017).....	25
<i>Intell. Ventures I LLC v. Erie Indem. Co.</i> , 850 F.3d 1315 (Fed. Cir. 2017).....	27
<i>Messaging Gateway Solutions v. Amdocs, Inc.</i> , No. 14-732-RGA, 2015 WL 1744343 (D. Del. Apr. 15, 2015)	25
<i>Novo Transforma Techs., LLC v. Sprint Spectrum L.P.</i> , 2015 WL 5156526 (D. Del. Sept. 2, 2015), <i>aff’d</i> , 669 F. App’x 555 (Fed. Cir. 2016)	25
<i>Two-Way Media Ltd. v. Comcast Cable Commc’ns, LLC</i> , 874 F.3d 1329 (Fed. Cir. 2017)	25, 28
<i>Ultramercial Inc. v. Hulu, LLC</i> , 772 F.3d 709 (Fed. Cir. 2014)	27
<i>Univ. of Fla. Rsch. Found., Inc. v. Gen. Elec. Co.</i> , 916 F.3d 1363 (Fed. Cir. 2019)	25

PETITIONER'S EXHIBIT LIST

EXHIBIT	DESCRIPTION
EX1001	U.S. Patent No. 12,321,184
EX1002	U.S. Patent No. 12,321,184 File History
EX1003	U.S. Patent No. 12,321,184 Labeled Independent Claims
EX1004	U.S. Patent No. 9,649,909 (13/708,557 Application)
EX1005	Declaration of Dr. Gary Wooley
EX1006	Curriculum Vitae of Wooley
EX1007	U.S. Patent No. 7,424,399 to Kahn
EX1008	U.S. Patent No. 8,667,091 to Almadi
EX1009	U.S. Patent No. 9,709,995 to Gutierrez
EX1010	SCADA: Supervisory Control and Data Acquisition, 4 th Edition (2010)
EX1011	TDE Petroleum v. AKM Enterprise – SDTX
EX1012	TDE Petroleum v. AKM Enterprise – CAFC
EX1013	PGR2023-00023 ProFrac v. Halliburton – Final Decision

I. INTRODUCTION

On behalf of TankLogix, LLC ("TankLogix") and in accordance with 35 U.S.C. § 321 and 37 C.F.R. § 42.200, post-grant review is respectfully requested for claims 1-31 of U.S. Patent No. 12,321,184 ("the '184 patent." Ex. 1001).

II. MANDATORY NOTICES, GROUNDS FOR STANDING, AND FEE PAYMENT

Pursuant to 37 C.F.R. §42.8(a), the mandatory notices identified in 37 C.F.R. § 42.8(b) are provided below as part of this Petition.

A. Real Party-In-Interest (37 C.F.R. §42.8(b)(1))

TankLogix, LLC is the real party-in-interest for Petitioner.

B. Related Matters (37 C.F.R. §42.8(b)(2))

The '184 patent is involved in one district court case pending in the United States District Court for the Western District of Texas. SitePro, Inc. ("Patent Owner") asserted the '184 Patent against Petitioner in *SitePro, Inc. v. TankLogix, LLC*, No. 7:25-cv-00266 (W.D. Tex.). Patent Owner has asserted eight additional related patents against Petitioner in two additional cases (i.e., *SitePro, Inc. v. TankLogix, LLC*, No. 6:24-cv-00642; -643 (W.D. Tex.)). As well, the district court cases also involve IPR proceedings IPR2025-00647, IPR2025-00648, IPR2025-

00649, IPR2025-00650, IPR2025-00651, IPR2025-00652, IPR2025-00653, and IPR2025-00761. Accordingly, this PGR is related to the foregoing earlier-filed eight IPRs.

C. Lead and Backup Counsel (37 C.F.R. §42.8(b)(3))

Petitioner designates Robert D. Katz (Reg. No. 60,704) as lead counsel and designates Dr. Gregory J. Gonsalves (Reg. No. 43,639) as backup counsel for this matter.

D. Service Information (37 C.F.R. §42.8(b)(4))

Postal mailings and hand-deliveries for lead and backup counsel should be addressed to: Robert D. Katz, Katz PLLC, 8350 N. Central Expressway, Suite 1900, Dallas, TX 75206 (Telephone: 214.865.8000; Fax: 888.231.5775).

Pursuant to 37 C.F.R. §42.8(b)(4), Petitioner consents to e-mail service at: rkatz@katzfirm.com and dalton@katzfirm.com. In compliance with 37 C.F.R. §42.10(b), a Power of Attorney is filed concurrently herewith.

E. Grounds for Standing (37 C.F.R. §42.204)

Petitioner certifies that the '184 patent is available for PGR and Petitioner is not barred or estopped from requesting PGR on the identified grounds.

As discussed below in section IV, the '184 patent is eligible for PGR because it has at least one claim that is not entitled to a Pre-AIA filing date.

F. Time for Filing (37 C.F.R. §42.202)

The '184 patent issued on May 21, 2025. This Petition is being timely filed no later than the date that is nine months after the date of the grant of the '184 patent.

G. Payment of Fees (37 C.F.R. §42.15(a))

The undersigned authorizes the Office to charge the fees specified by 37 C.F.R. § 42.15(b) to Deposit Account No. DA603042.

III. THE '184 PATENT

The '184 Patent generally pertains to systems and methods for remotely controlling fluid-handling devices such as valves, pumps, and separators used in geographically dispersed industrial settings (e.g., oil wells and re-injection facilities). EX1001 at 1:40–48, 2:17–20. The '184 Patent describes its key functionality is in enabling users to issue remote commands to such devices through a centralized server and have those commands translated and executed locally, even in the event of intermittent network loss. EX1001 at 2:25-36, 3:24-41. The '184 Patent discusses the inclusion of a command-center server that interacts with user devices and one or more “site master-controllers” located near fluid-handling equipment. EX1001 at 3:57-67. The site master-controller is described as receiving high-level commands from a remote user (via the server), translating them based on device-specific protocols (e.g., Modbus RTU, Ethernet), and issuing corresponding

control signals to downstream equipment such as pumps or valves. EX1001 at 5:20-36, 5:53-57, 7:6-12. In some configurations, the system may also collect and buffer sensor data for later transmission back to the server, thereby supporting basic reporting functionality. EX1001 at 8:13-22.

The '184 Patent further describes a translation and routing mechanism within each site master-controller that selects an appropriate communication protocol and bus structure based on stored configuration data. EX1001 at 9:50-67–10:1-15. Although it claims adaptability across varied equipment types, the translation process is largely portrayed in functional terms, relying on conventional components such as control buses, data acquisition boards, and command look-up tables. EX1001 at 10:51–67-11:1-6. The control logic can execute commands in either open-loop or feedback modes, but such modes are discussed at a relatively high level of abstraction. EX1001 at 10:54–64, 11:1-6. Similarly, Figures 1 through 3 offer broad illustrative examples of the system's architecture and operation, including a schematic of device interconnections and a general-purpose computing environment. EX1001 at 3:1–10, 12:60-67, 13:7-41.

A. Prosecution History

The application that issued as U.S. Patent No. 12,321,184 (“the '184 Patent”) was filed on May 8, 2024, and is entitled “Remote Control of Fluid-Handling

Devices.” The file history reveals a notably abbreviated and non-substantive prosecution. The only Office Action in the application’s history was issued on November 21, 2024, raising two objections: (1) a minor typographical issue and (2) a non-statutory obviousness-type double patenting rejection over U.S. Patent Nos. 12,019,461, 11,726,504, and 11,294,403. The Examiner asserted that the then-pending claims were not patentably distinct from those in U.S. Patent No. 11,294,403. EX1002, pp. 8–11. Importantly, the Examiner did not issue any rejection based on prior art under 35 U.S.C. §§ 102 or 103, nor did the record reflect any inquiry into compliance with §§ 101 or 112. *Id.*

In response, on December 13, 2024, the applicant, SitePro, cancelled all then-pending claims (claims 1–20) and submitted a new claim set (claims 21–51). EX1002, pp. 14–23. SitePro stated that the newly presented claims were supported by the original disclosure and did not introduce new matter, but the amendment did not include citations to specific sections of the specification that purportedly support the new limitations. EX1002, p. 24. SitePro simultaneously submitted its first terminal disclaimer to overcome the double patenting rejection, disclaiming any term beyond that of the cited earlier patents. EX1002, pp. 27–29. Notably, in its remarks, SitePro contended that the terminal disclaimer, combined with the cancellation of claims, placed the application in condition for allowance without the need for further amendment or argument. EX1002, p. 24.

Subsequently, on January 6, 2025, SitePro filed a second terminal disclaimer, this time disclaiming term based on even earlier patents in the family: U.S. Patent Nos. 8,649,909 and 9,342,078. EX1002, pp. 31–33. That same day, SitePro and the Examiner held a telephonic interview to discuss the second terminal disclaimer. EX1002, p. 35. No further Office Action or examiner comments followed.

On January 23, 2025, the Examiner mailed a Notice of Allowance, allowing claims 21–51. In the Notice, the Examiner acknowledged that while certain limitations in claim 51—such as “a fluid-handling site,” “a plurality of fluid handling devices,” and “a first computing system communicatively coupled to the plurality of fluid handling devices”—were known in the art, the remainder of claim 51 and the entirety of independent claim 21 (along with its dependents, claims 22–49) and claim 50 were not addressed by the cited prior art. EX1002, pp. 40–46. However, no detailed reasoning or art-based comparison was provided to support the Examiner’s conclusory statements regarding patentability. *Id.*

While some of the references noted in this Petition were included in the Examiner’s list of references (EX1002, pp. 12–13), the lack of any substantive rejection applying those references illustrates the superficial nature of the examination. The references were cited but not relied upon in any § 102 or § 103 rejection, and the record reflects no analysis or application of those references to the pending claims.

B. Priority

The '184 Patent claims priority through a long chain of continuation applications, all of which share the same underlying specification. The chain begins with U.S. Patent Application No. 13/626,557, filed on September 25, 2012, which is the only application in the family filed before March 16, 2013, and therefore is entitled to Pre-AIA treatment (EX1001 at 1:6–34). Each subsequent application in the chain claims priority to the '557 application, either directly or indirectly, and maintains the same specification as the original filing.

The '184 patent issued from U.S. Application No. 18/658,724, filed on June 20, 2023. The '724 application is the ninth in a long sequence of continuations, passing through U.S. Application Nos. 18/212,131 (filed 6/20/2023, U.S. Pat. No. 12,019,461), 17/681,373 (2/25/2022, U.S. Pat. No. 11,726,504), 17/513,539 (10/28/2021, U.S. Pat. No. 11,294,403), 16/656,319 (10/17/2019, U.S. Pat. No. 11,175,680), 15/867,077 (1/10/2018, U.S. Pat. No. 10,488,871), 14/984,422 (12/30/2015, U.S. Pat. No. 9,898,014), 14/147,190 (1/3/2014, U.S. Pat. No. 9,342,078), and ultimately the earliest application, 13/708,557 (12/7/2012, U.S. Pat. No. 8,649,909). Each of these filings is designated as a continuation, and each relies on the same underlying disclosure.

IV. THE '184 PATENT IS ELIGIBLE FOR PGR

The PGR provisions of the Leahy-Smith America Invents Act (“AIA”) apply to patents subject to the first inventor to file provisions of the AIA, i.e., patents having at least one claim with an effective filing date on or after March 16, 2013. *Grunenthal GmbH v. Antecip Bioventures II LLC*, PGR2018-00001, Paper 17 at 9-10 (May 1, 2018). A claim is entitled to the benefit of the filing date of an earlier application if the subject matter of the claim is disclosed in the earlier application in accordance with the written description requirement. *PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299, 1306 (Fed. Cir. 2008).

To comply with the written description requirement, the specification or earlier-filed application “must describe the invention sufficiently to convey to a person of skill in the art that the patentee had possession of the claimed invention at the time of the application.” *LizardTech, Inc. v. Earth Res. Mapping, Inc.*, 424 F.3d 1336, 1345 (Fed Cir. 2005). Whether the added subject matter is an obvious variant of the disclosed subject matter is irrelevant. *Lockwood v. American Airlines, Inc.*, 107 F.3d at 1572 (Fed.Cir.1997).

As discussed above, the '184 patent seeks to gain the benefit of the '557 application to establish a pre-March 16, 2013, effective filing date. However, as explained in detailed below, the Pre-AIA specification fails to support the subject matter claimed in the '184 patent. Specifically, at least claims 2, 11, 14, and 31 of

the '184 patent include subject matter that is not supported by the Pre-AIA application. Thus, these claims are not entitled to the filing date of the Pre-AIA application and thus are not entitled to a pre-March 16, 2013, filing date. *PowerOasis, Inc.*, 522 F.3d at 1306; *In re Gosteli*, 872 F.2d at 1010-11. Accordingly, the '184 patent is eligible for PGR because it has at least one claim that is not entitled to the Pre-AIA filing date from the '557 application.

A. The Pre-AIA Application Fails to Provide Support for the Permission Control Functionality of Claim 2.

Claim 2 of the '184 patent recites: “wherein: other user accounts in the data store indicate **other users are not authorized to issue commands** to the first computing system; and the other user accounts indicate the **other users are authorized to view reports** from the first computing system.”

The '557 application (“Pre-AIA specification” or “Pre-AIA application”) fails to provide support for the user level permission control functionality claimed within the '184 Patent. The Pre-AIA specification discusses at length the use of user accounts to provide access to remote facilities. EX1004 at 3:21-4:23. Such account management or access management is well known and common amongst systems located across different geographic locations. EX1005 ¶62. However, the

functionality of claim 2 goes beyond the basic system outlined within the specification. *Id.*

Specifically, the Pre-AIA specification only discusses the record-keeping required for such accesses management systems in one place, stating “a plurality of account records, each account record having one or more user names, one or more user passwords, billing information (e.g., billing address, subscription price, and invoicing data), and identifiers of one or more site master-controllers (e.g. an IP address of each site master-controller) with which users under the corresponding account are authorized to interact (e.g., issue commands or view reports of data from the site master-controller).” EX1004 at 4:11-18. This passage provides an overview of the required records for tracking and authenticating users, along with tracking of what accounts are authorized to interact with what sites (i.e., through the sites “master-controller”). *Id.* However, the specification does not provide record keeping or assignment of permissions for what users may do at the given sites. *Id.* Notably, this lacks support for delineating different sets of permissions for different users because there is no disclosure of a system where individual users (under the same or different accounts) are independently authorized for different levels of control (e.g., command vs. report-only access).

A person of ordinary skill would be left without any logic for assigning or tracking such permissions based on the Pre-AIA specification. EX1005 ¶64. Thus,

due to claim 2's lack of support, the '184 patent should not be provided with the benefit of the Pre-AIA priority.

B. The Pre-AIA Application Fails to Provide Support for “water handling facility” of Claim 11 and Claim 31.

Claim 11 of the '184 Patent recites “wherein the fluid-handling site is **a water handling facility.**”

The Pre-AIA specification fails to support “water handling facility.” The family of patents created by the '557 application focus primarily on petroleum-related applications, such as oil wells, petro-water disposal, re-injection, and petroleum pumping. EX1004 at 3:9-28, 1:58-64, 5:30-34, 9:30-35, 11:64-67. Further, while the Pre-AIA specification includes other specific fluid-handling devices/facilities, the specification fails to discuss water handling, merely reciting water as a byproduct or something to handle with relation to oil (e.g., petro water disposal and oil/water separation). *Id.*

A POSITA would not reasonably conclude that the inventor was in possession of “a water handling facility.” EX1005 ¶68. The Pre-AIA specification incidentally handles water as a dependent concept of its petroleum focus (e.g., “for remotely controlling fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station”), wherein the concept of a standalone

“water handling facility” is not disclosed or mentioned on its own even once. EX1001 at 1:49-52. Thus, due to claim 11’s and 31’s lack of support, the ’184 patent should not be provided with the benefit of the Pre-AIA priority.

C. The Pre-AIA Application Fails to Provide Support for changing target states “in response to a rate of change in a level of a fluid in a tank” of Claim 14.

Claim 14 of the ’184 Patent recites “wherein: one of the plurality of different target states that change over time is determined by the first computing system **in response to a rate of change in a level of a fluid in a tank.**”

The Pre-AIA specification fails to support changing target states “in response to a rate of change in a level of a fluid in a tank” as it does not mention “rate of change” a single time. EX1004, Abstract (changing target state via a command), 1:49-2:23 (changing target state via a command from a remote user), 5:39-42 (“Fluid-handling devices 38 may include a variety of types of sensors, for instance, a temperature, viscosity, flowrate, fluid level, pressure, conductivity, or other parameter sensor”), 8:10-21 (threaded approach to setting target states of devices), and 11:16-27 (changing a target state over time, such as ramping up or down a motor).

While a rate of change can be derived from sensor readings at two different times, such that a change in tank level is computed by the measurement change over some quantum of time, this computation is not discussed. EX1005 ¶72. The logic behind claim 14 is akin to taking a derivative at a single point of time, wherein the system utilizes a change at a certain point of time to make an inference, such as tank fluid level. *Id.* However, such logic is not found within the Pre-AIA specification. *Id.*

Further, the Pre-AIA specification focuses on changing states based on sensor data when commands are received. EX1004 at 5:64-6:3. Specifically, the Pre-AIA specification provides that “a fluid-handling device 38 with feedforward control may receive a command to adjust to a target setpoint, return sensor data to the site master-controller 18, and received a subsequent command to adjust further based on a determination made by the site master-controller 18 based on the sensor data.” *Id.* The Pre-AIA specification provides an example for such “feed-forward control” as mitigating shock to fluid-handling devices “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.” EX1004 at 6:7-11. Thus, the Pre-AIA specification requires at least two sensor readings, such as a first sensor reading when the first command is received and a second sensor reading when the subsequent command is received. Alternatively, even when given

extra breadth, the Pre-AIA specification requires at least a determination based on the initial sensor reading (e.g., “the sensor data”) at a later point in time (e.g., at a point in time coinciding with “a subsequent command”) after the initial sensor reading. EX1004 at 5:64-6:3.

Thus, due to claim 14’s lack of support, the ’184 patent should not be provided with the benefit of the Pre-AIA priority.

D. AIA Applicability

The ’184 patent is eligible for PGR. As discussed above, at least claims 2, 11, 14, and 31 of the ’184 patent include subject matter not disclosed by an application filed before March 16, 2013. Therefore, every claim of the ’184 patent is subject to the first-to-file provisions of AIA 35 U.S.C. § 102(a). See *Inguran, LLC d/b/a/ Sexing Technologies*, PGR2015-00017, Paper 8 (Institution Decision) at 9-11.

V. LEVEL OF ORDINARY SKILL

A hypothetical person of ordinary skill (“POSITA”) 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. EX1005 ¶33. 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. *Id.*

VI. CLAIM CONSTRUCTION

No terms need to be construed to resolve the issues raised in this Petition because the prior art discloses all limitations under the plain meaning as well as under any plausible construction.

VII. PRECISE RELIEF REQUESTED AND GROUNDS RAISED

A. Statutory Grounds for Cancellation

Petitioner requests post-grant review and cancellation of claims 1-31 of the '184 Patent.

Claims 1-31 of the '184 are unpatentable for the following reasons:

Ground 1: Claims 1-31 are unpatentable under 35 U.S.C. § 101 because they are directed to unpatentable subject matter.

Ground 2: Claims 1-31 are unpatentable as obvious under U.S.C. § 103 based on combination of Kahn and Gutierrez in further view of Almadi and SCADA.

Ground 3: Claims 2, 11, 14, and 31 unpatentable under 35 U.S.C. § 112 as lacking an adequate written description.

B. Status of References as Prior Art

The following references are prior art to the challenged claims:

Ex.	Reference	Date	Art Type
1007	Kahn	March 1, 2007	§102(a)(1)
1008	Almadi	July 25, 2010	§102(a)(2)
1009	Gutierrez	June 8, 2009	§102(a)(2)
1010	SCADA	2010	§102(a)(1)

These references constitute analogous art because they are from the same field of endeavor as the '184 patent, e.g., fluid handling systems. *Unwired Planet, LLC v. Google Inc.*, 841 F.3d 995, 1000 (Fed. Cir. 2016). They are also reasonably pertinent to a particular problem with which the inventor was involved, e.g., monitoring and controlling fluid handling facilities. A POSITA is presumed to have been aware of such analogous references. *In re Nilssen*, 851 F.2d 1401, 1403 (Fed. Cir. 1988). The significantly overlapping features between the references listed above and the '184 patent provides further evidence that these references are analogous art and highly relevant for a POSITA.

C. Kahn (EX1007)

U.S. Patent No. 7,424,399 to Kahn was filed on June 9, 2006, and claims priority to Provisional U.S. Patent Application No. 60/689,257 filed on June 10, 2005. Kahn was published on March 1, 2007, issued on September 9, 2008, and is prior art under AIA 35 U.S.C. § 102(a)(1).

Kahn teaches a remote monitoring and control fluid delivery system permitting authorized users from different entities to view data and control designated fluid delivery devices. EX1007.

D. Almadi (EX1008)

U.S. Patent No. 8,667,091 to Almadi was filed July 22, 2011, published April 5, 2012, issued March 4, 2014, and claims priority to Provisional Patent Application No. 61/367,207 filed on July 23, 2010. Almadi is prior art under 35 U.S.C. § 102(a). Alternatively, Almadi is prior art under AIA 35 U.S.C. § 102(a)(1) because it published before the earliest effective filing date of the '184 patent.

As explained above in section IV., the earliest effective filing date for some claims of the '184 patent is the filing date of May 8, 2024. Even if the '184 patent is entitled to an earlier priority date, such as the '557 priority date, Almadi is prior art under AIA 35 U.S.C. § 102(a)(2) because Almadi is entitled to a priority date of July 23, 2010. EX1008 at 1.

Almadi teaches an integrated node used to interface between a remote host server and a plurality of remote subsystems in a process automation environment to provide, in turn, for a single point of control for data collection, monitoring, and restoration. EX1008.

E. Gutierrez (EX1009)

U.S. Patent No. 9,709,995 to Gutierrez was filed December 22, 2014 and published April 16, 2015. Gutierrez is a continuation of U.S. Patent Application No. 12/794,898 filed on June 7, 2010, published on December 9, 2010, and claiming the benefit of Provisional U.S. Patent Application No. 61/184,890 filed on June 8, 2009. Gutierrez is prior art under AIA 35 U.S.C. § 102(a)(1) because it published before the earliest effective filing data of the '184 patent.

As explained above in section IV, the earliest effective filing date of some claims of the '184 patent is the filing date of May 8, 2024. Even if the '184 patent is entitled to an earlier priority date, such as the '557 priority date, Gutierrez is prior art under AIA 35 U.S.C. § 102(a)(2) because Gutierrez is entitled to a priority date of June 8, 2009. EX1009 at 1.

Gutierrez describes a chemical injection system with a pump driven by a motor, controlled by a motor controller, and managed via a central controller with remote communication capabilities. EX1009, Abstract.

F. SCADA (EX1010)

SCADA: Supervisory Control and Data Acquisition, 4th Edition was published in 2010 and is prior art under AIA 35 U.S.C. § 102(a)(1). SCADA teaches enabling a human operator, in a location central to a widely distributed process-such as a pipeline system, oil or gas field, hydroelectric generating complex, or irrigation network to make set point changes on distant process controllers, to open or close valves or switches, to monitor alarms, and to gather measurement information. EX1010, at 10.

**VIII. GROUND 1: CLAIMS 1-31 ARE UNPATENABLE ABSTRACT
IDEAS**

The '184 patent includes three independent claims and 28 dependent claims. EX001, Claims 1-31. Claim 1 (“the representative claim”) provides the scope of the invention patented by the '184 patent. The remaining independent claims are represented by the subject matter of claim 1. Claim 30 is a system claim that mirrors the limitations of claim 1. EX1001, claim 30. Petitioner believes that claim 1 is representative of claim 30. Claim 31 is an apparatus claim that includes the limitations of claim 30 with the addition of: a fluid-handling site; user account permissions (e.g., found in dependent claim 2); translation abstraction (e.g., found in dependent claim 20); and feedback control functionality (e.g., found in dependent

claim 24). EX1001, claims 2-31. Like claim 30, claim 1 is representative of claim 31 as the additional limitations fail to provide eligible subject matter beyond claim 1's original scope.

Further, each of the key aspects of the representative claims are directed to patent ineligible subject matter. Thus, claims 1-31 should be found unpatentable under 35 U.S.C. § 101.

A. Representative Claim

Claim 1 recites:

A tangible, non-transitory, machine-readable medium storing instructions that, when executed by one or more processors, effectuate operations comprising:

receiving, with a first computing system, via a network interface, a plurality of commands encoded in a first protocol to control a plurality of different fluid-handling devices at a fluid-handling site, different commands among the plurality of commands being directed to different fluid handling devices among the plurality of fluid-handling devices, wherein:

the plurality of commands are responsive to inputs to a command interface presented on a remote user computing device, and

the plurality of commands are received after determining that a user of the remote user computing device is authorized to issue commands to the first computing system based on a user account that indicates the user is authorized to issue commands to the first computing system, the user account being accessed from a data store;

for at least some of the plurality of commands, determining, with the first computing system, a plurality of different target states of a given one of the fluid-handling devices over time, wherein the first computing system is operative to maintain control of the fluid handling devices in an absence of an external network connection;

translating, with the first computing system, the plurality of commands into translated commands encoded in a plurality of protocols different from the first protocol, at least some of the translated commands being operative to cause a local controller of the given fluid-handling device to the plurality of different target states, and the local controller being responsive to the at least some of the translated commands and feedback from the given fluid-handling device, the feedback being indicative of whether the given fluid-handling device is in targeted states among the plurality of different target states;

sending, with the first computing system, the translated commands to the local controllers;

obtaining, with the first computing system, site data and storing the site data in a report buffer of the first computing system such that the site data in the report buffer is not lost in the absence of the network connection, the site data including alarms, measurements from sensors, or other data associated with the fluid-handling site or associated with at least some of the plurality of fluid-handling devices;

sending, with the first computing system, the site data stored in the report buffer to a remote second computing system.

B. 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 and is 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 “unpatentable mental process[]”).

The background section of the '184 Patent explains that controlling fluid-handling devices in oil wells *is a mental process*. In particular, the '184 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 by travelling to the device to make adjustments or gather data in person. '184 Patent 1:57-61 The application also applies to petro-water disposal facilities, re-injection facilities, and petroleum pumping stations. *Id.* at 1:53-56. The '184 patent explains that steps for carrying out the purported invention may be performed via generic computing hardware. *Id.* at 2:20-24 (“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 '184 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 15:9-17.

Requiring the use of one or more computing system 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)). EX1005 ¶¶16-18.

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. EX1005 ¶¶16-18, ¶¶80-81. *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 “fluid-handling devices” 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. EX1005 ¶¶80-81. *BASCOM Global Internet Services, Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1350 (Fed. Cir. 2016).

The recited first computing system and report buffer are simply a generic computer and data storage unit, which “cannot transform a patent-ineligible abstract idea in to a patent-eligible invention.” *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2358 (2014); *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 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).

Authorizing users to issue commands to certain resources (e.g., the first computing system) “can be performed in the human mind, or by a human using a pen and paper,” and is an abstract idea. *Cyber-Source Corp.*, 654 F.3d at 1372. Controlling access to resources “is pervasive in human activity, whether in libraries (loaning materials only to card-holding members), office buildings (allowing certain employees entrance to only certain floors), or banks (offering or denying loans to applicants based on suitability and intended use).” *Ericsson Inc. v. TCL Commun. Tech. Holdings Ltd.*, 955 F.3d 1317, 1327 (Fed. Cir. 2020).

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 do 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 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 v. Kappos*, 130 S.Ct. 3218, 3231 (2010) (“limiting an abstract idea to one field of use or adding token post-solution components d[oes] not make the concept patentable.”).

C. *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 claim limitations are examined “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).

i. 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.

ii. Remote Access is Not Inventive

Directing the claims 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* ’184 Patent col. 1, 11. 31-42. Further, the tasks referenced use only functional language such as “receiving,” “determining,” “translating,” “obtaining,” 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.

iii. Access Control is Not Inventive

Record keeping authorizing users to issue commands to designated resources, such as the first computing system, is not inventive. Claim 1 merely states functionally that a determination is made that “a user of the remote user computing device is authorized to issue commands to the first computing system” through the use of a generic “data store.” Further, the specification leaves such subject matter in similar vagueness, providing only that certain actions are permitted for a user that is authorized. *See* ’184 Patent 3:59-64, 4:46-55 (reciting generic user account information such as “each account record having one or more usernames, one or more user passwords, billing information (e.g., billing address, subscription price, and invoicing data), and identifiers of one or more site master-controllers”). The access control as recited in claim 1, and even when expanded to the subject matter provided in the specification, fails to provide “anything more than a generic computer for performing the abstract idea of controlling access to resources.” *Ericsson Inc.*, 955 F.3d at 1330.

iv. 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.” ’184 Patent 13:7-14. The specification also explains 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.

’184 Patent 15:4-24.

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. ’184 Patent 13:7-14:63; *see also* EX1005, ¶¶80-82.

D. All other claims are also ineligible

The Federal Circuit has held that a factfinder need not expressly address each claim when 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 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.

Similarly, the remaining 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.

Claims 2–31 are directed to variations on the same abstract idea recited in Claims 2 and 17, for example, recite user account distinctions, such as accounts

authorized only to view reports. EX1005 ¶¶16-18, ¶96. A POSITA would understand that these are rudimentary elements of commonly available access control systems. *Id.* As such these claims do not add anything more than generic access-control logic found in conventional computing environments. See *Alice Corp. v. CLS Bank Int'l*, 573 U.S. 208, 226 (2014) (“data storage unit” is “purely functional and generic”). See also *Intell. Ventures I LLC v. Cap. One Bank (USA)*, 792 F.3d 1363, 1370 (Fed. Cir. 2015) (“interactive interface limitation is a generic computer element”).

Claims 5, 6, and 9–12 recite functions involving polling sensors, accessing alarm logs, handling intermittent network conditions, or selecting a protocol—all conventional steps in remote telemetry and SCADA systems, as acknowledged in the specification. EX1005 ¶¶16-18, ¶97. See '184 Patent at 7:7-17, 9:42-49, 11:14-19. These do not recite any improvement to the underlying technology for communication, data storage, or control. See *Adaptive Streaming Inc. v. Netflix, Inc.*, 836 F. App'x 900, 903 (Fed. Cir. 2020) (format conversion without a specific advance is unpatentable); *TDE Petroleum Data Sol'ns, Inc. v. AKM Enters., Inc.*, 657 F. App'x 991, 993 (Fed. Cir. 2016).

Claims 20 purports to abstract the “site-specific” details when translating commands but do not explain how this abstraction is achieved or improve any computing component. As in *Two-Way Media Ltd. v. Comcast Cable Commc'ns*,

LLC, 874 F.3d 1329, 1337 (Fed. Cir. 2017), these claims recite results-oriented steps without disclosing any technical means for doing so.

Claims 23–28 recite steps involving sensor-driven feedback or feedforward control, but again merely describe the desired result of adjusting device behavior based on sensor input. The claims do not recite how to achieve this result in a non-abstract way, such as a novel algorithm, improved hardware, or technical effect. See *Accenture Global Servs. v. Guidewire Software, Inc.*, 728 F.3d 1336, 1344 (Fed. Cir. 2013) (claims reciting “performance of a series of steps by general-purpose computer components” are abstract).

Finally, even where the claims mention specific devices like pumps, tanks, or separation units (e.g., Claims 8, 13–16), these components are treated generically and do not reflect any improvement to the devices themselves. Further, even if more specificity was provided, a POSITA would understand that these elements don’t add anything more than those typically used in fluid-handling applications. EX1005 ¶¶80-81, ¶100. Thus, the failure to provide any “specific hardware” leaving the claims directed to the “purely functional and generic” lends to the claim’s unpatentability. *Alice*, 134 S. Ct. at 2360. Accordingly, none of Claims 2–31 recite anything more than the application of conventional computing techniques to a generic industrial environment.

E. Related Decisions

Patents involving very similar technologies in the same field have been held to be unpatentable. *See* EX1011, EX1012, and EX1013.

IX. GROUND 2: CLAIMS 1-31 ARE RENDERED OBVIOUS BY THE CITED COMBINATION

A. Motivation to Combine References:

A POSITA would be motivated to combine Kahn, Almadi, Gutierrez, and SCADA. *See Allergan, Inc. v. Sandoz, Inc.*, 726 F.3d 1286, 1292 (Fed. Cir. 2013); *Alza Corp. v. Mylan Labs., Inc.*, 464 F.3d 1286, 1294 (Fed. Cir. 2006) (motivation to combine may be implicitly stated in the prior art and supported by testimony of an expert witness regarding knowledge of a POSITA). As Dr. Wooley explains, combining Kahn, Almadi, and Gutierrez would have been obvious to try because each reference describes similar systems for remote monitoring and control of fluid handling facilities. EX1005 ¶¶53-59.

A POSITA would have referred to Kahn, and its disclosure of specific user differentiation features for fluid handling facilities, with different components and controls over a plurality of remotely monitored and controlled fluid handling devices. A POSITA would also recognize that Kahn's disclosure similarly relates to gas facilities. EX1005 ¶54, EX1007, 17:67-18:2.

A POSITA would have referred to Gutierrez for its disclosure 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. EX1005 ¶55; EX1009, 1:26-27. A POSITA would understand that the pipelines and transport systems of Gutierrez would involve multiple operators and geographically dispersed site locations, each responsible for efficient and safe operation of the fluid handling systems.

A POSITA would have referred to Almadi for its disclosure of modern industrial operations, found in modern oil and gas field applications, which allows remote users to monitor and control fluid handling facilities. EX1005 ¶56; EX1008, 1:26-27. A POSITA would understand that the automation architecture of Almadi would involve a large plurality of devices remotely monitored and controlled by an integrated node.

A POSITA would recognize that SCADA provides specific details of fluid processing systems and remote control of fluid handling devices of Gutierrez and Kahn to process instrumentation, various communication methods, and computer applications. EX1005 ¶57.

A POSITA would have been motivated to combine Kahn, Almadi, Gutierrez, and SCADA because Almadi or Gutierrez provide additional detailed disclosure regarding the operation of oil and gas facilities (Gutierrez) or modern oil and gas

field automation technologies (Almadi), while SCADA provides specific details of fluid processing systems and remote control of fluid handing devices, which a POSITA would consider when implementing any remote systems disclosed by Kahn. The detailed descriptions of general systems described in Kahn, would have motivated a POSITA to combine the more detailed disclosures of Almadi and Gutierrez to achieve the efficiency and safety benefits automating fluid handling systems provided across the system. EX1005 ¶58.

Combining Kahn, Almadi, Gutierrez, and SCADA would lead to predictable results of the disclosures of a plurality of devices in Kahn with the specific modern oil and gas field automation technologies disclosed in Almadi and Gutierrez. A POSITA would not have difficulty combining Kahn with Almadi and Gutierrez and/or SCADA, because these references do not describe alternative systems or methods, but rather the disclosures of Almadi and Gutierrez provide additional details rather than a different approach to solving problems in the underlying technology addressed by Kahn. EX1005 ¶59.

B. Claim 1

Preamble: A tangible, non-transitory, machine-readable medium storing instructions that, when executed by one or more processors, effectuate operations comprising:

A tangible, non-transitory, machine-readable medium storing instructions that, when executed by one or more processors, effectuate operations is disclosed by Kahn, Gutierrez, Almadi, and SCADA. EX1007, 33:25-30 (“computer-readable media including computer storage mechanisms (e.g., CD-ROM, diskette, RAM, flash memory, computers hard drive, etc.)”); EX1008, 4:51-57 (e.g., “Embodiments of a computer program comprise a set of instructions to be executed on the processor”); EX1009, 11:34-54 (e.g., “volatile or non-volatile memory including, without limitation, magnetic media, optical media, random access memory (RAM), read-only memory (ROM), removable media, or any other Suitable local or remote memory component”); EX1010 at 90 (Block Diagram for an RTU).

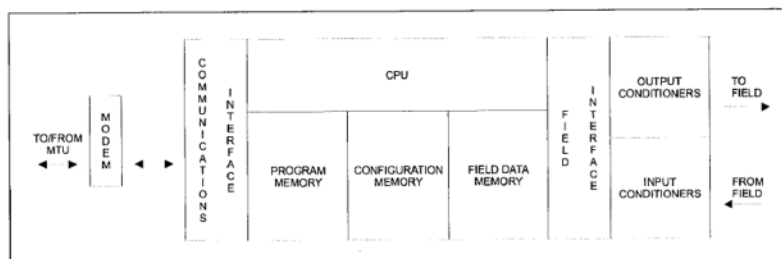


Figure 7-3. Expanded Black Box Description of an RTU

[1a] receiving, with a first computing system, via a network interface, a plurality of commands encoded in a first protocol to control a plurality of different fluid-handling devices at a fluid-handling site, different commands among the plurality of commands being directed to different fluid handling devices among the plurality of fluid-handling devices, wherein:

Gutierrez discloses a first computer system that receives commands over a network interface for controlling a plurality of different fluid handling devices at a fluid-handling site. 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.” EX1009, 8:16-19. A POSITA would understand that a microprocessor is a computer. EX1005 ¶102. A POSITA would further understand that a pump is a fluid-handling device. *Id.* Gutierrez discloses the computer (microprocessor) being disposed at the fluid-handling site that receives commands over a network interface. EX1009, 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.”). In addition, Gutierrez discloses different commands among the plurality of commands being directed to different fluid handling devices among the plurality of fluid-handling devices through its disclosure of “remote control center 220” which “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...” EX1009, 10:40-67 – 11:1-3, FIG. 3.

Almadi discloses receiving, via a network interface, a plurality of commands encoded in a first protocol to control a plurality of different fluid-handling devices at a fluid-handling site through its disclosure that the protocol translator or translation server 102 supports communications according to various protocols, including serial and Ethernet physical interfaces. EX1008, 14:17-28; *see also* FIG. 2D.

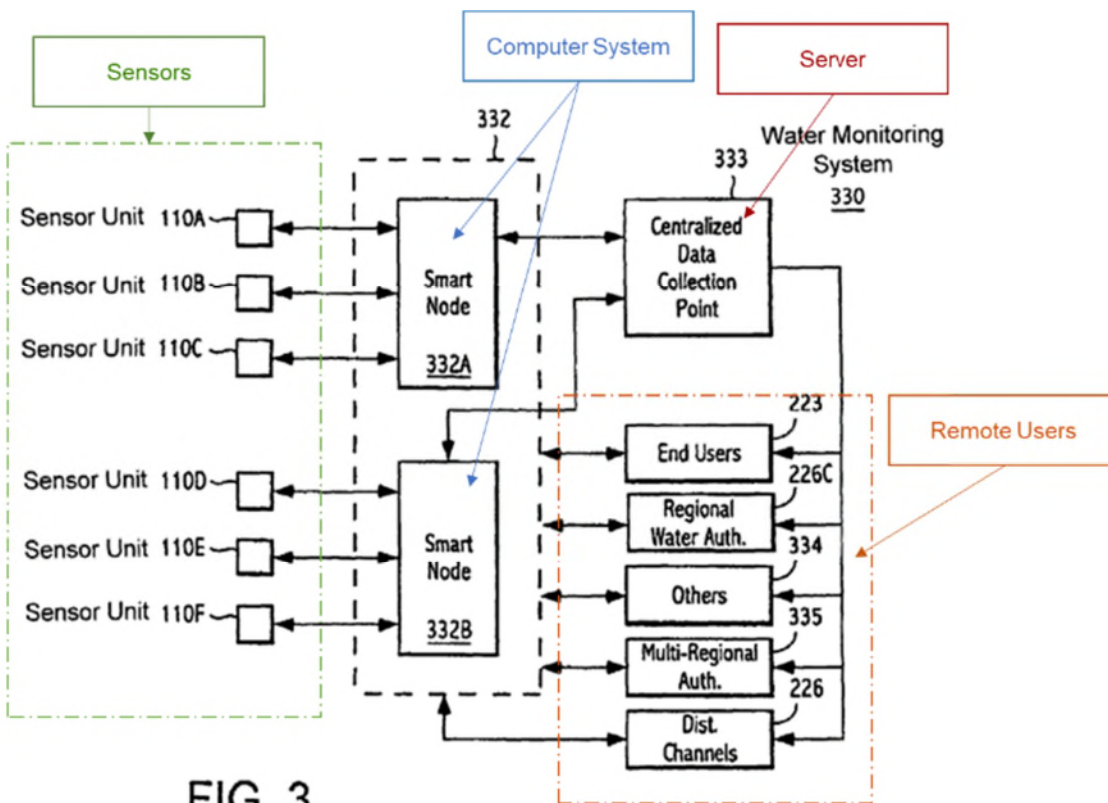
SCADA discloses receiving, with a first computing system, via a network interface, a plurality of commands encoded in a first protocol to control a plurality of different fluid-handling devices at a fluid-handling site. EX1010 at 12, Figure 2-1 (disclosing Remote Terminal Units (RTUs aka computer systems) at a fluid-handling site). SCADA also discloses fluid-handling devices including pumps (EX1010 at 11, 17) and valves (EX1010 at 10-12).

Thus, each of Gutierrez, Almadi, and SCADA disclose or suggest this element.

[1a1] the plurality of commands are responsive to inputs to a command interface presented on a remote user computing device, and

Kahn discloses the plurality of commands are responsive to inputs to a command interface presented on a remote user computing device. EX1007, 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 a user computing device being remote from a server system and the first computing system, as depicted below in annotated FIG. 3, FIG. 5, and Fig. 6.



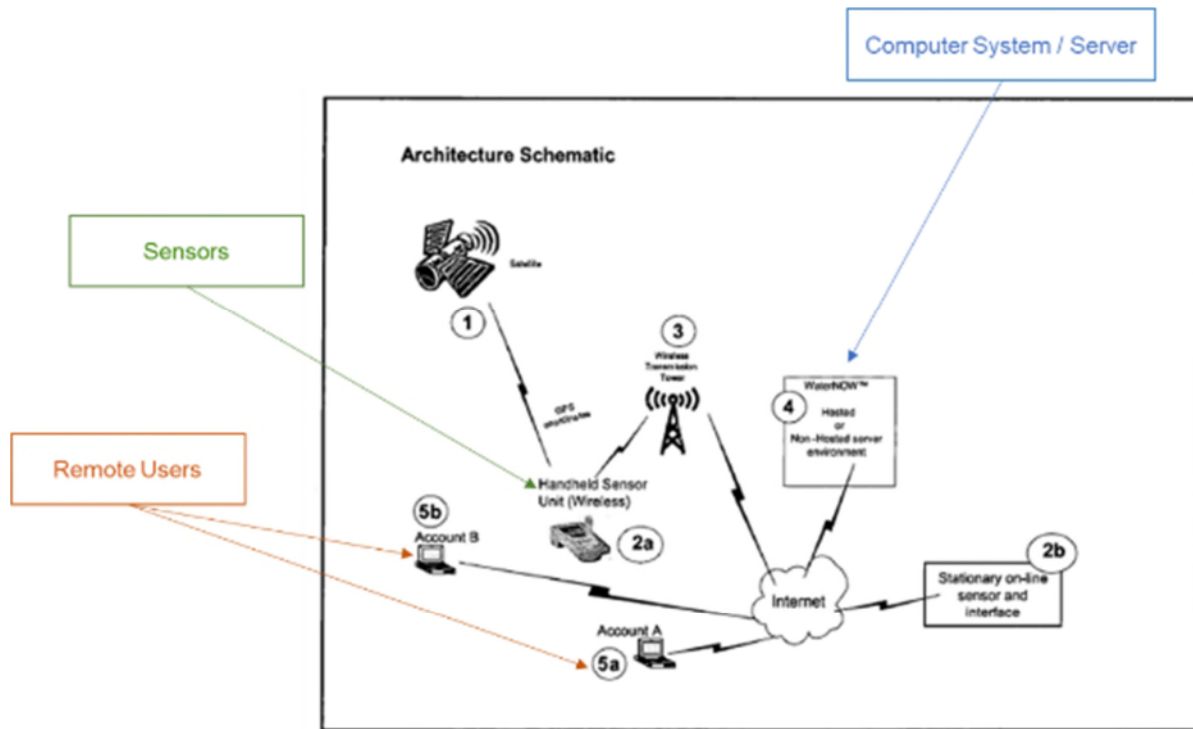


FIG. 5

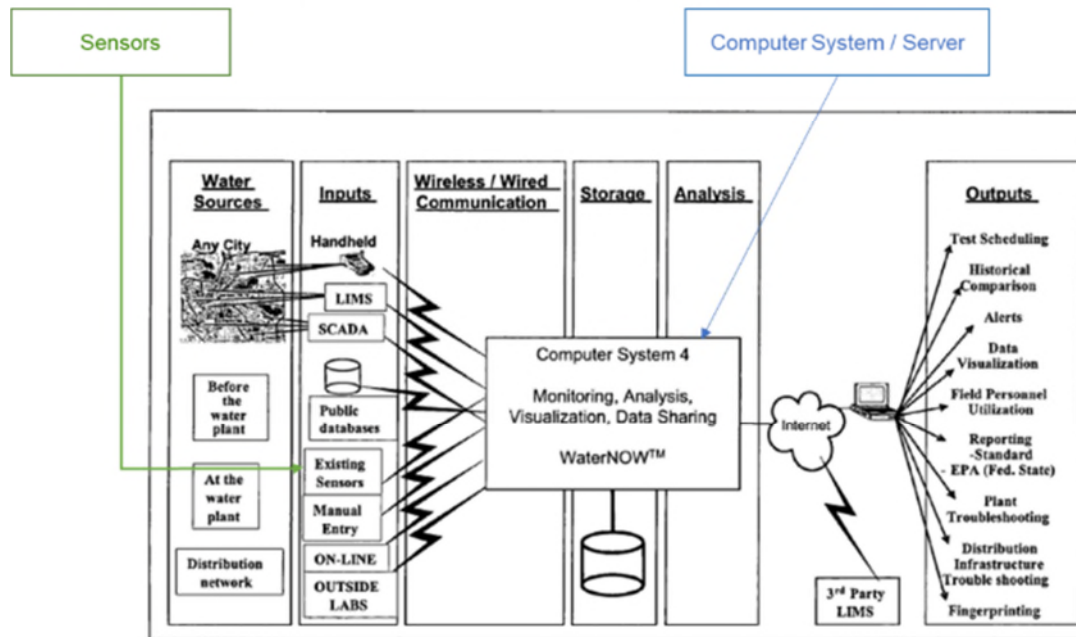


FIG. 6

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. EX1007, Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8-25, 29:5-37.

Gutierrez discloses “[t]he 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.” EX1009, 13:21-26. Thus, a POSITA would understand that a user may change the state of a fluid-handling device through a remote user computing device. EX1005 ¶109.

A POSITA would understand that the GUI of Kahn that provides information about the plurality of fluid-handling devices can be used to issue commands to those fluid-handling devices as disclosed in Gutierrez. EX1005 ¶111.

Thus, Kahn and Gutierrez disclose or suggest this element.

[1a2] the plurality of commands are received after determining that a user of the remote user computing device is authorized to issue commands to the first computing system based on a user account that indicates the user is authorized to issue commands to the first computing system, the user account being accessed from a data store;

Kahn discloses determining that a user of the remote user computing device is authorized to issue commands to the first computing system based on a user account that indicates the user is authorized to issue commands to the first computing system. EX1007 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. EX1007, 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 (e.g., a first fluid-handling site such as a municipal water authority). EX1007, 25:48-51. Finally, Kahn discloses that different accounts can be authorized by different entities, such as a second entity different from the first entity that is an industrial plant or power utility. EX1007, 25:55-58.

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. EX1008, 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. EX1008, 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.” EX1008, 16:65-67.

A POSITA would understand that the server system of Kahn and/or the integrated node of Almadi provide for storage of user accounts, such that they are accessed from storage in order to authenticate a user. EX1005 ¶114.

A POSITA would further understand that the plurality of commands are received only after a given user is authorized via the server system of Kahn and/or the integrated node of Almadi in order to prevent security violations or the unauthorized access to resources of entities not associated with the given user. EX1005 ¶117.

Thus, Kahn and Almadi disclose or suggest this element.

[1b] for at least some of the plurality of commands, determining, with the first computing system, a plurality of different target states of a given one of the fluid-handling devices over time, wherein the first computing system is operative to maintain control of the fluid handling devices in an absence of an external network connection;

Gutierrez discloses determining, with the first computing system, a plurality of different target states of a given one of the fluid-handling devices over time. As explained for Element [1a], Gutierrez discloses the first computing system used to determine the target states for the fluid-handling devices. EX1009, 8:16-19, EX1005 ¶119.

Gutierrez 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. EX1009, 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. EX1005 ¶120. 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. EX1009, 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. EX1007, 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 that Kahn discloses the limitation regarding changing the state of the first fluid-handling device. EX1005 ¶¶121-122.

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. EX1008, 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. EX1008, 1:18-57. Almadi discloses that remote subsystems 120 can include a variety of intelligent field systems. *See generally*, EX1008, 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. EX1005, ¶124. 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 in an absence of an external network connection. *Id.* A POSITA would understand that Almadi discloses the claim limitation. *Id.*

SCADA discloses a server system (Master Terminal Unit or MTU aka server system) that receives commands from some form of input/output device (I/O device aka a remote user computing device) to change a state of a fluid-handling device. EX1010 at 12-14, and Fig. 2-1. SCADA discloses that the user can control actuators, which include fluid-handling devices. EX1005 ¶125; EX1010 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). EX1010 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.” EX1010 at 91.

Thus, Gutierrez, Kahn, Almadi, and SCADA disclose or suggest this element.

[1c] translating, with the first computing system, the plurality of commands into translated commands encoded in a plurality of protocols different from the first protocol, at least some of the translated commands being operative to cause a local controller of the given fluid-handling device to the plurality of different target states, and the local controller being responsive to the at least some of the translated commands and feedback from the given fluid-handling device, the feedback being indicative of whether the given fluid-handling device is in targeted states among the plurality of different target states;

Gutierrez discloses translating commands from one protocol to another. EX1009, 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. EX1009, 2:48-60. Thus, Gutierrez discloses a first computing system (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. EX1009, 2:48-60.

Further, the translation module of Gutierrez can 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). EX1009, 9:54-59.

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. EX1008, 11:35-41, 14:10-17, 14:17-28 (the protocol translator or translation server 102 supports communications according to various protocols, including serial and Ethernet physical interfaces), FIG. 1B and 2D.

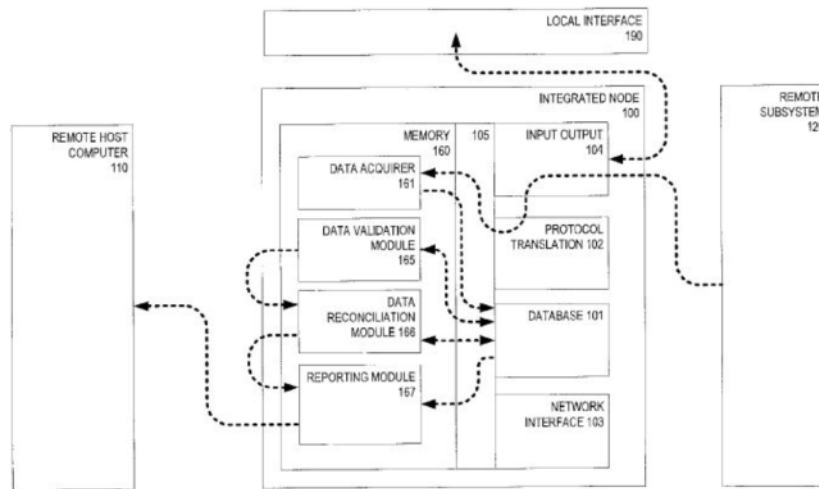


FIG. 2D

Almadi discloses translated commands being operative to cause a local controller of the given fluid-handling device to the plurality of different 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.” EX1008, 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”).

Thus, both Gutierrez and Almadi disclose this element.

[1d] sending, with the first computing system, the translated commands to the local controllers;

As discussed above in [1a], Gutierrez discusses remote control of a fluid handling device. EX1009, 8:16-19, 8:27-30 (“[c]ontroller 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”), 10:40-67–11:1-3 (“remote control center 220” which “may then wirelessly issue commands to one or more of the chemical injection systems 210), FIG. 3.

Similarly, in [1a] and [1a1], SCADA discloses commands used by the local controllers to drive fluid handling devices. EX1010 at 10 (valves), 11 (pumps), 12, Figure 2-1 (disclosing remote terminal units (RTUs aka computer systems) at a fluid-handling site), 42 (MTU sends commands for control of valves and motors).

Thus, both Gutierrez and SCADA disclose this element.

[1e] obtaining, with the first computing system, site data and storing the site data in a report buffer of the first computing system such that the site data in the report buffer is not lost in the absence of the network connection, the site data including alarms, measurements from sensors, or other data associated with the fluid-handling site or associated with at least some of the plurality of fluid-handling devices;

Almadi discloses storing the site data in a report buffer of the first computing system such that the site data in the report buffer is not lost in the absence of the network connection. Almadi discloses “Upon receiving the time-stamped industrial process data ..., the data is archived ... in an archive file 454 corresponding to the date and time of the time stamped industrial process data.” EX1009, 19:31-35.

A POSTIA would understand industrial process data to be site data, such as alarms, measurements from sensors, or data associated with the fluid handling site or fluid handling devices. EX1005 ¶136. Further, Almadi discloses that “upon

detecting bandwidth starvation, the integrated node can store collected data and buffer affected data transmissions accordingly.” EX1009, 20:50-52. A POSITA would understand that similar buffering can be utilized for an absence of a network connection as provided by Almadi for a network bandwidth failure. *Id.*

Thus, Almadi discloses this element

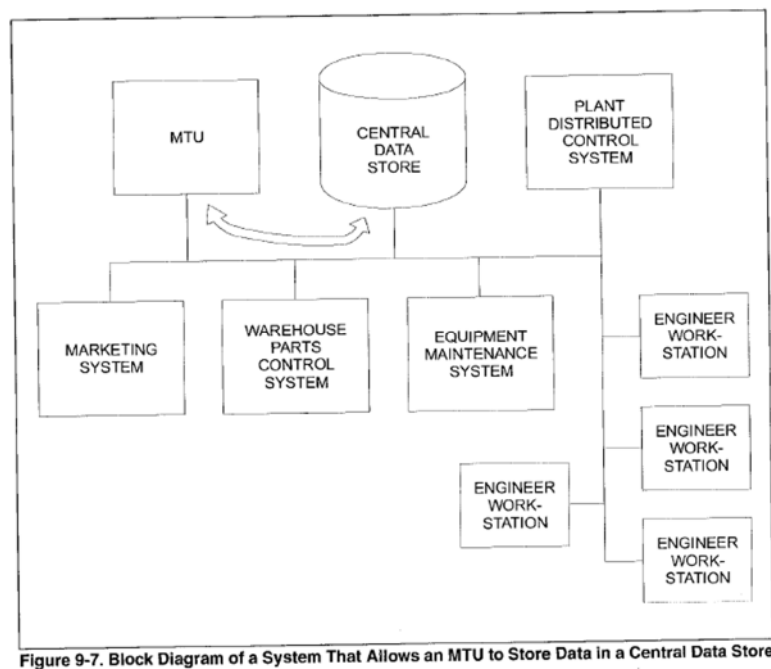
[1f] sending, with the first computing system, the site data stored in the report buffer to a remote second computing system.

Almadi discloses sending, with the first computing system, the site data stored in the report buffer to a remote second computing system. Almadi discloses “the integrated node 300 can, responsive to the request by the remote host computer 310, extract process data corresponding to any time parameter, from any archive file 354 of an existing plurality of archive files for multiple dates, subsystems, or other division to thereby extract data and define a file 382 to be transmitted 383 to the remote host computer 310.” EX1008, 18:18-24. A POSITA would understand that the remote host computer 310 (e.g., a remote second computing system) is separate from the integration node 300 (e.g., the first computing system). EX1005 ¶138. Almadi also discloses methods of transferring data, such as through FTP. EX1008, 20:15-19.

Gutierrez discloses this element. Gutierrez discloses “The base transceiver 325 receives and/or consolidates data received from the chemical injection systems

310 via the communication stations 320.” EX1009, 12:47-55. A POSITA would understand that such data can then be transmitted to other computing devices. EX1009, 12-53-55; EX1005 ¶139. Further, Gutierrez discloses that data gathered by “monitoring module 225” is “communicated to the remote control center 220, where it is then processed.” EX1009, 10:39-50.

Lastly, SCADA discloses a block diagram for a site-based computing system (e.g., MTU) to send data to a data store. EX1010 at 142.



Thus, Almadi, Gutierrez, and SCADA disclose this element.

Claim 1 is rendered obvious based on Kahn and Gutierrez in further view of Almadi and SCADA.

Claim 2: The medium of claim 1, wherein: other user accounts in the data store indicate other users are not authorized to issue commands to the first computing system; and the other user accounts indicate the other users are authorized to view reports from the first computing system.

As discussed above in element [1a2], Kahn discloses authorization of users. EX1007, 25:1-2, 25:48-53, 28:35-37, 25:48-51. Further, Kahn discloses that authorized users are permitted “to visualize information associated with that data via the Internet using graphical computer interfaces at their respective computers.” EX1007, 25:8-12, FIG. 5. A POSITA would understand that unauthorized users would be unable to view the information. EX1005 ¶143.

Further, Kahn discloses record keeping that provides users with different authorization (e.g., other users are not authorized to issue commands to the first computing system) through its disclosure that authorization by an entity can be for “certain aspects” of the entity’s data and computer system. EX1007, 25:50, 31:48-66.

A POSITA would understand that the data store that allows Kahn to authorize users is the data store that allows Kahn to store permissions and settings corresponding to those users, such as the ability to issue commands or view reports. EX1005 ¶145.

Thus, Claim 2 is rendered obvious based on the cited references.

Claim 3: The medium of claim 1, wherein sending is in response to a pull command from the second computing system.

Almadi discloses sending is in response to a pull command from the second computing system. A POSITA would understand that a pull command is a request for information. EX1005 ¶147. Almadi discloses “The remote host computer 310 can issue a request, for example, using via file transfer protocol (FTP), to copy certain file or files from the integrated node 300 responsive to the current time (t) 311 at the remote host computer 310.” EX1008, 18:4-8. Additionally, Almadi teaches that such pull requests can vary in scope, providing that the integrated node can “extract process data corresponding to any time parameter, from any archive file 354 of an existing plurality of archive files for multiple dates, subsystems, or other division to thereby extract data and define a file 382 to be transmitted 383 to the remote host computer 310.” EX1008, 18:20-24.

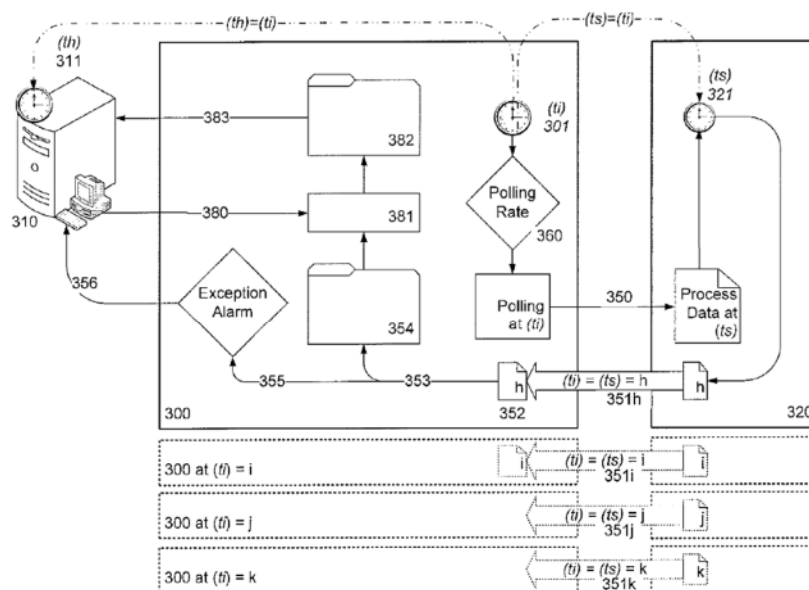


FIG. 3

SCADA similarly discloses sending is in response to a pull command from the second computing system through its disclosure of “With a master-slave arrangement, only one of the machines (in this case, the master or MTU) is capable of initiating a conversation. The MTU calls one RTU, gives instructions, asks for information updates, and then tells the RTU to respond. The MTU then listens for an answer. The RTU the answers as soon as MTU has finished speaking.” EX1010 at 42-43.

Thus, Claim 3 is rendered obvious based on the cited references.

Claim 4: The medium of claim 1, wherein sending comprises determining, with the first computing system, to push the site data in the report buffer and, in response, pushing the site data in the report buffer to the second computing system.

As explained above in [1e], Almadi discloses storing data in a buffer.

Almadi discloses determining, with the first computing system, to push the site data in the report buffer and, in response, pushing the site data in the report buffer to the second computing system through its disclosure of “the integrated node can also include an exception reporter positioned to determine exceptions in the acquired time stamped data, and upon determining an exception, to report the exceptions to the remote host” and “The integrated node can further include a data uploader that is positioned to periodically upload archived time-stamped data to the remote host.” EX1008, 8:11-16. A POSITA would understand that determining to

push the site data is a determination that the first computing system (e.g., the integrated node) should provide stored data to another computing system (e.g., the remote host). EX1005 ¶151.

Additionally, Kahn discloses measurement of fluid test data by a handheld system and that “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.” EX1007, 29:42-47.

Thus, Claim 4 is rendered obvious based on the cited references.

Claim 5: The medium of claim 1, wherein obtaining the site data comprises: polling, with the first computing system, sensors of the fluid handling site.

Almadi discloses polling, with the first computing system, sensors of the fluid handling site through its disclosure of “The integrated node 300 polls for sub-system or instrumentation data containing time and process variables (e.g., pressure, temperature, flow)” and “the integrated node 300 acquires data,..., from the remote subsystem320, at a pre-defined rate 360 by polling the remote subsystem 320 at a time (t), ..., the period between ... corresponds to the preselected rate 360.” EX1008, 15:59-67.

Additionally, SCADA discloses that “The process of talking to each RTU in order and then going back to the first RTU to begin the cycle all over again is called ‘scanning’ or ‘polling.’” EX1010 at 43.

Thus, Claim 5 is rendered obvious based on the cited references.

Claim 6: The medium of claim 1, wherein obtaining the site data comprises: accessing, with the first computing system, an alarm log from one of the plurality of fluid handling devices via a control bus.

SCADA discloses an alarm log from one of the plurality of fluid handling devices. SCADA discloses that alarm logs are a key component of monitoring systems (e.g., such as MTUs of SCADA or the first computing system). EX1010 at 156. Further, SCADA discloses that “An alarm log is a hard-copy printout of all alarms, acknowledgements, and returns to normal, complete with their date and time of occurrence. It is automatically generated by a system.” EX1010 at 227.

Gutierrez discloses accessing data (e.g., alarm logs) via a control bus through its disclosure of “the controller 130 is communicably coupled to a communication bus 155 ... operable to carry data between the controller and remote sources, such as one or more electronic sensors monitoring the pipeline 120, the motor 110, the pump 105, or other component or apparatus.” EX1009, 9:4-13.

Additionally, Almadi similarly discloses “The integrated node 100 includes an input/output unit 104 providing both serial and Ethernet interfaces over communication links [control bus] ... for transferring communications between the

integrated node 100 [first computer] and the plurality of remote subsystems 120 [the plurality of fluid handling devices].” EX1008, 13:47-57, 14:61-65.

Thus, Claim 6 is rendered obvious based on the cited references.

Claim 7: The medium of claim 1, the operations comprising: after a predetermined period of time has elapsed after sending the site data, sending newer site data stored in the report buffer to the remote second computing system.

As explained above in claim 4, Almadi provides for the periodic sending of process data (site data). EX1008, 8:11-16. A POSITA would understand that a system sends data periodically to update previously sent data. EX1005 ¶161. A POSITA would understand that Almadi discloses sending newer site data stored in the report buffer to the remote second computing system through its disclosure of periodically (e.g., at a certain interval over time) sending process data (site data). *Id.*

Additionally, SCADA discloses after a predetermined period of time has elapsed after sending the site data, sending newer site data stored in the report buffer to the remote second computing system. SCADA discloses “the process of talking to each RTU in order and then going back to the first RTU to begin the cycle all over again is called “scanning” or “polling.” The length of time between the MTU talking to RTU-1 and the next time it talks to RTU-1 is called the scan interval.” EX1010 at 43. A POSITA would understand that the scan interval of SCADA is a

predetermined period of time from when the site data is sent from one fluid-handling device (RTU) to the remote second computing system (MTU). EX1005 ¶162.

Thus, Claim 7 is rendered obvious based on the cited references.

Claim 8: The medium of claim 1, wherein data stored in the report buffer is periodically sent to the remote second computing system.

As explained above in element [1e], Almadi discloses data stored in the report buffer. EX1009, 19:31-35 (archival of process data associated with fluid-handling devices). Similarly, as explained above in claim 4 and claim 7, Almadi and SCADA disclose the periodic sending of the data to a remote system (the remote second computing system).

Thus, Claim 8 is rendered obvious based on the cited references.

Claim 9: The medium of claim 1, wherein the site data is obtained while network access to the remote second computing system is intermittently ceased, and wherein sending the site data occurs after network access to the remote second computing system has been restored.

As explained in element [1b], Almadi discloses the maintenance of control in the absence of a network connection. EX1008, 1:18-57. Similarly, Almadi further discloses that “Failure of the communication link can be detected and reported 902 ... the integrated node can store collected data and buffer affected data transmissions accordingly.” EX1008, 19:38-41, 20:48-52. Lastly, Almadi discloses “when there is a communications failure 461_i and a communications recovery 461_k ... the integrated node extracts process data starting from the time of communication failure and

ending at communications restored time ... and performs a file transfer ... of the extracted process data ... to the remote host computer 410.” EX1008, 19:49-29:26, FIG. 9.

Thus, Claim 9 is rendered obvious based on the cited references.

Claim 10: The medium of claim 1, wherein the fluid-handling site comprises an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station.

Each of the types of fluid-handling site of claim 10 are disclosed within the art, as each correspond to well-known generic petroleum production facilities. EX1005 ¶168. Specifically, Almadi focuses entirely on intelligent oilfield systems for oil and gas extraction and handling. EX1008, 11:18-12:59; *see also* Abstract; 1:18-22, 1:28-35; EX1008, 12:27-35 (“intelligent field systems” such as 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”) that can be used, for example, in electrical substation automation, utilities, and transportation sectors, as will be understood by those having skill in the art).

Further, Gutierrez discloses that its “chemical injection system 310 may be positioned at or near a wellsite and/or a pipeline transporting hydrocarbon fluid.” EX1009, 11:62-64. As well, Gutierrez discloses that its system is operable to

manipulate “data associated with a wellsite, hydrocarbon piping system, or other hydrocarbon production facility.” EX1009, 11:37-42.

Thus, a POSITA would understand that Almadi and Gutierrez disclose an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station. EX1005 ¶170.

Thus, Claim 10 is rendered obvious based on the cited references.

Claim 11: The medium of claim 1, wherein the fluid-handling site is a water handling facility.

Kahn discloses water handling facilities through its disclosure of “sensor systems and methods for fluid (e.g., water) quality data gathering including on-line water-quality monitoring.” EX1007, 1:29-36, FIG. 6 (“Water Sources,” “Before the water plant,” and “At the water plant”). Additionally, Kahn discloses “placing monitors [fluid-handling devices] at various points in the Source water, in water treatment plants, and/or at selected distribution points of water distribution pipe networks within a region of a water authority, for instance.” EX1007, 1:54:58.

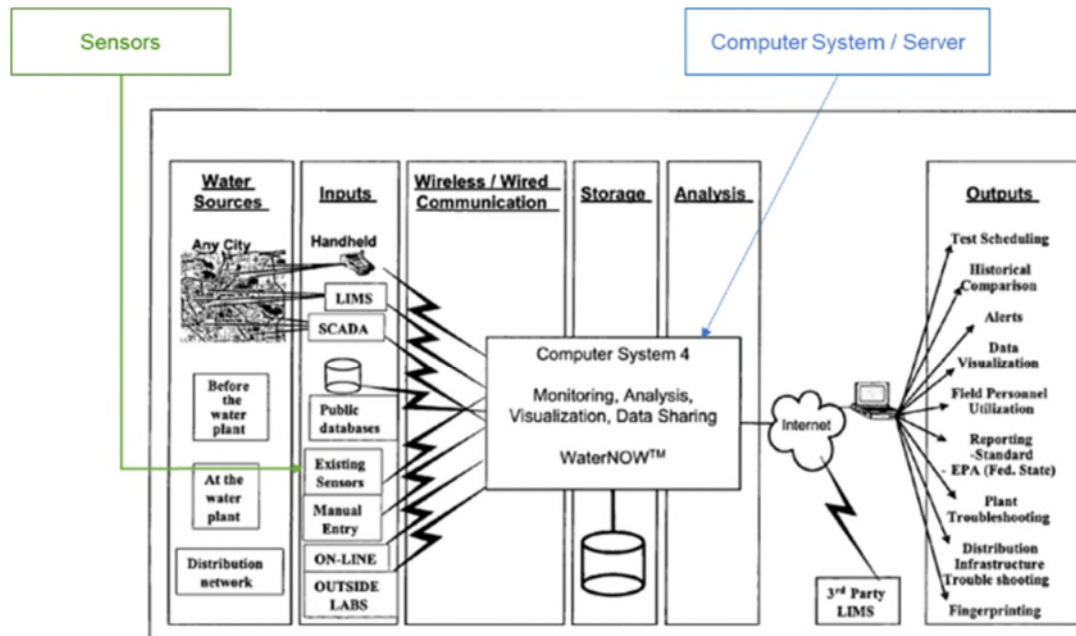


FIG. 6

Thus, Claim 11 is rendered obvious based on the cited references.

Claim 12: The medium of claim 1, the operations further comprising: detecting a leak from a signal based on a fluid-level sensor of a tank at the fluid handling site.

Kahn discloses detecting a leak from a signal based on a fluid-level sensor through its detection of “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.” EX1007, 10:8-13.

Additionally, SCADA discloses detecting leaks through fluid-level. EX1010 at 163-164 (Example 11: “If more liquid is measured going into the line than going

out of it, the MTU will recognize a leak and will send a message to the RTU at each end that will cause a block valve at each of those two locations to close”)

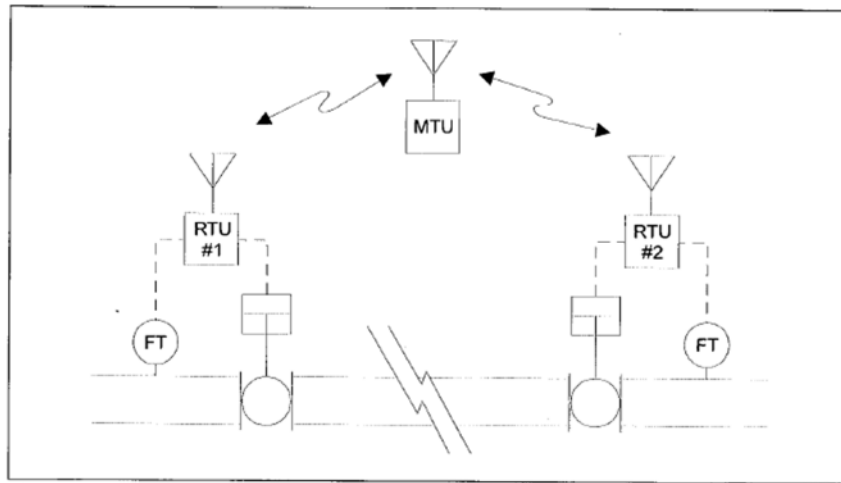


Figure 11-5. SCADA System in Liquid Hydrocarbon Pipeline

A POSITA would understand that the same techniques in detecting leaks in pipelines can be applied to a tank at a fluid handling site. EX1005 ¶176.

Thus, Claim 12 is rendered obvious based on the cited references.

Claim 13: The medium of claim 1, wherein one of the plurality of fluid handling devices comprises an oil/water separation tank configured to separate oil from water, and wherein the plurality of commands comprises a command operative to change a level of the oil/water separation tank 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. EX1008, 23:51-24:53. For comparison, the '184 Patent broadly recites that “the fluid-handling devices may be a valve, a pump, a process chamber (for instance an oil/water separation tank).” EX1001, at 6:3-7.

A POSITA would understand that a process chamber as recited in the '184 Patent is the same as the “process unit” disclosed by Almadi. EX1005, ¶179. 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. EX1008, 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. EX1005, ¶181.

Thus, Claim 13 is rendered obvious based on the cited references.

Claim 14: The medium of claim 1, wherein: one of the plurality of different target states that change over time is determined by the first computing system in response to a rate of change in a level of a fluid in a 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.” EX1008, 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. EX1008, 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 that change over time, as claimed in the '184 Patent. EX1005 ¶185.

A POSITA would further 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 level of the first fluid in the first tank. EX1005 ¶186. EX1008, 15:51-67, 25:12-25.

Thus, Claim 14 is rendered obvious based on the cited references.

Claim 15: The medium of claim 1, wherein: some of the plurality of different target states that change over time are operative to ramp up or down speed of a motor to mitigate shocks to up-stream or down-stream fluid-handling devices.

As explained in element [1b], Gutierrez discloses a "VFD" system that is operative to ramp up or down speed of a motor to mitigate shocks to up-stream or down-stream fluid-handling devices. EX1009, 8:6-12; 12:18-22.

Kahn discloses the sequence of different target states that change over time, 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. EX1007, 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. EX1007, 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. EX1007, 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. EX1005 ¶189.

Thus, Claim 15 is rendered obvious based on the cited references.

Claim 16: The medium of claim 1, wherein the first computing system has an automatic mode.

Almadi discloses an automatic mode through its disclosure of “intelligent field systems.” EX1008, 1:18-22, 1:28-35; EX1008, 12:27-35. 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. EX1008, 1:53-57.

Almadi also discloses automatically acquiring data periodically (every second, per claim 11, EX1008, 32:66-33:11), detects exceptions, and issues commands (e.g., alarms, suspensions, per claims 1 and 20, EX1008, 28:54-29:67, 36:7-21) based on predefined criteria, forming an autonomous control loop (EX1008, 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 '184 Patent. EX1005 ¶193.

Additionally, SCADA discloses the automatic control of water level in a tank, which is controlled automatically by the use of valves. EX1010 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. EX1005 ¶194; EX1010 at 46, Fig. 4-5; depicting changes in the tank level and the fill valve position.

Thus, Claim 16 is rendered obvious based on the cited references.

Claim 17: The medium of claim 1, wherein the first computing system has a mixed automatic mode.

Kahn discloses manual and automatic mode for the reasons stated in Elements 1b, 1d, 14, and 15, above. The '184 Patent explains that in a mixed automatic mode “the user selects which devices are manually controlled while other devices are automatically controlled.” EX1001, 10:29-34. A POSITA would understand that Kahn discloses both a manual and automatic mode and Kahn also discloses mixed automatic mode within the meaning of the '184 Patent because Kahn discloses a plurality of fluid handling devices that may be separately controlled. EX1005 ¶196.

Additionally, Gutierrez discloses manual and automatic modes. EX1009, 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 both a manual and automatic mode and Gutierrez also discloses mixed automatic mode within the meaning of the '184 Patent because Gutierrez discloses a plurality of fluid handling devices that may be separately controlled. EX1005 ¶197; EX1009, claims 2 and 8, 14:49-54; 16:7-17.

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. EX1005 ¶198.

Thus, Claim 17 is rendered obvious based on the cited references.

Claim 18: The medium of claim 1, comprising: prior to sending at least some of the translated commands, checking the at least some of the translated commands or their corresponding received commands for validity based on a current condition of the fluid-handling site to prevent a commanded action from harming the plurality of fluid-handling devices.

Kahn discloses verification of data collected based on a command. EX1007, 29:40-50 (“The fluid test data associated with a given measurement can be initiated by a 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 '184 Patent. EX1005 ¶201. Therefore, Kahn discloses this limitation of the '184 Patent.

Thus, Claim 18 is rendered obvious based on the cited references.

Claim 19: The medium of claim 18, wherein checking for validity comprises checking against a maximum or minimum liquid level for a tank.

As explained above in claim 18, Kahn discloses the validation of commands. Kahn further discloses the validation of thresholds (e.g., minimum or maximum liquid level for a tank) through its disclosure of “sensors and sensor elements that simply output a defined signal when a threshold (either an upper or a lower or both) is crossed.” EX1007, 4:32:37. Further, Kahn discloses providing event conditions when “one or more out-of-range events where measured parameters or profiles within a fluid exceed or deviate from a particular range.” EX1007, 9:48:51.

Gutierrez discloses monitoring a liquid level of a tank through its disclosure of “*GUI 315 may display a **level of a chemical reservoir** at the chemical injection system 310...*” and “...monitor the amounts of injected chemical remaining in one or more chemical fluid reservoirs in order to avoid such injection units running out of chemicals.” EX1009, 5:26-31, 13:1-5. A POSITA would understand that the

system of Gutierrez monitors for a minimum liquid level to prevent running out of chemicals. EX1005 ¶204.

A POSITA would understand that the systems of Gutierrez and Kahn can be used to monitor minimum and maximum liquid levels of a tank. EX1005 ¶205.

Thus, Claim 19 is rendered obvious based on the cited references.

Claim 20: The medium of claim 1, wherein translating abstracts details of site-specific implementation of the first computing system.

Gutierrez discloses abstracting details of site-specific implementations of the first computer system. As explained above in [1a], Gutierrez discloses a chemical injection system that is the first computing system as described in the '184 patent. Additionally, Gutierrez discloses a remote translation module which allows a remote source of data [a remote user issuing commands] to be transmitted to the controller 130 in a remote protocol without regard to the particular protocol understood by the motor controller 115 [of the chemical injection system].” EX1009, 9:50:53.

Similarly, Almadi discloses that “Only one interface is required at the node and the remote host computer to exchange data with the remote subsystems, whereas the communication links with remote subsystems operate according to any of a plurality of supported communication protocols.” EX1008, 14:61-65.

Thus, Claim 20 is rendered obvious based on the cited references.

Claim 21: The medium of claim 1, wherein:

[21a] the first computing system comprises a site master controller located at the fluid-handling site; and

A POSITA would understand that the system, including the chemical injection system, of Gutierrez is the site master controller located at the fluid-handling site as defined by the '184 patent. EX1005 ¶210, EX1009, 2:9-41.

Similarly, a POSITA would understand that the MTU of SCADA is the site master controller located at the fluid-handling site as explained above in element [1d], claim 6, and claim 7. EX1005 ¶211.

[21b] the second computing system comprises a command center server in communication with a plurality of other site master controllers at a plurality of other fluid-handling sites.

Further, Gutierrez discloses a command center server in communication with a plurality of other site master controllers of other fluid-handling sites. Gutierrez discloses “System 200 includes one or more hydrocarbon production sites 215... The system 200 also includes a remote control center 220.” EX1009, 10:23-24. A POSITA would understand that the one or more production sites are remote (e.g., located at other sites) as Gutierrez discloses “the chemical injection systems 210... and remote control center 220 may all be in wireless communication.” EX1009, FIG. 2, 10:31-34. Further, Gutierrez discloses that “The remote control center 220 may then wirelessly issue commands to one or more of the chemical injection systems 210.” EX1009, 10:50-52.

Thus, Claim 21 is rendered obvious based on the cited references.

Claim 22: The medium of claim 1, wherein the command interface is presented on in a web browser executing on the remote user computing device.

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. EX1007, 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. EX1005 ¶214.

In addition, Gutierrez discloses a GUI executed using a special-purpose application. EX1009, 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. EX1005 ¶215.

Further, a POSITA would recognize that the use of browsers for command interfaces was a common practice at the time of the alleged invention. EX1005 ¶216.

Thus, Claim 22 is rendered obvious based on the cited references.

Claim 23: The medium of claim 1, wherein:

[23a] after pushing, receiving another command configured to instruct a feed-forward-controlled fluid-handling device among the plurality of fluid-handling devices to adjust to attain a target state, the feedforward control being based on a table or formula applied by a local controller of the feed-forward-controlled fluid-handling device; and

A POSITA would have understood it to be obvious to implement feed-forward control at fluid-handling devices. EX1005 ¶218. As explained above in [1a], Gutierrez discloses controlling or instructing a fluid-handling device among a plurality of fluid-handling devices. Further, the chemical injection system of Gutierrez adjusts flow based on known desired chemical dosages or rates. EX1009, Abstract (“inject a set amount of chemical additives into the pipeline at predetermined intervals in order to maintain a desired amount of such additives within the pipeline”). A POSITA would understand in light of Gutierrez that systems can utilize predefined tables or formulas for predefined parameters. EX1005 ¶218.

The controller of Gutierrez is configured to take high-level instructions and implement control logic through its translator. EX1005 ¶219, EX1009, 1:46-60 (“The controller includes a translator adapted to receive a signal... and translate the signal... to a command... operable to adjust the motor controller to adjust the rotational speed of the motor”). A POSITA would understand that these instructions can be algorithmic from formulas, look-up tables, or sensor readings. *Id.* Further, a POSTA would understand that formulas could readily be used by this controller to

determine what motor speed corresponds to a given flow rate or setpoint. EX1005 ¶219.

Additionally, Almadi discloses modeling measurement data through its disclosure of “Associate measurement data with one or more models responsive to the association with the remote time-synchronized subsystems and responsive to the operating state” EX1008, FIG. 7A, 12:65-13:35. A POSITA would understand that such models are formulaic and/or table driven logical. EX1005 ¶220.

[23b] the operations comprise:

[23b1] translating the other command to produce a translated command and sending the translated command to the feed-forward-controlled fluid-handling device;

This claim element is disclosed by Gutierrez and Almadi as explained above in elements [1c] and [1d] in combination with Gutierrez and Almadi’s feed-forward disclosure as in element [23a].

[23b2] obtaining sensor data characterizing a response of the feed-forward-controlled fluid-handling device to the translated command; and

This claim element is disclosed by Gutierrez and Almadi as explained above in elements [1e] in combination with Gutierrez and Almadi’s feed-forward disclosure as in element [23a].

[23b3] determining, by the first computing system, to send another command to the feed-forward-controlled fluid-handling device to make a further adjustment based on the sensor data characterizing the response.

A POSITA would understand that this claim element is disclosed by Gutierrez and Almadi as explained in element [23a]. A POSITA would understand that the key feature of a feed-forward system is to make adjustments based on data, including additional adjustments if not initially within a defined parameter. EX1005 ¶223.

Thus, Claim 23 is rendered obvious based on the cited references.

Claim 24: The medium of claim 1, wherein:

[24a] a given command among the plurality of commands is configured to instruct one of the fluid-handling devices among the plurality of fluid-handling devices to adjust to attain another target state; and

A POSITA would understand that Gutierrez and Almadi disclose this claim element as explained above in element [1c]. EX1005 ¶225. Specifically, a POSITA would understand that the system that can drive a plurality of fluid-handling devices to a plurality of different target states, as claimed in element [1c], is a system that can command one fluid handling device to attain another target state. *Id.*

[24b] the operations comprise:

[24b1] translating the given command to produce a translated command and sending the translated command to the one of the fluid-handling devices;

This claim element is obvious as explained in element [23b1].

[24b2] obtaining sensor data characterizing a response of the one of the fluid-handling devices to the translated command; and

This claim element is obvious as explained in element [23b2].

[24b3] determining, by the first computing system, to send another command to the one of the fluid-handling devices to make a further adjustment based on the sensor data characterizing the response.

This claim element is obvious as explained in element [23b3].

Thus, Claim 24 is rendered obvious based on the cited references.

Claim 25: The medium of claim 1, the operations further comprising: exercising feedback control, by the first computing system, of one of the fluid-handling devices among the plurality of fluid-handling devices based on first sensor data by adjusting a target sent to a local controller of the one of the fluid-handling devices.

Almadi discloses that field devices monitored and collected data, such as measurements of fluid pressure, temperature, or flow, reflective of the operations of the automated process. EX1008, 1:28-57. Almadi further discloses that modern field devices may be termed as “intelligent field devices” 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. EX1008, 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*, EX1008, 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 ’184 Patent. EX1005 ¶¶230-231.

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.” EX1008, 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”). EX1005, ¶232.

Almadi, therefore, discloses exercising feedback control, by the first computing system, of one of the fluid-handling devices among the plurality of fluid-handling devices based on first sensor data by adjusting a target sent to a local controller of the one of the fluid-handling devices. EX1005 ¶233.

Thus, Claim 25 is rendered obvious based on the cited references.

Claim 26: The medium of claim 25, wherein the local controller also exercises feedback control of a state of the one of the fluid-handling devices using proportional-integral-derivative control.

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. EX1005 ¶235. 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* EX1009, 10:1-7. Accordingly, it would have been obvious to a POSITA to combine Gutierrez with PID control. EX1005 ¶235.

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. EX1008, 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. EX1008, 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. EX1008, 11:22-27. Almadi discloses that the local controller uses commands to drive the fluid handling device to a particular target state. EX1008, 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. EX1005 ¶¶235-238.

Thus, Claim 26 is rendered obvious based on the cited references.

Claim 27: The medium of claim 1, the operations further comprising: exercising feedback control, by the first computing system, of a first fluid-handling device among the plurality of fluid handing devices based on first sensor data by adjusting a first target state sent to a first local controller of the first fluid-handling device, the first local controller also exercising feedback control of the first fluid-handling device; and exercising feedback control, by the first computing system, of a second fluid-handling device based on second sensor data by adjusting a second target state sent to a second local controller of the second fluid-handling device, the second local controller exercising feedforward control of second the fluid-handling device.

As explained in claim 25, Almadi discloses exercising feedback control, by the first computing system, of a first fluid-handling device among the plurality of fluid handing devices based on first sensor data by adjusting a first target state sent to a first local controller of the first fluid-handling device. EX1008, 1:28-57.

As explained above in element [1c], claim 25, and claim 26, Gutierrez and Almadi disclose exercising feedback control via a controller of a fluid-handling device. EX1008, 12:27-59, EX1009, 9:54-59.

Further, as explained above in element [1a], Gutierrez and Almadi disclose controlling a plurality of fluid-handling devices (e.g., the first and second fluid-handling device of claim 27). EX1008, 14:17-28; see also FIG. 2D, EX1009, 8:16-19.

Additionally, as explained in element 23a, Gutierrez and Almadi disclose feedforward control of fluid-handling devices as defined in the '184 patent. EX1005 ¶243.

Thus, Claim 27 is rendered obvious based on the cited references.

Claim 28: The medium of claim 1, the operations further comprising: after sending the translated commands, obtaining, with the first computing system, sensor data from the given fluid-handling device among the plurality of fluid-handling devices and confirming, with the first computing system, that at least some of the translated commands were executed based on the received sensor data.

As explained above in element [1c], claim 25, and claim 26, Gutierrez and Almadi disclose exercising feedback control via a controller of a fluid-handling device. EX1008, 12:27-59, EX1009, 9:54-59. A POSITA would understand that the key benefit of feedback systems is to dynamically determine whether additional inputs or commands are needed based on data. EX1005 ¶245. A POSITA would understand that the feedback control of Gutierrez and Almadi are used to determine whether the translated commands were executed based on received sensor data. *Id.*

Thus, Claim 28 is rendered obvious based on the cited references.

Claim 29: The medium of claim 1, the operations comprising: steps for exercising remote control of the fluid-handling devices.

A POSITA would find it obvious that issuing commands to remote systems, such as fluid-handling devices, would include one or more steps for exercising remote control of the fluid-handling devices. EX1005 ¶247. As explained above in element [1c], Gutierrez and Almadi disclose exercising remote control of fluid-handling devices. EX1008, 1:45-49, 12:27-59; 25:26-37, EX1009, 2:48-60, 10:50-55 (“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 ... and/or a command to inject a specified amount of chemical additive into the pipeline 205”).

Thus, Claim 29 is rendered obvious based on the cited references.

Claim 30:

Petitioner incorporates by reference the explanation of claim 1 in view of Kahn and Gutierrez in further view of Almadi and SCADA. A POSITA would understand that the limitations of claim 1 and claim 30 are identical as to subject matter, only differing in claim type. EX1005 ¶249. See EX1003 for a labeled version of claim 30.

Thus, Claim 30 is rendered obvious based on Kahn and Gutierrez in further view of Almadi and SCADA. If the Board will not consider the explanations referenced against Claim 30, Petitioner requests the opportunity to amend to include an element-by-element citation.

Claim 31: A system, comprising:

Petitioner incorporates by reference the explanation of claim 1 in view of Kahn and Gutierrez in further view of Almadi and SCADA. A POSITA would understand that the limitations of claim 1 and claim 31 are substantially identical as to subject matter. EX1005 ¶251.

Limitations [31a], [31b], [31c], [31d] are explained above in [1a].

Limitation [31d1] is explained above in [1a1].

Limitation [31d2] is explained above in [1a2].

Limitation [31e] is explained above in [1b].

Limitation [31f] is explained above in [1c].

Limitation [31g] is explained above in [1d].

Limitation [31h] is explained above in [1e]

Limitation [31i] is explained above in [1f]

See EX1003 for a labeled version of claim 31.

Thus, to avoid unnecessary repetition, petitioner has provided explanations to those limitations not found in claim 1 and citations to those that are consistent with claim 1. If the Board will not consider the explanations referenced against Claim 31, Petitioner requests the opportunity to amend to include an element-by-element citation.

[31j] other user accounts in the data store indicate other users are not authorized to issue commands to the first computing system;

The claim element is obvious as explained above in element [1f] and claim 2.

[31k] the other user accounts indicate the other users are authorized to view reports from the first computing system;

The claim element is obvious as explained above in claim 2.

[31l] the site data stored in the report buffer comprises a sensor measurement of the fluid handling site and an alarm;

The claim element is obvious as explained above in element [1e].

[31m] the site data is obtained while network access to the remote command center server is intermittently ceased, and wherein sending the site data occurs after network access to the remote command center server is intermittently ceased;

The claim element is obvious as explained above in element [1f] and claim 9.

[31n] translating abstracts details of site-specific implementation of the first computing system; a given command among the plurality of commands is configured to instruct the given fluid-handling device to adjust to attain another target state; and

The claim element is obvious as explained above in claim 20.

[31o] the operations further comprise:

[31o1] translating the given command to produce another translated command and sending the other translated command to the given fluid-handling device;

This claim element is disclosed by Gutierrez and Almadi as explained above in elements [1c] and [1d] in combination to Gutierrez and Almadi's feed-forward disclosure as in element [23a].

[31o2] obtaining sensor data characterizing a response of the given fluid-handling device to the other translated command; and

This claim element is disclosed by Gutierrez and Almadi as explained above in elements [1e] in combination to Gutierrez and Almadi's feed-forward disclosure as in element [23a].

[31o3] determining, by the first computing system, to send a further command to the given fluid-handling device to make a further adjustment based on the sensor data characterizing the response.

A POSITA would understand that this claim element is disclosed by Gutierrez and Almadi as explained in element [23a], as a POSITA would understand that the

key feature of a feed-forward system is to make adjustments based on data, including additional adjustments if not initially within a defined parameter. EX1005 ¶260.

Thus, Claim 31 is rendered obvious based on Kahn and Gutierrez in further view of Almadi and SCADA.

**X. GROUND 3: CLAIMS 2, 11, 14, and 31 LACK WRITTEN
DESCRIPTION SUPPORT**

As discussed above in Section IV, the '557 application—i.e., the Pre-AIA specification—fails to provide adequate written description support for claims 2, 11, 14, and 31 of the '184 patent. Each of these claims introduces subject matter that is either entirely absent from the specification or presented only in generic or incomplete terms that would not convey possession of the full scope of the claimed invention to a person of ordinary skill in the art (“POSITA”). EX1005 ¶262. For example, claim 2 requires user-level permission granularity that is not described in the '557 application beyond general account-level access, while claim 11 recites a “water handling facility” that is never mentioned outside of petroleum-based contexts. Similarly, claim 14 introduces control logic based on a “rate of change” in fluid level—an analytical mechanism not disclosed or suggested anywhere in the specification. The written description requirement demands that the specification clearly convey to a POSITA that the inventor was in possession of the full scope of

the claimed subject matter as of the filing date—not merely that such functionality might later be derivable or obvious. *LizardTech*, 424 F.3d at 1345; *see also Lockwood*, 107 F.3d at 1572.

Moreover, as detailed in Section III, the '184 patent shares a common specification with each of its asserted priority documents, including the '557 application. Accordingly, the deficiencies identified in the '557 application are not remedied elsewhere in the chain of priority. Because the written description support for the challenged claims is lacking in all of the '184 patent's parent specifications, the analysis in Section IV applies equally to this ground. EX1005 ¶263. Petitioner therefore respectfully requests that the Board incorporate by reference the arguments and evidentiary support provided in Section IV into Ground 3 with respect to claims 2, 11, 14, and 31.

XI. SECONDARY CONSIDERATIONS

Although secondary considerations should be taken into account, they do not control the obviousness conclusion. *Newell Cos., Inc. v. Kenney Mfg. Co.*, 864 F.2d 757, 768 (Fed. Cir. 1988). Where a strong *prima facie* obviousness showing exists, as here, secondary considerations may not dislodge the primary conclusion of obviousness. *See, e.g., Leapfrog Enters. Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157,

1162 (Fed. Cir. 2007). Petitioner is not aware of any relevant secondary considerations.

XII. CONCLUSION

Claims 1-31 of the '184 Patent are unpatentable for the reasons set forth above. The Petition demonstrates that it is more likely than not that at least one of the challenged claims is unpatentable. Post-grant review of claims 1-31 is accordingly requested.

CERTIFICATION OF COMPLIANCE WITH TYPE-VOLUME LIMITS

This Petition includes 17,728 words, as counted by Microsoft Word, and is therefore in compliance with the 18,700-word limit established by 37 C.F.R. § 42.24(a)(1)(i). Accordingly, pursuant to 37 C.F.R. § 42.24(d), lead counsel for the Petitioner hereby certifies that this Petition complies with the type-volume limits established for a petition requesting PGR.

Dated: July 10, 2025

Respectfully Submitted,

/ Robert D. Katz /

Robert D. Katz (Reg. No. 60,704)

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§ 42.6(4) and 42.105, lead counsel for Petitioners hereby certifies that on July 10, 2025, copies of this Petition, Power of Attorney, and all supporting exhibits were sent via the United States Postal Service Priority Mail to the correspondence address of record for the '184 Patent:

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A courtesy copy of this Petition and supporting exhibits was also served via email on Patent Owner's counsel of record in the district court litigation.

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