

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

THE INTEGRATION GROUP OF AMERICAS,
Petitioner

v.

SITEPRO, INC.,
Patent Owner

Case No. IPR 2024-00742

U.S. Patent No. 11,294,403

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 11,294,403

TABLE OF CONTENTS

PETITIONER’S EXHIBIT LIST	iv
I. INTRODUCTION	1
II. Mandatory Notices.....	1
A. Real Parties-in-Interest (37 C.F.R. § 42.8(b)(1))	1
B. Related Matters (37 C.F.R. § 42.8(b)(2)).....	1
C. Counsel (37 C.F.R. § 42.8(b)(3)) and Service Information (37 C.F.R. § 42.8(b)(3)-(4))	2
III. Certification and Fees.....	2
IV. Background.....	3
V. The Alleged Invention of the ‘403 Patent	3
A. Summary of Prosecution History (Ex. 1004).....	4
VI. Overview of the Prior Art.....	5
A. Kahn (Ex 1005)	5
B. Almadi (Ex. 1006).....	5
C. Gutierrez (Ex. 1007).....	6
VII. CLAIM CONSTRUCTION	6
VIII. GROUNDS FOR PETITION.....	7
A. Ground 1: Kahn Anticipates Claims 1-2, 4-5, 7	7
1. Claim 1	7
2. Claim 2	17
3. Claim 4	19
4. Claim 5	21
5. Claim 7	22
B. Ground 2: Kahn in view of Almadi and Gutierrez renders obvious Claims 1-3, 6, 8-23, and 25-30	23
2. Claim 1	25
3. Claim 2	37
4. Claim 3	39

5. Claim 6	41
6. Claim 8	42
7. Claim 9	43
8. Claim 10	45
9. Claim 11	46
10. Claim 12	47
11. Claim 13	48
12. Claim 14	49
13. Claim 15	50
14. Claim 16	52
15. Claim 17	52
16. Claim 18	54
17. Claim 19	55
18. Claim 20	56
19. Claim 21	57
20. Claim 22	57
21. Claim 23	59
22. Claim 25	60
23. Claim 26	62
24. Claim 27	64
25. Claim 28	66
26. Claim 29	68
27. Claim 30	69
C. The Board Should Not Discretionarily Deny Institution	70
1. 35 U.S.C. §314(a) Analysis	70
2. 35 U.S.C. §325(d) Analysis.	71
IX. CONCLUSION	72
U.S. PATENT NO. 11,294,403 – LISTING OF CHALLENGED CLAIMS	73
<u>CERTIFICATION OF COMPLIANCE WITH TYPE-VOLUME LIMITS ...</u>	<u>80</u>

PETITIONER'S EXHIBIT LIST

<u>EXHIBIT</u>	<u>DESCRIPTION</u>
Ex. 1001	U.S. Patent No. 11,294,403
Ex. 1002	Declaration of Dr. Gary Wooley
Ex. 1003	Curriculum Vitae of Wooley
Ex. 1004	File Wrapper for U.S. Patent No. 11,294,403
Ex. 1005	U.S. Patent No. 7,424,399 to Kahn
Ex. 1006	U.S. Patent No. 8,667,091 to Almadi
Ex. 1007	U.S. Patent No. 9,709,995 to Gutierrez
Ex. 1008	Claim Construction Order (Dkt. 93)

I. INTRODUCTION

Petitioner requests *Inter Partes* Review (“IPR”) of claims 1-23, and 25-30 (the “Challenged Claims”) of U.S. Patent No. 11,294,403 (the “‘403 Patent”).

This petition (IPR 2024-00742) is part of a set of **seven** petitions, including IPR 2024-00738, IPR 2024-00739, IPR 2024-00741, IPR 2024-00737, IPR 2024-00724, and IPR 2024-00740, which challenge claims of U.S. Patent Nos. 9,342,078 (the “‘078 Patent”); 9,898,014 (the “‘014 Patent”); 10,488,871 (the “‘871 Patent”); 11,175,680 (the “‘680 Patent”); 8,649,909 (the “‘909 Patent”) and 11,726,504 (“the ‘504 Patent”) (collectively, with the ‘403 Patent, the “Challenged Patents”) respectively. Petitioner requests that the PTAB combine the schedule, discovery, and hearing of these seven IPRs.

II. MANDATORY NOTICES

A. Real Parties-in-Interest (37 C.F.R. § 42.8(b)(1))

The real party-in-interest is The Integration Group of Americas, Inc. (“Petitioner”).

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

The ‘403 Patent is related to a district court litigation pending in the United States District Court for the Western District of Texas. SitePro, Inc. (“Patent Owner”) asserted the ‘909 Patent, ‘504 Patent, ‘078 Patent, ‘014 Patent, ‘871 Patent, ‘680 Patent, and ‘403 Patent against Petitioner and the WaterBridge Entities in

SitePro, Inc. v. WaterBridge Resources, LLC, WaterBridge Operation, LLC, WaterBridge Holdings, LLC, WaterBridge Management, Inc., and The Integration Group of Americas, 6:23-cv-00115-ADA-DTG (W.D. Tex.).

C. Counsel (37 C.F.R. § 42.8(b)(3)) and Service Information (37 C.F.R. § 42.8(b)(3)-(4))

Petitioner designates Winston O. Huff (Reg. No. 51,825) as lead counsel for this matter and designates Jamil N. Alibhai (*pro hac vice* forthcoming) and Chad Ray (Reg. No. 68,170) as backup counsel for this matter.

Postal mailings and hand-deliveries for lead and backup counsel should be addressed to: Winston O. Huff, Munsch Hardt Kopf & Harr, 500 N. Akard, Suite 4000, Dallas, TX 75201 (Telephone: 214.855.7500; Fax: 214.855.7584).

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

III. CERTIFICATION AND FEES

Petitioner certifies that the ‘403 Patent is available for IPR and that the Petitioner is not barred or estopped from requesting *inter partes* review of Claims 1-23, and 25-30 of the ‘403 Patent identified in this Petition. Any additional fees for this IPR may be charged to Deposit Account No. DA505990.

IV. BACKGROUND

The Challenged Patents relate to the remote operation of fluid-handling devices. In the oil and gas industry, fluid handling systems direct, measure, and maintain the flow of fluids—liquid chemicals or condensed gases—across a manufacturing plant or factory. Ex. 1001, 1:37-47. Because of the potential hazards posed by the fluids they manage, where possible, industrial oil and gas producers manage operations remotely to keep personnel out of harm’s way. To enhance operational performance and improve worker safety, the oil and gas industry long ago adopted technologies for remote monitoring and control of fluid handling systems. *See generally*, Exs. 1005, 1007.

The typical operation of industrial fluid handling systems places sensor and actuator functions on-site, supported by a remote controller that receives information from the sensors and transmits instructions to the actuators. *See generally*, Exs. 1005, 1007.

V. THE ALLEGED INVENTION OF THE ‘403 PATENT

The ‘403 Patent, entitled “Remote Control of Fluid-Handling Devices,” describes a system, comprising: a first computer system disposed at a first fluid handling site, the first fluid handling site comprising a first pump, a first valve, and a first tank that handles a first fluid, the first tank having a first fluid-level sensor with which the first computer system is configured to communicate to obtain a level

of the first fluid in the first tank, and the first computer system being configured to provide remote control of the first pump or the first valve. The system further includes a server system that receives a first fluid level sensed by the fluid-level sensor; obtains credentials from a first client computing device; and determines that a user of the first client computing device is authorized to interact with the first fluid handling site. After the determination, providing, a first command to change a state of the first pump; and changing the state of the first pump to a sequence of different target states that change over time. Ex. 1001, Abstract.

A. Summary of Prosecution History (Ex. 1004)

The application resulting in the '403 Patent was filed on October 28, 2021. The present application is a continuation of U.S. Patent Application No. 16/656,319 filed on October 17, 2019, U.S. Patent Application No. 16/656,319 is a continuation of U.S. Patent Application No. 15/867,077 filed on January 10, 2018, which is a continuation of U.S. Patent Application No. 14/984,422 filed on December 30, 2015, which is a continuation of U.S. Patent Application No. 14/147,190, issued as U.S. Patent 9,342,078, filed on January 3, 2014, which is a continuation of U.S. Patent Application No. 13/708,557, issued as U.S. Patent 8,649,909, filed on December 7, 2012. Each of the above patents and patent applications are titled Remote Control of Fluid-Handling Devices. On January 18, 2022, the Examiner mailed its Notice of Allowability which allowed Claims 1-30. Ex. 1004, at 891-900.

VI. OVERVIEW OF THE PRIOR ART

The challenged claims are anticipated by or are obvious over the following prior art.

A. Kahn (Ex 1005)

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, and is prior art under pre-AIA § 102(a).

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. Ex. 1005.

B. Almadi (Ex. 1006)

U.S. Patent No. 8,667,091 to Almadi was filed on July 22, 2011, published April 5, 2012, and claims priority to Provisional Patent Application No. 61/367,207 filed on July 25, 2010. Almadi issued March 4, 2014. Almadi is prior art under pre-AIA § 102(a).

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. Ex. 1006.

C. Gutierrez (Ex. 1007)

U.S. Patent No. 9,709,995 to Gutierrez was filed on December 22, 2014 and published on 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 pre-AIA §§ 102(a) and 102(e).

Gutierrez teaches a chemical injection system that includes a pump connected to a chemical reservoir and pipeline that can all be controlled using a local motor controller connected to a central controller and remote computing device. Ex. 1007, Abstract.

VII. CLAIM CONSTRUCTION

In IPR proceedings, the Board construes claims terms “using the same claim construction standard that would be used to construe the claim in a civil action” 37 C.F.R. § 42.100(b). The Board only construes the claims when necessary to resolve the underlying controversy. *Toyota Motor Corp. v. Cellport Systems, Inc.*, IPR2015-00633, Paper 11 at 16 (PTAB Aug. 14, 2015).

Petitioner notes that the Western District of Texas has construed certain claim terms. *See* Ex. 100. But Petitioners respectfully submit that 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.

VIII. GROUNDS FOR PETITION

A. Ground 1: Kahn Anticipates Claims 1-2, 4-5, 7

Independent claims 1 and dependent claims 2, 4-5 and 7 are anticipated by U.S. Patent No. 7,424,399 (“Kahn”) under 35 U.S.C. § 102, or would be obvious to a POSITA in view of Kahn under 35 U.S.C. § 103.

1. Claim 1

a. [1.1] A fluid-processing system, comprising:

To the extent that the Board finds that the preamble is limiting, Kahn discloses a method. Ex. 1005, 1:28-36, Claims 1-29, Ex. 1002, ¶ 37 (a POSITA would recognize disclosure).

Therefore, Kahn discloses a method.

b. [1.2] a first computer system disposed at a first fluid handling site, the first fluid handling site comprising a first pump, a first valve, and a first tank that handle a first fluid, the first tank having a first fluid-level sensor with which the first computer system is configured to communicate to obtain a level of the first fluid in the first tank, and the first computer system being configured to provide remote control of the first pump or the first valve; and

Kahn discloses a system with Sensor unit 110 that includes multiple sensors (e.g., first sensor 111A and second sensor 111B) a communication unit that connects via a network to centralized data collection points. Ex. 1005, 5:62-6:16, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A,

FIG. 3. Kahn discloses Sensor unit 110 having a processor that connects via a network to centralized data collection points. *Id.*

A hallmark of the distribution system in Kahn is the ability to identify the location of and communicate with the system's individual sensor units. Ex. 1005, 4:12-25, 11:2-15; *see also id.*, 10:8-13; 23:51-62. Kahn discloses that the production sites are unique, disclosing separate control systems for designated location, i.e. fluid handling site. Ex. 1005, 16:40-18:52. Sensor unit 110 can be located at any desired point in a fluid distribution system. Ex. 1005, 11:2-15.

Kahn discloses that the fluid-handling site includes a first pump, a first filter, and a first valve. Ex. 1005, 8:6-7, 8:19-30; 10:62-67, 11:2-5, 11:18-13:58, 13:34-36, 15:50-16:5, 16:56, 20:64-67, 21:1, FIG. 1C-FIG. 1D., FIG. 1F, FIG. 1G.

Kahn discloses a first fluid tank disposed at the first fluid-handling site through its disclosure of distribution systems that include fluids in tanks, including reservoirs, wells, large pools, and water treatment plants. Ex. 1005, 1:46-50, 2:1, 4:12-32.

Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid-handling facilities. Ex. 1005, 8:3-11, 8:19-21, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. Kahn discloses first sensor having actuators controlling valves and pumps. *Id.*

Kahn discloses that sensor units 110 detect breakage of a pipe, i.e. level of a first fluid, based on reduced water pressure in the pipe. Ex. 1005, 10:8-16. Kahn discloses that its method can be applied to monitor any fluid (gas or liquid) including those present in a distribution system, reservoir or feed source in need of monitoring. Ex. 1005, 4:4-7, 4:12-48.

A POSITA would understand that Kahn discloses receiving information comprising fluid level properties from one or more sensors disposed at a first fluid-handling site, the fluid-handling site through its disclosure of a computer system that receives first fluid test data from sensors. Ex. 1002 ¶¶ 39-40.

A POSITA would also understand that Kahn comprising one or more fluid-handling devices comprising one or more of a first pump, a first filter, and a first valve through its disclosure valves, filters, and a pump. *Id.*

Finally, A POSITA would understand that the system disclosed in Kahn includes a tank through its disclosure of distribution systems that includes reservoirs, water treatment plants, and contain water, all of which includes tanks. *Id.* Thus Kahn discloses this claim element.

- c. **[1.3] a server system remote from the fluid handling site, wherein the server system has memory storing instructions that, when executed, effectuate operations comprising:**

Kahn discloses a data collection network with centralized data collection points. Ex. 1005, 8:51-59, 9:53-58, 17:18-30, 18:48-52, 63-65, 19:5-23, 19:58-65,

23:27-31. Kahn discloses that the centralized data collection point is a server. Ex. 1005, 10:52-61, 23:27-31. Kahn discloses that servers are computers, i.e., include processors. Ex. 1005, 32:58-63. Kahn discloses that processing unit is a generic term meaning one or more processing units programmed at a software, firmware, or hardware level, including, ASIC (application-specific integrated circuit). Ex. 1005, 4:49-53. Kahn discloses that the server system has memory storing instructions for its operation. Ex. 1005, 8:54-59, 33:4-14, 33:15-21.

A POSITA would understand from the above disclosure of a central communication device, e.g., a server, that Kahn discloses a server system wherein the server system has memory storing instructions. Ex. 1002, ¶ 42. Thus, Kahn discloses this claim element.

d. [1.4] receiving, with the server system, from the first computer, via a network, a first fluid level sensed by the fluid-level sensor;

Kahn discloses a data collection network with centralized data collection points. Ex. 1005, 8:51-59, 9:53-58, 17:18-30, 18:48-52, 63-65, 19:5-23, 19:58-65, 23:27-31.

Kahn discloses that the centralized data collection points receive sensor information via a network from a facility interface module, Sensor unit 110. Ex. 1005, 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3.

Kahn discloses that sensor units 110 detect breakage of a pipe, for example the level of a first fluid, based on reduced water pressure in the pipe. Ex. 1005, 10:8-16. Kahn discloses that its method can be applied to monitor any fluid (gas or liquid) including those present in a distribution system, reservoir, or feed source in need of monitoring. Ex. 1005, 4:4-7, 4:12-48.

A POSITA would understand from the above disclosure and figures Kahn discloses receiving, with the server system, from the first computer system, via a network, a level associated with the first fluid sensed by a first sensor of one or more sensors. Ex. 1002, ¶ 44. Thus, Kahn discloses this claim element.

e. [1.5] obtaining, with the server system, credentials from a first client computing device;

Kahn discloses that any suitable technique can be used to verify that the identity of a present user is an authorized user of the device. Ex. 1005, 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. Ex. 1005, 25:48-51. Finally, Kahn discloses that an authorized Account B (second user 5 b) second user can be authorized by a second entity. Ex. 1005, 25:55-58.

A POSITA would understand from Kahn’s disclosure of authenticated accounts and suitable techniques for verification of the identity of present users as

authorized users that Kahn discloses that credentials can be obtained from a first client computer. Ex. 1002, ¶ 45. This Kahn discloses this claim element.

- f. **[1.6] determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site, wherein the server system hosts data about other fluid handling sites the user is not authorized to interact;**

Kahn discloses determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site through its disclosure of that an authorized Account A (first user 5a) can be authorized by a first entity. Ex. 1005, 25:48-26:67. Kahn further discloses that an authorized Account B (second user 5 b) second user can be authorized by a second entity. Ex. 1005, 25:55-58. Kahn discloses that “separate entities provide their fluid test data to the computer system 4 controlled by the service provider (an entity different from the first and second entities), and the first and second entities can control access to data generated by their respective sensors.” Ex. 1005, 25:63-66.

Kahn discloses that server system hosts data about other fluid handling sites the user is not authorized to interact through its disclosure that only fluid test measurements which the user is authorized to see are displayed. Ex. 1005, 28:43-45, 25:48-26:67, *see also id.*, 2:50-60, 19:58-65, 21:50-22:44, 22:62-23:50, 24:44-25:2, 25:5-12, 27:39-28:7.

A POSITA would recognize that Kahn discloses determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site from its disclosure of multiple-user accounts which only permits access to certain aspects of test data and the computer system. Ex. 1002, ¶ 46.

A POSITA would further understand that the server system hosts data about other fluid handling sites the user is not authorized to interact. *Id.* Thus, Kahn discloses this claim element.

- g. [1.7] after the determination, providing, with the server system, via the network, information by which a first client computing device presents a user interface indicating the first fluid level, the first client computing device being remote from the server system and the first computer system;**

Kahn discloses a system that includes a remote computing system with a processor displaying a graphical user interface (GUI) showing data from the system's sensors. Ex. 1005, Abstract, 1:28-36, 2:50-3:2, 25:5-25, 25:48-26:19, 28:8-25, 29:5-37. Kahn discloses that Sensor unit 110 connects via a network to centralized data collection points. Ex. 1005, 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn discloses that the centralized data collection points are a server. Ex. 1005, 10:54-56, 23:29-30. Kahn discloses that users log into the system on respective user computing devices. Ex. 1005, 2:50-45, 25:5-12, 28:35-37, 30:45-49. Kahn discloses a variety

of users and entities having different levels of authorized access. Ex. 1005, 25:48-26:67, *see also id.*, 2:50-60, 19:58-65, 21:50-22:44, 22:62-23:50, 24:44-25:2, 25:5-12, 27:39-28:7.

Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid-handling facilities, to facilitate the measurement of data requested through the graphical user interface. Ex. 1005, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32.

Kahn discloses that sensor units 110 detect breakage of a pipe, i.e., level of a first fluid, based on reduced water pressure in the pipe. Ex. 1005, 10:8-16. Kahn discloses that its method can be applied to monitor any fluid (gas or liquid) including those present in a distribution system, reservoir or feed source in need of monitoring. Ex. 1005, 4:4-7, 4:12-48.

The sensor outputs are presented to the user through the GUI on the remote user's computer. Ex. 1005, 2:50-54, 2:61-65, 25:5-12, 26:3-7, Claim 36, FIG. 5, FIG. 6.

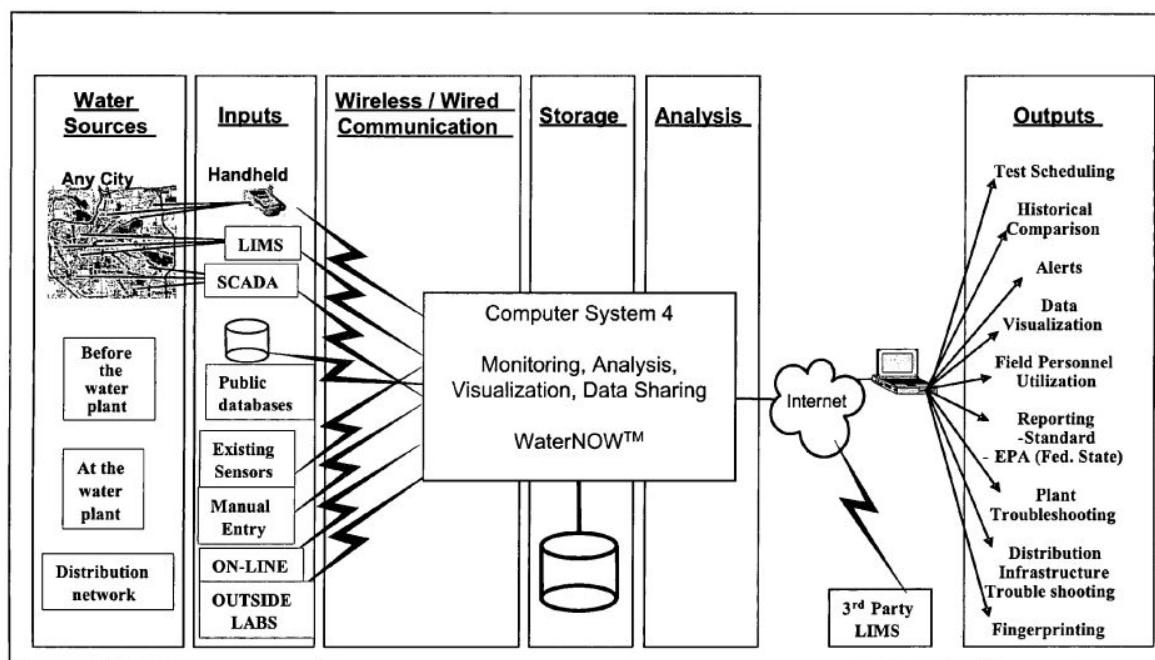


FIG. 6

A POSITA would recognize Kahn discloses a providing, a user interface indicating the first fluid level, the first client computing device being remote from the server system and the first computer system through its disclosure of a graphical user interface for monitoring fluid quality. Ex. 1002, ¶ 47. Thus, Kahn discloses this claim element.

- h. [1.8] receiving, with the server system, from the first client computing device, a first command to change a state of the first pump; and**

Kahn discloses a facility interface module, Sensor unit 110, including a processor that connects via a network to centralized data collection points. Ex. 1005,

5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3.

Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid-handling facilities. Ex. 1005, 8:3-11, 8:21-24, 10:62-67; *see also* Ex. 1005, 14:35-15:2, 15:62-16:32, 34:7-12.

A POSITA would recognize from the above disclosure that Kahn discloses receiving, with the server system, from the first client computing device, a first command to change a state of the first fluid-handling device where the command to change a state of the fluid-handling devices is the recalibration solution. Ex. 1002, ¶ 48. Thus, Kahn discloses this claim element..

- i. **[1.9] causing, with the server system, the first computer system disposed at the first fluid handling site to effectuate the command by changing the state of the first pump to a sequence of different target states that change over time**

Kahn discloses a facility interface module, Sensor unit 110, including a processor that connects via a network to centralized data collection points. Ex. 1005, 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3.

Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid-

handling facilities. Ex. 1005, 8:3-11, 8:19-21, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. Kahn discloses first sensor having actuators controlling valves and pumps to manipulate fluid flow. *Id.*

A POSITA would recognize from Kahn's disclosures that Kahn discloses the limitation regarding changing the state of the first pump. Ex. 1002, ¶ 49. Thus, Kahn discloses this claim element.

Claim 1 is anticipated by Kahn, or would be obvious to a POSITA in view of Kahn.

2. Claim 2

Kahn discloses Claim 1 for the reasons discussed above and incorporated herein.

- a. **[2] The system of claim 1, wherein: the first fluid handling site comprises a second pump and a second tank that handle a second fluid, the second tank having a second fluid-level sensor with which the first computer system is configured to communicate to obtain a level of the second fluid in the second tank, and the first computer system being configured to provide remote control of the second pump.**

Kahn discloses the first fluid-handling site, in a contiguous distribution system of pipes and/or systems of reservoirs, channels, pipes and treatment plants. *Id.*, 1:46-50, 2:1, 4:12-32. A hallmark of the system in Kahn is the ability to identify the location of and communicate with the system's sensor units. Ex. 1005, 4:12-25.

Kahn expressly discloses a second, and indeed larger numbers of fluid handling devices for detecting and locating physical events in the distribution system. Ex. 1005, 10:8-13, 23:51-62. Kahn discloses that sensors units can be placed at the shut off valve located at the introduction of water supply into a house, business, industrial site or government site and that they can be placed at each individual faucet or selected faucets where it is likely that the end user 23 might drink water or otherwise consume or cause fluids to be consumed. Ex. 1005, 11:2-15; *see also* Ex. 1005, FIG. 2, 16:67-17:7.

Kahn discloses a system with Sensor unit 110 that includes multiple sensors (e.g., first sensor 111A and second sensor 111B) a communication unit that connects via a network to centralized data collection points. Ex. 1005, 5:62-6:16, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3. Kahn discloses that the centralized data collection points are a server. Ex. 1005, 10:54-56, 23:29-30. Kahn discloses that users log into the system on respective user computing devices. Ex. 1005, 2:50-45, 25:5-12, 28:35-37, 30:45-49.

Kahn discloses each sensor having a pump. Ex. 1005, 8:3-15; *see also id.*, 6:41-43, 7:38-40, 7:67-8:2. Each sensor also includes two valves. Ex. 1005, 8:19-30, FIG. 1C, FIG. 1D. Sensor units 110 include a plurality of additional fluids, including recalibration solution, and reagents. Ex. 1005, 8:3-18, 8:31-34, 8:41-42.

Kahn discloses recalibration fluid or reagent in the form of a replenishing supply, i.e., tracking the level of each for replenishment. Ex. 1005, 8:16-18.

Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid-handling facilities. Ex. 1005, 8:3-11, 8:19-21, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. Kahn discloses first sensor having actuators controlling valves and pumps. *Id.*

Kahn also discloses that the sensor unit 110 is a fluid handling tank. Ex. 1005, 8:19-30, FIG. 1C, FIG. 1D, 15:50-16:5, FIG. 1L; 4:26-27. Sensor unit 110 measures the fluid level of the fluid in the sensor cavity to minimize the potential for fluid leakage. Ex. 1005, 16:2-5.

A POSITA would understand that Kahn discloses this claim element. Ex. 1002, ¶ 50.

Claim 2 is anticipated by Kahn or would be obvious to a POSITA in view of Kahn.

3. Claim 4

Kahn discloses Claim 1 for the reasons discussed above and incorporated herein.

- b. [4] The system of claim 1, wherein: the sequence of different target states that change over time are configured to ramp up or down a speed of the first pump.**

Kahn discloses a facility interface module, sensor unit 110, including a processor that connects via a network to centralized data collection points. Ex. 1005, 5:62-6:2, 9:37-43, 10:18-67, 13:46-52, 17:18-30, 18:40-19:2, 19:5-20:39, 22:12-20, 23:22-50, FIG. 1A, FIG. 3.

Kahn discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid-handling facilities. Ex. 1005, 8:3-11, 8:19-21, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32. Kahn discloses sensors having actuators controlling valves and pumps to change the target states (sensing, recalibrating) over time. *Id.* Data collection can run in real time to continuously, or intermittently, operate. Ex. 1005, 19:24-29. Kahn also discloses shutting down (ramping down) the supply of fluid during the detection of emergency events. Ex. 1005, 10:62-67.

A POSITA would recognize from Kahn's disclosure of changing the fluid by pump that a pump would ramp up and down in speed changing the fluid in the sensor cavity, e.g., the recalibration fluid during calibration. Ex. 1002, ¶¶ 51-52.

A POSITA would recognize from Kahn's disclosure of changing the fluid and injecting by pumps that Kahn discloses this claim element. *Id.*

Claim 4 is anticipated by Kahn or would be obvious to a POSITA in view of Kahn.

4. Claim 5

Kahn discloses Claim 1 for the reasons discussed above and incorporated herein.

- a. **[5] The system of claim 1, wherein: the sequence of different target states that change over time are determined with steps for mitigating shocks to upstream or down-stream fluid-handling devices relative to the first pump.**

Kahn discloses the sequence of different target states that change over time are determined, as discussed above for Claims 1 and 4, and incorporated herein.

Kahn discloses fluid handling devices for detecting, locating, and mitigating physical events in the distribution system. Ex. 1005, 10:8-13 (“Physical events, such as a breakage of a pipe might be detected through a pattern of sensor units 110 . . . reduced water pressure . . . thereby identifying the exact location or proximate location of the breakage.”); 23:51-62; 10:62-67 (“shutting off the supply of fluid upon the detection of emergency events”).

Kahn also discloses that sensor units be placed at multiple locations in water supply. Ex. 1005, 11:2-15; *see also id.*, FIG. 2, 16:67-17:7.

Thus, Kahn discloses this claim element. Claim 5 is anticipated by Kahn or would be obvious to a POSITA in view of Kahn.

5. Claim 7

Kahn discloses Claim 1 for the reasons discussed above and incorporated herein.

- a. **[7] The system of claim 1, wherein: the server system is configured to interface with both a web browser on the client computing device and a special-purpose application executing on the client computing device to present the user interface indicating the first fluid level.**

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. Ex. 1005, 26:3-13. Kahn discloses that the computer system 4 can provide either a hosted environment (e.g., act as an application service provider as known in the art such that Account A needs primarily only a suitable web browser) or a non-hosted environment wherein appropriate software issued by the service provider is run on Account A's computer to access computer system 4. *Id.*

Thus, Kahn discloses this claim element. Claim 7 is anticipated by Kahn or would be obvious to a POSITA in view of Kahn.

B. Ground 2: Kahn in view of Almadi and Gutierrez renders obvious Claims 1-3, 6, 8-23, and 25-30

Independent claims 1 and 30 and dependent claims 2-3, 6, 8-23 and 25-29 are rendered obvious over Kahn in view of U.S. Patent No. 8,887,901 (“Almadi”) under 35 U.S.C. § 103.

1. Motivation to Combine

A POSITA would be motivated to combine Kahn and Almadi. Ex. 1002, ¶ 56. 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 in his declaration, combining Kahn and Almadi or Gutierrez would have been obvious to try because each reference describes similar systems for remote monitoring and control of fluid handling facilities. Ex. 1002, ¶ 56.

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. Ex. 1002, ¶ 56. A POSITA would also recognize that Kahn’s disclosure similarly relates to gas facilities. *Id.*, Ex. 1005, 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. Ex. 1007, 1:26-27, Ex. 1002 ¶ 57. A POSITA would understand that the pipelines and transport systems of Gutierrez would involve multiple operators and site geographically dispersed site locations, each responsible for efficient and safe operation of the fluid handling systems. Ex. 1002, ¶ 57.

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. Ex. 1006, 1:26-27, Ex. 1002, ¶ 58. 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. Ex. 1002, ¶ 58.

A POSITA would have been motivated to combine Kahn and Almadi or Gutierrez 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), which a POSITA would consider when implementing any remote systems disclosed by Kahn. Ex. 1002, ¶ 59. The detailed descriptions of general systems described in Kahn, would have motivated a POSITA to combine the more detailed disclosures of Almadi or Gutierrez to achieve the

efficiency and safety benefits automating fluid handling systems provide across the system. Ex. 1002 ¶ 59.

Combining Kahn and Almadi or Gutierrez would lead to predictable results of the disclosures of a plurality of devise in Kahn with the specific modern oil and gas field automation technologies disclosed in Almadi or Gutierrez. Ex. 1002, ¶ 59. A POSITA would not have difficulty combining Kahn with Almadi or Gutierrez, because these references do not describe alternative systems or methods, but rather the disclosures of Almadi or Gutierrez provide additional detail rather than a different approach to solving problems in the underlying technology addressed by Kahn. *Id.*

2. Claim 1

Kahn discloses Claim 1 for the reasons discussed above and incorporated herein.

b. [1.1] A system, comprising:

To the extent that the Board finds that the preamble is limiting, Almadi discloses a system for remotely controlling a fluid-handling device of an oil well, a petro water disposal or re-injection facility, or a petroleum pumping station.

Almadi discloses that the automation architecture of modern industrial operations, such as that found in modern oil and gas field applications, is enabled at the field-level and process-level by various interconnected devices referred to as

remote subsystems or field devices. Ex. 1006, 1:28-35. These field devices monitor and collect data, such as measurements of fluid pressure, temperature, or flow, reflective of the operations of the automated process. *Id.*

A POSITA would recognize that the system disclosed by Almadi remotely monitors and controls a fluid handling devices at oil wells, water disposal sites, re-injection facilities, or petroleum pumping stations. Ex. 1002, ¶ 60. Therefore, Almadi discloses a system.

- c. **[1.2] a first computer system disposed at a first fluid handling site, the first fluid handling site comprising a first pump, a first valve, and a first tank that handle a first fluid, the first tank having a first fluid-level sensor with which the first computer system is configured to communicate to obtain a level of the first fluid in the first tank, and the first computer system being configured to provide remote control of the first pump or the first valve; and**

Almadi discloses intelligent oilfield systems for oil and gas extraction and handling. Ex. 1006, 11:18-12:59; *see also* Abstract; 1:18-22, 1:28-35. Intelligent field systems include permanent down hole monitoring (“PDHM”) systems, electrical submersible pump (“ESP”) systems, smart well completion (“SWC”) systems, and flow meter systems, and any of the types of Intelligent Equipment Devices (“IED”). Ex. 1006, 12:27-35. Accordingly, the field devices perform sensor and actuator functions, at the process level, supported by a controller or a number of

controllers, at the system level, which receive information from the sensors and transmit information to the actuators. Ex. 1006, 1:41-52.

Almadi discloses that “intelligent field devices” (i.e. remote subsystems 120) include the ability to process data, self-monitor, self-regulate, self-calibrate, or provide early warnings with respect to malfunctions or predictive maintenance. Ex. 1006, 1:18-57, 3:4-9, 12:27-32.

Almadi discloses processing by remote subsystems 120, including a processor. Ex. 1006, 4:6-16, 4:51-57, 6:49-53, 7:3-9, 11:18-21, 18:57. Remote subsystems 120 can also adapted to be programmed so as to communicate with other field devices that a processor is required. Ex. 1006, 12:35-43.

The field devices perform sensor functions to sense operational information and variables such as temperature, pressure, pH, flow rate, tank level, and deliver that information to the system-level controller devices. Ex. 1006, 1:41-45, 12:27-32, 25:11-25.

Almadi further discloses commands used by the local controller to drive the fluid handling device to a particular target state, e.g. “field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps.” Ex. 1006, 1:45-49, 12:27-59; *see also id.*, 25:26-37.

Almadi discloses the first tank having a first fluid-level sensor with which the first computer system is configured to communicate to obtain a level of the first fluid in the first tank through its disclosure of a plant-wide model 704, that defines a mass balancing loop for the plant based on crude switches, operation scenarios, and open and closed transactions (for example, when there is a change in the level status of tanks or the operation of pumps). Ex. 1006, 25:11-17.

Almadi discloses the first valve through its disclosure of Intelligent field systems include PDHM systems, ESP systems, SWC systems, and flow meter systems, and any of the types of IED. Ex. 1006, 1:45-49, 12:27-59, Claim 3.

Almadi discloses detection and analysis of key performance indicators, including loss identification, oil accounting, performance monitoring, loss management, i.e., for calculating an amount of losses incurred the unit or plant level. Ex. 1006, 27:11-23; *see also id.*, 27:61-28:10 (“Reports may be generated, for example, according to yield and loss accounting (i.e., charge/feed balancing); environmental compliance of drainage, tank vaporization, and percentage of unaccountable or accountable losses; performance monitoring; and data/model analysis”); 25:38-26:20 (discussing data libraries such as “Standard Volume,” “Mass and Heat Balance Optimization Calculations,” and “Pressure and Molecule Balance”).

A POSITA would understand that Almadi discloses a first computer system that is configured to communicate to obtain a tank fluid level and provide remote control of a pump or valve of the '403 Patent through its disclosure of remote subsystems 120, intelligent field devices which include tank level sensors that can detect changing the level status of tanks. Ex. 1002, ¶ 66. Thus, Almadi discloses this claim element.

- d. [1.3] a server system remote from the fluid handling site, wherein the server system has memory storing instructions that, when executed, effectuate operations comprising:**

Almadi discloses integrated node 100, as illustrated in FIGS. 1A-1B, having a central processing unit 105 and a memory 160 to allow a remote host 110 to interface with a plurality of remote subsystems 120. Ex. 1006, 11:18-21. Integrated node 100 is a programmable logic controller ("PLC"), meaning any PLC, remote terminal unit ("RTU"), computer, **server**, system, node, or unit. Ex. 1006, 11:18-28.

Almadi discloses that the integrated node 100 collects data from remote subsystems 120. Ex. 1006, 11:51-55; 13:47-14:9. Integrated node 100 has memory storing instructions that, when executed, effectuate operations. Ex. 1006, 4:55-57, 6:49-53, 17:42-49, 18:54-60.

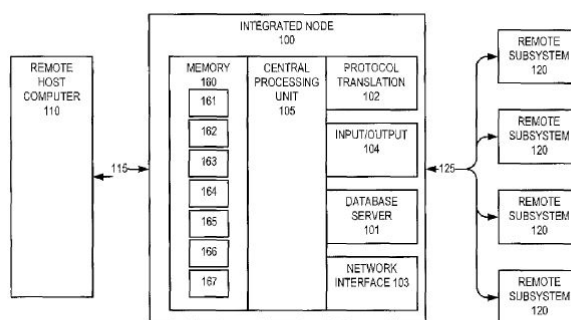


FIG. 1A

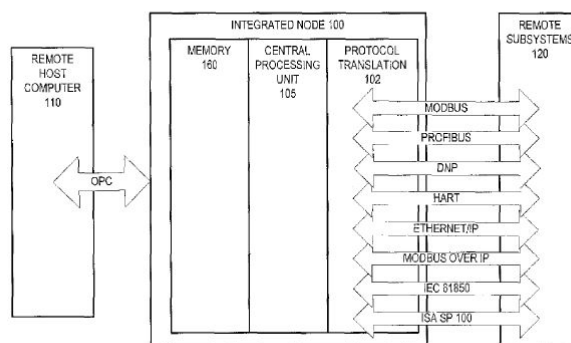


FIG. 1B

Ex. 1006, FIGS 1A, 1B.

A POSITA would understand that Almadi discloses the a server system remote from the fluid handling site, wherein the server system has memory storing instructions that, when executed, effectuate operations comprising of the '403 Patent through its disclosure of the integrated node 100 and Figures 1A, 1B. Ex. 1002, ¶ 68. Thus, Almadi discloses this claim element.

- e. [1.4] receiving, with the server system, from the first computer, via a network, a first fluid level sensed by the fluid-level sensor;

The field devices perform sensor functions to sense operational information and variables such as temperature, pressure, pH, flow rate, tank level, and deliver

that information to the system-level controller devices. Ex. 1006, 1:41-45, 25:11-25. Almadi discloses the first tank having a first fluid-level sensor with which the first computer system is configured to communicate to obtain a level of the first fluid in the first tank through its disclosure of a plant-wide model 704, that defines a mass balancing loop for the plant based on crude switches, operation scenarios, and open and closed transactions (for example, when there is a change in the level status of tanks or the operation of pumps). Ex. 1006, 25:11-17; see also 27:11-.

Almadi discloses that the integrated node 100 collects data from remote subsystems 120. Ex. 1006, 11:51-55; 13:47-14:9. The level status of the tank is sent to the remote subsystems where it is then transmitted to the server. Ex. 1006, Figures 1A, 1B.

Almadi also discloses a first fluid level sensed by the fluid-level sensor, as discussed above for element 1.3, and incorporated herein by reference.

A POSITA would understand that Almadi discloses receiving a first fluid level sensed by the fluid level sensor of the '403 Patent. Ex. 1002, ¶ 70.

Thus, Almadi discloses this claim element.

f. [1.5] obtaining, with the server system, credentials from a first client computing device;

Almadi discloses obtaining, with the server system, credentials from a first client computing device through its disclosure of an embodiment of an integrated

node 100 can be shown, as illustrated in Figures 1A, 1B, having a central processing unit 105 and a memory 160 to allow a remote host 110 to interface with a plurality of remote subsystems 120. Ex. 1006, 11:18-21.

Almadi discloses a system intended to serve in various networking operating environments, including, for example, intelligent fields for oil and gas, substations/power grid, and remote security, and can be utilized and can be extended for enterprise applications. Ex. 1006, 12:48-59, 13:20-25. Almadi further discloses “[t]hose having skill in the art will appreciate various techniques to ensure no file access violations during the process of accessing the file, for example, by the remote host 300.” Ex. 1006, 16:65-67.

A POSITA would understand that Almadi discloses the obtaining credentials from a first client computing device of the ‘403 Patent through its disclosure of the integration node’s application in secure enterprise network environments ensuring that no file access violations occur. Ex. 1002, ¶ 71. Thus, Almadi discloses this claim element.

- g. [1.6] determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site, wherein the server system hosts data about other fluid handling sites the user is not authorized to interact;**

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. Ex. 1006, 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. Ex. 1006, 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.” Ex. 1006, 16:65-67.

A POSITA would understand that Almadi discloses determining whether a user is authorized to interact with the fluid-handling device of the ‘403 Patent through its disclosure of the integrated node 100 and the various techniques to ensure no file access violations during the process of accessing the file by the remote host. Ex. 1002, ¶ 72. Thus, Almadi discloses this element.

- h. **[1.7] after the determination, providing, with the server system, via the network, information by which a first client computing device presents a user interface indicating the first fluid level, the first client computing device being remote from the server system and the first computer system;**

Almadi discloses the first client computing device being remote from the server system and the first computer system through its disclosure that the DRM 166 can output any of the measurements or values by storing to a storage medium such as memory 160 or database 101, by transmitting to remote host computer 110, or by transmitting to any other computer or interface in communication with the integrated node 100 over the input/output unit, such as the local interface 190 or any computer terminal having a graphical user interface. Ex. 1006, 27:2-11.

More specifically, Almadi discloses the configuration interface 190, an object-oriented **graphical user interface** (“GUI”) having a built-in library of objects required to develop unit models and plant-wide models. Ex. 1006, 24:32-53. Almadi discloses that the configuration interface identifies routing and process streams between plants and different numbers and types of process units, such as tanks, crude switches, and other process units. *Id.* The configuration interface also allows a user to assign to a model various types of data, including reconciled readings, key performance indicators, confidence/accuracy factors, and unreconciled data (real-time and historical). *Id.* The model is also configured for any group of units and can define a mass balancing loop for the plant based on crude switches, operation

scenarios, and open and closed transactions (for example, when there is a change in the level status of tanks or the operation of pumps). Ex. 1006, 25:11-17.

A POSITA would understand that Almadi's user interface indicates the first fluid level. Ex. 1002, ¶ 74. Thus, Almadi discloses this claim element.

- i. **[1.8] receiving, with the server system, from the first client computing device, a first command to change a state of the first pump; and**

Almadi discloses that integrated node 100 supports a local programming interface over a computer, such as through computer terminals having one or more input devices and one or more display devices that are accessible to a human user by using the remote host computer 110. Ex. 1006, 11:18-21, 12:10-15. The remote host 110 can be any type of remote host computer for management or hosting of process automation functions, for example, a SCADA host. Ex. 1006, 12:55-59.

Almadi discloses that the PLC or RTU functions of the integrated node 100 enable data processing in the integrated node 100 and also enable data collection from, and control of, the plurality of remote subsystems 120. Ex. 1006, 11:51-63; 22:32-36 (“The DVRM 164 enhances the accuracy of data acquired by the integrated node 100, which also enhances the effectiveness of the integrated node 100 in controlling the plurality of remote subsystems 120.”).

Almadi discloses commands used by the local controller to drive the fluid handling device to a particular target state, e.g. “field devices can perform actuator

functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps.” Ex. 1006, 1:45-49, 12:27-59; *see also* Ex. 1006, 25:26-37 (“switching a pump off if the flow is below a certain limit or activating some bounds or streams based on some readings/conditions”).

A POSITA would understand from Almadi that a user command is received to change a state of the first pump. Ex. 1002, ¶ 76. Thus, Almadi discloses this claim element.

- j. **[1.9] causing, with the server system, the first computer system disposed at the first fluid handling site to effectuate the command by changing the state of the first pump to a sequence of different target states that change over time.**

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.” Ex. 1006, 1:45-49, 12:27-59; *see also* Ex. 1006, 25:26-37.

A POSITA would understand that changing the state of the first pump of the ‘403 Patent is disclosed by Almadi’s disclosure of changing the state of the pump based on readings/conditions including switching a pump off (from on) if the flow is below a certain limit. Ex. 1002 ¶ 78. Thus, Almadi discloses this claim element.

Claim 1 would be obvious to a POSITA over Kahn in view of Almadi.

3. Claim 2

Almadi and Kahn disclose Claim 1 for the reasons discussed above and incorporated herein.

- a. **[2] The system of claim 1, wherein: the first fluid handling site comprises a second pump and a second tank that handle a second fluid, the second tank having a second fluid-level sensor with which the first computer system is configured to communicate to obtain a level of the second fluid in the second tank, and the first computer system being configured to provide remote control of the second pump.**

Almadi discloses that modern industrial operations require control of multiple remote subsystems or field devices. Ex. 1006, 1:28-35. The complexity of connecting and controlling numerous field devices creates logistics problems related to the large number of controlled components. Ex. 1006, 2:4-40. Thus, Almadi discloses an integrated node to interface the numerous system components to provide a single point of control for data collection, monitoring, and restoration. Ex. 1006, 2:64-3:1. Thus, a POSITA would recognize that Almadi discloses multiples of each distributed system, both on the field device side, as well as on the user computing device side, all connected by Almadi's integrated node. Ex. 1002, ¶ 80.

More specifically, Almadi discloses that the first fluid handling site comprises a second pump and a second tank that handle a second fluid through its disclosure

of a plant-wide model 704, for example, can be configured for any group of units and can define a mass balancing loop for the plant based on multiple crude switches, operation scenarios, and open and closed transactions (for example, when there is a change in the level status of tanks or the operation of pumps). Ex. 1006, 25:12-17.

Almadi also discloses detecting a change in the level status of multiple, including second, fluids, tanks and the operation of pumps. Ex. 1006, 25:12-17.

Almadi discloses the first computer system being configured to provide remote control of the second pump through its disclosure that remote subsystems 120 perform tasks including processing of measurement and control data and signal conversions, as well as to communicate with other field devices, for example, independent of the integrated node. Ex. 1006, 12:35-40.

A POSITA would understand that Almadi discloses a second pump and second tank having a second fluid-level sensor through its disclosure of a plant-wide model that further discloses multiple tanks, pumps and motors, and sensor and actuator functions which are supported by a number of controllers. Ex. 1002, ¶ 80.

As described above in Section B.1, and incorporated by reference herein, a POSITA would be motivated to combine the disclosures of Kahn and Almadi for Claim 2. The disclosures for Kahn in Section 1, above, are fully incorporated by reference into the discussion of claim 2 herein. Kahn provides specific details of

multiple fluid handling components to the general fluid handling system disclosures of Almadi. *Id.*

Claim 2 would be obvious to a POSITA over Kahn in view of Almadi.

4. Claim 3

Kahn and Almadi disclose Claims 1 and 2 for the reasons discussed above and incorporated herein.

- a. [3] The system of claim 2, comprising: the first tank, the first pump, the first valve, the second tank, and the second pump, wherein the first fluid is water and the second fluid is oil, wherein the first tank or the second tank is an oil/water separation tank.**

Almadi discloses the first tank, the first pump, the first valve, the second tank, and the second pump as discussed above for Claims 1 and 2, and incorporated herein.

Kahn discloses the first tank, the first pump, the first valve, the second tank, and the second pump, wherein the first fluid is water, as discussed above for Claims 1 and 2, and incorporated herein. As described above in Section B.1, and incorporated by reference herein, a POSITA would be motivated to combine the disclosures of Kahn and Almadi or Gutierrez for Claim 3. Kahn provides specific details of multiple fluid handling components to the general fluid handling system disclosures of Almadi. Gutierrez provides specific details of a general fluid handling system for oil and oil extraction waste water storage and transport, which allows remote users to monitor and control fluid handling facilities. Ex. 1007, 1:26-27.

Almadi discloses that its system identifies routing and process streams between plants and different numbers and types of process units, such as tanks, crude switches, and other process units that will be known to those having skill in the art. Ex. 1006, 25:43-48.

Almadi discloses the first fluid is water and the second fluid is oil through its disclosure that the present invention can serve different networking operating environments, including, for example, intelligent field devices for oil and gas. Ex. 1006, 13:20-25.

The '403 Patent broadly states that “the fluid-handling devices may be a valve, a pump, a process chamber (for instance a oil/water separation tank), or a process filter, or level switch.” Ex. 1001, 5:59-63. Similarly, Gutierrez cites “water removal or separation from hydrocarbon gasses or liquids” as a typical component of “hydrocarbon systems.” Ex. 1007, 1:18-27.

A POSITA would understand that water is used in oil extraction, and that an oil/water separation tank is a standard process unit in the oil and gas industry. A POSITA would understand that Almadi discloses the first or second tank being an oil/water separation tank of the '403 Patent through its disclosure of process units in the oil and gas industry. Ex. 1002, ¶ 81.

Claim 2 would be obvious to a POSITA over Kahn in view of Almadi.

5. Claim 6

Kahn and Almadi disclose Claim 1 for the reasons discussed above and incorporated herein. As described above in Section B.1, and incorporated by reference herein, a POSITA would be motivated to combine Kahn and Almadi.

- a. **[6] The system of claim 1, wherein: at least some of the sequence of different target states that change over time are determined by the first computer system in response to a rate of change in the level of the first fluid in the first tank.**

Almadi discloses commands used by the local controller to drive the fluid handling device to a particular target state, e.g., “field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps.” Ex. 1006, 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. Ex. 1006, Abstract, FIG. 6, FIGS. 8-11; 4:30-34, 5:4-6:53, 7:26-34, 7:59-64, 8:6-45, 9:1-33, 15:38-16:50, 17:1-14, 17:29-35, 7:50-65, 19:8-14, 19:26-38, 21:23-27, 23:10-15.

A POSITA would understand that Almadi’s disclosure of monitoring and collecting time-stamped process data can be done automatically or manually at

different times to determine a plurality of different target states corresponding to different times, as claimed in the '403 Patent. Ex. 1002, ¶ 82.

A POSITA would understand from Almadi's disclosure to sequence of different target states that change over time are determined by the first computer system in response to a rate of change in the level of the first fluid in the first tank. Ex. 1002 ¶ 82.

Claim 6 would be obvious to a POSITA over Kahn in view of Almadi.

6. Claim 8

Kahn and Almadi disclose Claim 1 for the reasons discussed above and incorporated herein. As described above in Section B.1, and incorporated by reference herein, a POSITA would be motivated to combine Kahn and Almadi.

- a. [8] The system of claim 1, wherein: the first computer system is configured to communicate with the server system via a cellular wireless connection.**

Almadi further discloses that each of the computer components, including integrated node 100, remote subsystems 120, and remote host computer 110, communicates through available wireless systems and services, including corporate Wi-Fi networks (IEEE 802.11a/b/g/n) in conjunction with cellular networks (GSM/TETRA). Ex. 1006, 13:47-60, *see also* Ex. 1006, Abstract.

A POSITA would recognize that Almadi discloses the first computer system is configured to communicate with the server system via a cellular wireless connection. Ex. 1002 ¶ 84.

Claim 8 would be obvious to a POSITA over Kahn in view of Almadi.

7. Claim 9

Almadi and Kahn disclose Claim 1 for the reasons discussed above and incorporated herein. As described above in Section B.1, and incorporated by reference herein, a POSITA would be motivated to combine Kahn and Almadi.

- a. **[9] The system of claim 1, wherein the first computer system is configured to translate a plurality of commands from the server system, including the command, from an input format to a plurality of different formats and protocols configured to effectuate changes in states of a plurality of different fluid-handling devices at the first fluid handling site, the different fluid-handling devices including the first pump or the first valve.**

Almadi discloses that integrated node 100 includes a protocol translator or translation server 102 to translate communications with each of the remote subsystems 120 according to any one or more of a plurality of messaging protocols (as can be shown with reference to the arrows connecting protocol translator or translation server 102 and the plurality of remote subsystems 120). Ex. 1006, 14:10-17, FIG. 1B; *see also* Ex. 1006, 11:35-41.

Almadi discloses a command, from an input format to a plurality of different formats and protocols configured to effectuate changes in states of a plurality of different fluid-handling devices at the first fluid handling site, the different fluid-handling devices including the first pump or the first valve through its disclosure that the protocol translator or translation server 102 supports communications according to various protocols, including serial and Ethernet physical interfaces. Ex. 1006, 14:17-28; *see also* FIG. 2D.

Almadi discloses translated commands used by the local controller to drive the fluid handling device to a particular target state. Ex. 1006, 1:45-49, 12:27-59, 14:10-32, 25:26-37.

A POSITA would understand that the use of different protocols by the protocol translator requires that the protocols including command must be identified and translated to be used by various fluid-handling devices. Ex. 1002 ¶ 87.

A POSITA would further understand that the translated protocols include commands to change the states in the fluid-handling devices including pump or valves as claimed in the '403 Patent. Ex. 1002, ¶ 87.

Claim 9 would be obvious to a POSITA over Kahn in view of Almadi.

8. Claim 10

Kahn and Almadi disclose Claims 1 and 9, for the reasons discussed above and incorporated herein. As described above in Section B.1, and incorporated by reference herein, a POSITA would be motivated to combine Kahn and Almadi.

a. [10] The system of claim 9, wherein translating the plurality of commands comprises steps for translating commands.

Almadi discloses translating the plurality of commands comprises steps for translating commands through its disclosure that integrated node 100 can further include a *protocol translator or translation server 102 to translate communications* with each of the remote subsystems 120 according to any one or more of a plurality of messaging protocols. Ex. 1006, 14:10-17, FIG. 1B; *see also* Ex. 1006, 11:35-41. Almadi discloses that the *protocol translator or translation server 102* can be configurable, such as being configured by a user. Ex. 1006, 14:17-28; *see also* FIG. 2D.

Almadi discloses translated commands used by the local controller to drive the fluid handling device to a particular target state, e.g. “field devices can perform actuator functions to receive information, such as commands, from the system level to thereby affect or control the operation of an automated process, for example, through motors and pumps.” Ex. 1006, 1:45-49, 12:27-59, 14:10-32, 25:26-37.

A POSITA would understand that use of different protocols by the integrated node and remote subsystems involves the protocol translator performing steps for translating commands as claimed in the ‘403 Patent. Ex. 1002, ¶ 89.

Claim 10 would be obvious to a POSITA over Kahn in view of Almadi.

9. Claim 11

Kahn and Almadi disclose Claims 1 and 9, for the reasons discussed above and incorporated herein. As described above in Section B.1, and incorporated by reference herein, a POSITA would be motivated to combine Kahn and Almadi.

- a. **[11] The system of claim 9, wherein the plurality of different formats and protocols comprise: modbus protocol; and analog electrical signals.**

Almadi discloses that a protocol translator or translation server 102 can be configurable and supports communications according to various protocols, including *Serial Modbus, Modbus* over IP (Internet Protocol). Ex. 1006, 14:17-28, FIG. 1B.

Almadi further discloses a plurality of different formats and protocols comprise: analog electrical signals through its disclosure that the input/output unit 104 can support, for example, any of *analog inputs, analog outputs*, digital inputs, digital outputs, pulse inputs, and pulse outputs for both wired and wireless instrumentation interfaces. Ex. 1006, 13:64-67.

A POSITA would understand that Almadi discloses a modbus protocol and analog electrical signals. Ex. 1002 ¶ 90.

Claim 11 would be obvious to a POSITA over Kahn in view of Almadi.

10. Claim 12

Kahn and Almadi disclose Claims 1 and 9 for the reasons discussed above and incorporated herein. As described above in Section B.1, and incorporated by reference herein, a POSITA would be motivated to combine Kahn and Almadi.

- a. **[12] The system of claim 9, wherein at least some of the plurality of different fluid-handling devices comprise proportional-integral-derivative controllers configured to drive respective fluid-handling devices to different target setpoints determined by the first computer system responsive to corresponding commands from the server system.**

Almadi discloses that integrated node 100 is a PLC, meaning any programmable logic controller PLC, RTU, computer, server, system, node, or unit. Ex. 1006, 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. Ex. 1006, 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. Ex. 1006, 11:22-27. Almadi discloses that the local controller uses commands to drive the fluid handling device to a particular target state. Ex. 1006, 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. Ex. 1002, ¶ 91.

Claim 12 would be obvious to a POSITA over Kahn in view of Almadi.

11. Claim 13

Kahn and Almadi disclose Claims 1 and 9 for the reasons discussed above and incorporated herein. As described above in Section B.1, and incorporated by reference herein, a POSITA would be motivated to combine Kahn and Almadi.

- a. **[13.1] The system of claim 9, wherein: the first computer system is coupled to at least some of the plurality of different fluid handing devices via a bus; and**

Almadi discloses coupling through a bus through its disclosure that network communication links 125 includes a *logical bus*. Ex. 1006, 11:31-35, 13:26-30, FIG. 1A; Ex. 1002. Almadi also discloses that in addition to analog communications using the standard analog signal, digital networks can be used to communicate, such as the *Field Bus type* 61158. Ex. 1006, 14:3-9; Ex. 1002, ¶ 93. Thus, Almadi discloses this claim element.

- b. [13.2] the first computer system comprises means for controlling which fluid handling devices are permitted to transmit signals on the bus at a given point in time.**

Kahn and Almadi disclose remotely communicating to control fluid handling devices in Claim 1.8, above, herein incorporated by reference.

Almadi discloses the first computer system comprises means for controlling which fluid handling devices are permitted to transmit signals on the bus at a given point in time through its disclosure that network communication links 125 may include a *logical bus*; Ex. 1006, 13:26-30; *see also id.*, 14:3-9.

A POSITA would understand that commands can be sent via a bus at any given time and that Almadi's disclosure using analog signals and digital networks to communicate via a bus is the plurality the transmission of signals on a bus at a given time at the '403 Patent. Ex. 1002 ¶ 94. Thus, Almadi discloses this claim element.

Claim 13 would be obvious to a POSITA over Kahn in view of Almadi.

12. Claim 14

Kahn and Almadi disclose Claims 1 and 9 for the reasons discussed above and incorporated herein. As described above in Section B.1, and incorporated by reference herein, a POSITA would be motivated to combine Kahn and Almadi.

- a. **[14] The system of claim 9, wherein the plurality of different formats and protocols comprise three different protocols communicated over three different types of control busses to corresponding fluid handling devices among the plurality of different fluid handling devices.**

Kahn and Almadi disclose a plurality of different fluid handling devices. *See* Claim 2 (Kahn), above, and Ex. 1006, 11:18-21, herein incorporated by reference.

Almadi discloses three different protocols communicated over three different types of control busses to corresponding fluid handling devices among the plurality of different fluid handling devices through its disclosure of various protocols, including over serial and Ethernet physical interfaces. Ex. 1006, 14:22-28; Ex. 1002, ¶ 95.

A POSITA would recognize that Almadi discloses three different protocols in the above disclosure. Ex. 1002, ¶ 95.

Claim 14 would be obvious to a POSITA over Kahn in view of Almadi.

13. Claim 15

Kahn and Almadi disclose Claims 1 and 9, for the reasons discussed above and incorporated herein. As described above in Section B. 1, and incorporated by reference herein, a POSITA would be motivated to combine Kahn and Almadi.

- a. **[15] The system of claim 9, wherein two of the plurality of different formats and protocols comprise binary frames with redundant bits used to detect errors.**

Almadi discloses two of the plurality of different formats and protocols comprise binary frames with redundant bits used to detect errors through its disclosure that the DRM 166 includes instructions to detect gross errors in reconciled measurements 715 to determine a confidence level for reconciled values and a probability of gross error existence and, further, can flag 716 values that exceed a preselected confidence level 713. Ex. 1006., 26:41-49. Almadi further discloses that DRM 166 has instructions for eliminating gross errors by removing measurements 717 with detected gross errors according to a preselected priority scheme 718, which includes: (i) giving the priority to remove measurements with larger magnitude of corrections; or (ii) giving the priority to 60 remove measurements with highest impact on the total sum of reconciliation run penalty. Ex. 1006, 26:50-61

A POSITA would understand that from Almadi's disclosure of the detection and elimination of errors in data suggests that the system disclosed in Almadi sends redundant bits with the reconciled measurement data, with the redundant bits added by the sender and removed by the receiver to allow the receiver to detect or correct corrupted bits. Ex. 1002, ¶ 97.

Claim 15 would be obvious to a POSITA over Kahn in view of Almadi.

14. Claim 16

Kahn and Almadi disclose Claims 1 and 9, for the reasons discussed above and incorporated herein. As described above in Section B. 1, and incorporated by reference herein, a POSITA would be motivated to combine Kahn and Almadi.

- a. **[16] The system of claim 9, wherein the plurality of different formats and protocols comprise command code format, an on-off signal format, and an application-program interface format.**

Almadi discloses the plurality of different formats and protocols as disclosed above in Claim 14 and incorporated herein by reference. *See* Ex. 1006, 14:17-28.

A POSITA would understand that the above-described protocols include different formats include command code format, on-off format, and application program interference. Ex. 1002, ¶ 96. Claim 16 would be obvious to a POSITA over Kahn in view of Almadi.

15. Claim 17

Kahn and Almadi disclose Claims 1 and 9, for the reasons discussed above and incorporated herein. As described above in Section B. 1, and incorporated by reference herein, a POSITA would be motivated to combine Kahn and Almadi.

- a. **[17] The system of claim 9, wherein the first computer system is configured to operate in an automatic mode, a mixed automatic mode, and a manual mode.**

Kahn discloses manual and automatic mode for the reasons stated in Claims 1.2, 1.9, 4, and 5, above, and incorporated by reference herein. The '403 Patent explains that in a mixed automatic mode “the user selects which devices are manually controlled while other devices are automatically controlled.” Ex. 1001, 10:18-23.

A POSITA would understand that Kahn’s disclosure of manual and automatic mode that Kahn also discloses mixed automatic mode within the meaning of the ‘403 Patent because Kahn discloses a plurality of fluid handling devices that may be separately controlled, *see* Claim 2 above, and incorporated by reference herein.

Almadi discloses the first computer system is configured to operate in an automatic mode, a mixed automatic mode, and a manual mode through its disclosure that field devices incorporate robust functionality, such as the ability to process data, *self-monitor, self-regulate, self-calibrate*, or provide early warning with respect to malfunctions or predictive maintenance. Ex. 1006, 1:53-57.

A POSITA would understand that Almadi’s disclosure of self-monitoring, self-regulating and self-calibrating is to the operation of the first computer system in an automatic mode of the ‘403 Patent. Ex. 1002 ¶ 98.

A POSITA would further understand that a computer system configured to operate in an automatic mode can also be configured to operate in an manual mode and a mixed automatic/manual mode. Ex. 1002, ¶ 98.

Claim 17 would be obvious to a POSITA over Kahn in view of Almadi.

16. Claim 18

Kahn and Almadi disclose Claims 1, 9, and 17 for the reasons discussed above and incorporated herein. As described above in Section B. 1, and incorporated by reference herein, a POSITA would be motivated to combine Kahn and Almadi.

- a. [18] The system of claim 17, wherein the automatic mode comprise executing s [sic] process recipe in which a collection of set points are targeted.**

Almadi discloses executing a process recipe in which a collection of set points are targeted through its disclosure that “[u]pon receiving the time-stamped process data from a remote subsystem, the integrated node can determine whether the time-stamped process data constitutes an exception based on pre-defined exception criteria.” Ex. 1006, 17:1-14. “A computer program product, which can be shown, for example, with reference to FIG. 8, FIG. 9, and FIG. 10, having instructions for such detection by comparing exception criteria 811 can be executed either at the integrated node, at the remote subsystem or at the remote host.” *Id.*

A POSITA would understand that Almadi’s disclosure of providing instructions for exception detection by comparing exception criteria is the executing

a process recipe targeting set points in the '403 Patent. Ex. 1002, ¶ 103. Claim 18 would be obvious to a POSITA over Kahn in view of Almadi.

17. Claim 19

Kahn and Almadi disclose Claims 1 and 9 for the reasons discussed above and incorporated herein. As described above in Section B.1, and incorporated by reference herein, a POSITA would be motivated to combine Kahn and Almadi.

- a. [19] The system of claim 9, wherein translating the plurality of commands comprises steps for identifying protocols and control busses.**

Almadi discloses steps for identifying protocols and control busses through its disclosure that a protocol translator or translation server 102 can be configurable, for example through a configuration tool interface, to support communications according to various protocols, including various protocols over serial and Ethernet physical interfaces. Ex. 1006, 14:17-28.

A POSITA would understand that configuring the protocol translator includes steps for identifying protocols and control busses. Ex. 1002, ¶ 104. Thus, Almadi discloses steps for identifying protocols and control buses. Claim 19 would be obvious to a POSITA over Kahn in view of Almadi.

18. Claim 20

Kahn and Almadi discloses Claim 1 for the reasons discussed above and incorporated herein. As described above in Section B.1, and incorporated by reference herein, a POSITA would be motivated to combine Kahn and Almadi.

a. [20] The system of claim 1, wherein the first computer system comprises a protocol multiplexer.

Almadi discloses a protocol multiplexer through its disclosure of the use of an integrated system, e.g., an embodiment of an integrated node, provides for a *central point of control* to enforce time synchronization for the data and among the host, subsystems, and upper application layers . . . [the]integrated node advantageously *combine[s]* a TCP/IP Ethernet Switch, PLC or RTU logic, input/output interfaces supporting multiple communication protocols and enabled with data storage capability, FTP client/server support, and OPC interface capabilities. Ex. 1006, 3:48-56.

A POSITA would understand from Almadi's disclosure of the combination of the TCP/IP Ethernet switch, PLC logic, and input/output interfaces that a protocol multiplexer is required by the first computer system to combine the aforementioned protocols. Ex. 1002, ¶ 106. Claim 20 would be obvious to a POSITA over Kahn in view of Almadi.

19. Claim 21

Kahn and Almadi disclose Claim 1 for the reasons discussed above and incorporated herein. As described above in Section B.1, and incorporated by reference herein, a POSITA would be motivated to combine Kahn and Almadi.

- a. [21] The system of claim 1, wherein the first computer system comprises a site-management module implemented with multiple threads.**

Almadi discloses a site-management module through its disclosure that an integrated node can comprise a PLC or RTU, or employ the functionality of a PLC or RTU, for example through hardware or software, to issue commands and collect and process data according to multiple process automation protocols. Ex. 1006, 3:24-28. Almadi further discloses a site-management module implemented with multiple threads through its disclosure that embodiments of a computer program comprise a set of instructions to be executed on the processor. Ex. 1006, 6:27-36.

A POSITA would understand that Almadi's disclosure of a set of instructions executed on the PLC or RTU is a site-management module with multiple threads which is a sequence of program and instructions. Ex. 1002, ¶ 108. Thus, Almadi discloses a site-management module implemented with multiple threads.

Claim 21 would be obvious to a POSITA over Kahn in view of Almadi.

20. Claim 22

Kahn and Almadi disclose Claim 1 for the reasons discussed above and incorporated herein. As described above in Section B.1, and incorporated by reference herein, a POSITA would be motivated to combine Kahn and Almadi.

- a. **[22] The system of claim 1, wherein the first computer system comprises means for implementing remotely issued commands, such that once remotely issued commands are issued and received, the remotely issued commands are executed to completion even if Internet access is lost before the commands are fully executed.**

Almadi discloses that modern field devices monitor and collect data, such as measurements of fluid pressure, temperature, or flow, reflective of the operations of the automated process. Ex. 1006, 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. Ex. 1006, 1:18-57. Almadi discloses that remote subsystems 120 can include a variety of intelligent field systems. *See generally*, Ex. 1006, 12:27-59.

A POSITA would understand Almadi’s disclosure of monitoring and collecting data determines a plurality of different target states of a given one of the fluid-handling devices over time. Ex. 1002, ¶ 109. A POSITA would further understand from Almadi’s disclosure that “intelligent field devices” process data,

self-monitor, self-regulate, and self-calibrate among other operations necessary to maintain control of the fluid handling devices without requiring network connectivity to a command center server. *Id.*

A POSITA would understand from the disclosure in Almadi that commands sent to the fluid-handling device would continue to be executed over if a network connection is lost because the fluid-handling device will continue to operate autonomously. Ex. 1002, ¶ 109. Claim 22 would be obvious to a POSITA over Kahn in view of Almadi.

21. Claim 23

Kahn and Almadi disclose Claim 1 for the reasons discussed above and incorporated herein. As described above in Section B.1, and incorporated by reference herein, a POSITA would be motivated to combine Kahn and Almadi.

- a. **[23] The system of claim 1, wherein the first computer system is configured to receive another command, determine the another command will cause the first fluid handling site to violate a constraint, and determine not to execute the another command.**

Almadi discloses the data filtering procedures to detect measurement data outside of the preselected bounds, for example, command 612 the plurality of remote subsystems 120 or the data acquirer 161 to deactivate or suspend measurement or data acquisition functions, for example, according to instruction 1107. Ex. 1006, 23:35-40, FIG. 11.

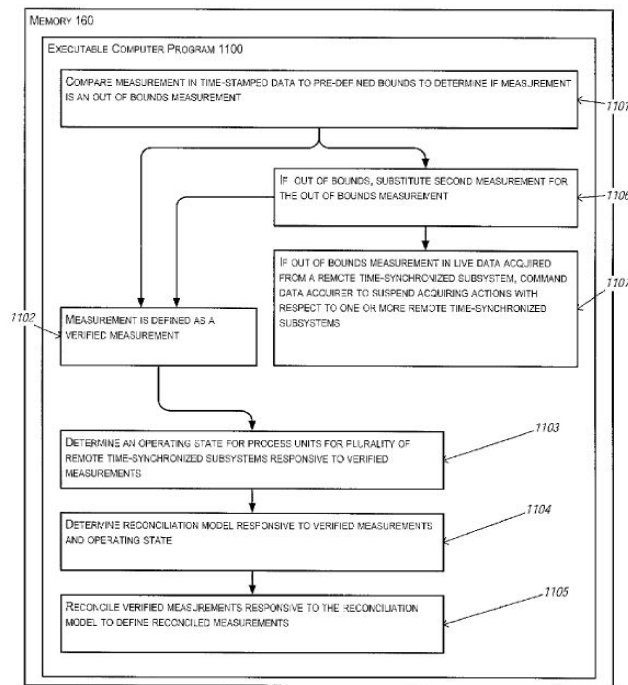


FIG. 11

A POSITA could understand that Almadi's disclosure of detecting measurement data outside of the preselected bounds is the determining whether a command will violate a constraint. Ex. 1002 ¶ 110. A POSITA would further understand that the deactivation or suspend measurements or data acquisition function is the determining not to execute the another command. Ex. 1002, ¶ 110. Claim 23 would be obvious to a POSITA over Kahn in view of Almadi.

22. Claim 25

Kahn and Almadi disclose Claim 1 for the reasons discussed above and incorporated herein. As described above in Section B.1, and incorporated by reference herein, a POSITA would be motivated to combine Kahn and Almadi or Gutierrez.

- a. **[25] The system of claim 1, comprising: a second computer system disposed at a second fluid handling site that is remote from the first fluid handling site, the first fluid handling site being an oil or gas well and the second fluid handling site being a saltwater disposal facility, the second computer system being configured to control a second pump or a second valve at the second facility responsive to commands from the server system.**

Kahn and Almadi disclose a plurality of different fluid handling devices/components and fluid handling sites. *See* Claims 1.2 and 2 (Kahn), above, and Ex. 1006, 11:18-21, herein incorporated by reference.

Almadi discloses a second computer system disposed at a second fluid handling site that is remote from the first fluid handling site through its disclosure that “that the present invention can be embodied in multiple computer program products, multiple computer program products and hardware products, or combined in a single computer program product having the functionality of other computer program products described further herein.” Ex. 1006, 18:48-53.

Gutierrez discloses “hydrocarbon systems that transport hydrocarbon fluids, such as oil and/or gas or other fluids,” as well as “water removal or separation from hydrocarbon gasses or liquids.” Ex. 1007, 1:18-32

Almadi discloses the second fluid handling site being a saltwater disposal facility through its disclosure that the present invention is not limited to the use of remote automation subsystems in any particular industry, sector, or operating

environment, and can serve different networking operating environments. Ex. 1006, 12:48-55. A POSITA would understand from Almadi or Gutierrez that these systems are particularly oil and gas used at saltwater disposal facilities. Ex. 1002, ¶ 111.

A POSITA would recognize from Kahn and Almadi's discussion of multiple hardware products and multiple motors and pumps that a second computer system can be configured to control a second pump or valve of a second facility. Ex. 1002 ¶ 111 . Claim 25 would be obvious to a POSITA over Kahn in view of Almadi.

23. Claim 26

Kahn and Almadi disclose Claim 1 for the reasons discussed above and incorporated herein. As described above in Section B.1, and incorporated by reference herein, a POSITA would be motivated to combine Kahn and Almadi.

- a. **[26] The system of claim 1, wherein: receiving a first fluid level sensed by the fluid-level sensor comprises receiving a buffered fluid level reading pushed by the first computer system to the server system along with alarms and measurements from other sensors, the other sensors including a temperature sensor and a pressure sensor.**

Almadi discloses that when the computer program product having instructions is executed at the remote subsystem the remote subsystem communicates an alarm to the integrated node to be received by the integrated node. Ex. 1006, 5:24-27. Almadi further discloses in Figure 9 buffering data transmissions (including fluid

level readings) in the communication link between the integrated node and the remote host.

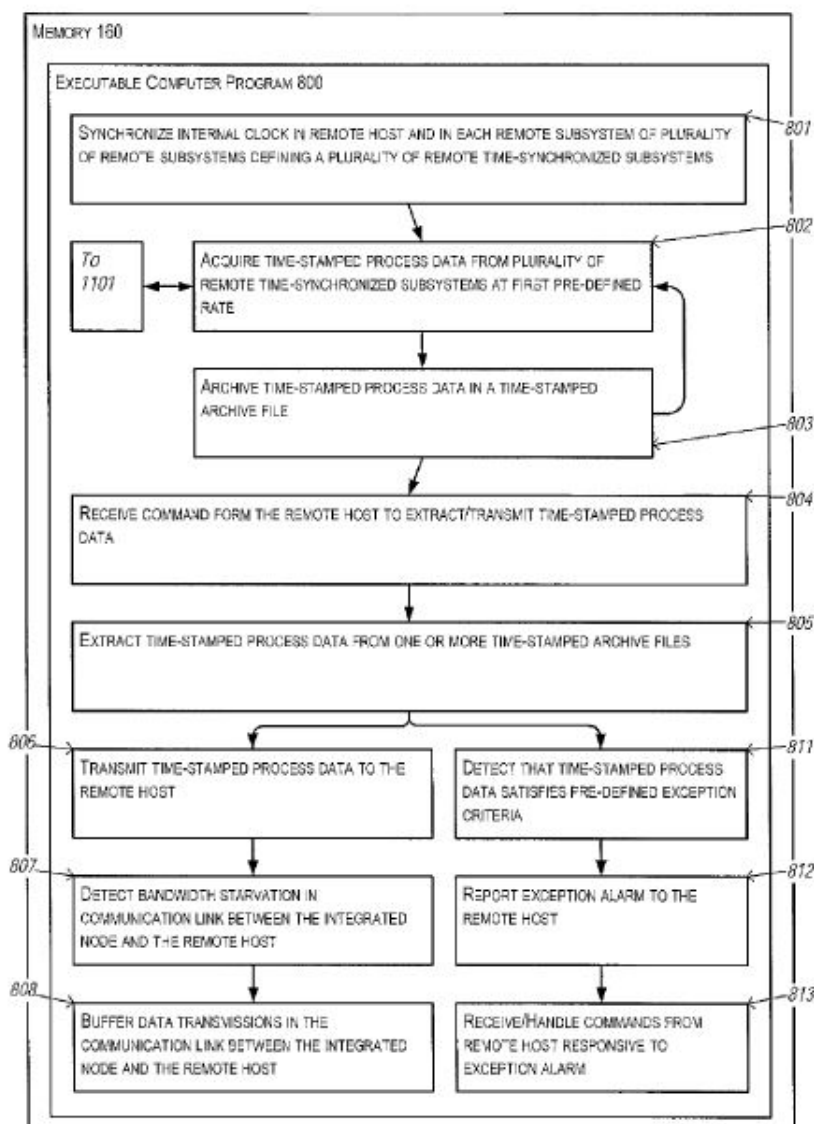


FIG. 8

Ex. 1006, FIG. 8.

Almadi discloses that the other sensors including a temperature sensor and a pressure sensor through its disclosure that field devices perform sensor functions to

sense operational information and variables such as *temperature, pressure*, pH, or flow rate and deliver that information to the system-level controller devices. Ex. 1006, 1:41-45, 12:27-32.

Kahn discloses that data, such as chemical fingerprint information “downloaded into,” i.e., pushed into, the sensor units, with intermittent updates available from the centralized data collection points. Ex. 1005, 9:48-10:7

A POSITA would understand that Almadi discloses this limitation through its disclosure of field devices that perform sensor functions to sense operational information and variables such as temperature, pressure, pH, or flow rate and deliver that information to the system-level controller devices. Ex. 1002, ¶ 113. Claim 26 would be obvious to a POSITA over Kahn in view of Almadi.

24. Claim 27

Kahn and Almadi disclose Claim 1 for the reasons discussed above and incorporated herein. As described above in Section B.1, and incorporated by reference herein, a POSITA would be motivated to combine Kahn and Almadi.

- a. **[27] The system of claim 1, wherein: receiving a first fluid level sensed by the fluid-level sensor comprises receiving a buffered fluid level reading pulled by the server system from the first computer system along with alarms and measurements from other sensors, the other sensors including a temperature sensor and a pressure sensor.**

Almadi discloses receiving a first fluid level sensed by the fluid-level sensor

comprises receiving a buffered fluid level reading pulled by the server system from the first computer system along with alarms and measurements from other sensors, the other sensors including a temperature sensor and a pressure sensor through its disclosure that field devices perform sensor functions to sense operational information and variables such as *temperature*, *pressure*, pH, or *flow rate* and deliver that information to the system-level controller devices. Ex. 1006, 1:41-45, 12:27-32.

Kahn further discloses that sensor unit 110 includes communication equipment with actuators configured to manipulate fluid flow at respective fluid-handling facilities, and to facilitate the measurement of data requested by the user through the graphical user interface, i.e., in a pull request. Ex. 1005, 10:62-67; *see also id.*, 14:35-15:2, 15:62-16:32.

A POSITA would understand that Almadi discloses this limitation through its disclosure of field devices that perform sensor functions to sense operational information and variables such as temperature, pressure, pH, or flow rate and deliver that information to the system-level controller devices. Ex. 1002, ¶ 114. Claim 27 would be obvious to a POSITA over Kahn in view of Almadi.

25. Claim 28

Kahn and Almadi disclose Claim 1 for the reasons discussed above and incorporated herein. As described above in Section B.1, and incorporated by reference herein, a POSITA would be motivated to combine Kahn and Almadi.

- a. **[28] The system of claim 1, comprising: a controller by which the first computer system is coupled to an actuator of the first pump or valve, wherein the controller is configured to exercise feedback control of the actuator according to setpoints corresponding to respective target states of the sequence of different target states.**

Almadi discloses a controller by which the first computer system is coupled to an actuator of the first pump or valve through its disclosure that sensor and actuator functions, at the process level, are supported by a controller or a number of controllers, at the system level, which receive information from the sensors and transmit information to the actuators. Ex. 1006, 1:45-52; *see also id.* 25:26-37, 22:50-64.

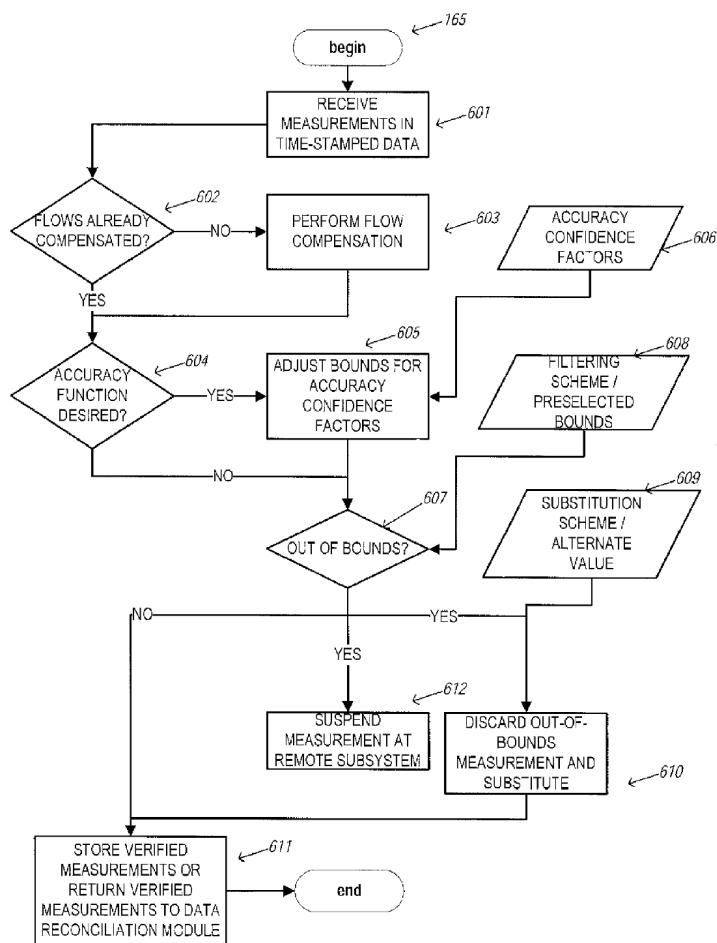


FIG. 6

Ex. 1006, FIG. 6.

A POSITA would recognize from Almadi's disclosures that the remotes subsystems can output measurement data which is then verified and reconciled with the verified measurement data used by the controller to exercise feedback control of the actuator based on set points. Ex. 1002, ¶ 115. Claim 28 would be obvious to a POSITA over Kahn in view of Almadi.

26. Claim 29

Kahn and Almadi disclose Claim 1 for the reasons discussed above and incorporated herein. As described above in Section B.1, and incorporated by reference herein, a POSITA would be motivated to combine Kahn and Almadi.

a. [29.1] The system of claim 1, wherein: the first computer system comprises a site master controller;

Almadi discloses this element for the reason stated in Claim 1.2 above, and incorporated by reference herein.

A POSITA would understand that Almadi's disclosure of a plurality of remote systems that include intelligent equipment devices that incorporate PLC or RTU functionally is the first computer system comprising a site master controller claimed in the '403 Patent. Ex. 1002, ¶ 116. Thus, Almadi discloses this claim element.

b. [29.2] the server system comprises a command-center server configured to provide user interfaces by which a plurality of users monitor and control a plurality of different site master controllers, including the site master controller of the first computer system, associated with a plurality of different accounts.

Almadi discloses the server system comprises a command-center server configured to provide user interfaces by which a plurality of users monitor and control a plurality of different site master controllers through its disclosure that the integrated node 100 also supports a local programming interface over a computer,

such as through computer terminal accessible to a human user or the remote host computer 110. Ex. 1006, 12:10-15

Kahn discloses the site master controller of the first computer system, associated with a plurality of different accounts as discussed in Claim 2 above and incorporated herein by reference.

A POSITA would understand that Kahn and Almadi disclose this limitation through its disclosure of the multiple computer programs and hardware products which would include a plurality of users and plurality of site master controllers. Ex. 1002, ¶ 117. Thus, Almadi discloses this claim element. Claim 29 would be obvious to a POSITA over Kahn in view of Almadi.

27. Claim 30

Kahn and Almadi discloses systems for the reasons discussed above in Claim 1.1 and incorporated herein.

Kahn and Almadi disclose claim element 30.2 for the reasons discussed above in claim 1.2 and incorporated herein. Kahn and Almadi disclose claim element 30.3 for the reasons discussed above in Claim 1.3 and incorporated herein. Kahn and Almadi disclose claim 30.4 element for the reasons discussed above in Claim 1.4 and incorporated herein. Kahn and Almadi disclose claim element 30.5 for the reasons discussed above in Claim 1.5 and incorporated herein. Kahn and Almadi disclose claim element 30.6 for the reasons discussed above in Claim 1.6 and

incorporated herein. Kahn and Almadi disclose claim element 30.7 for the reasons discussed above in Claim 1.7 and incorporated herein. Kahn and Almadi disclose claim element 30.8 for the reasons discussed above in Claim 1.8 and incorporated herein. Kahn and Almadi disclose claim element 30.9 for the reasons discussed above in Claim 1.9 and incorporated herein. Kahn and Almadi disclose claim element 30.10 for the reasons discussed above in Claim 2 and incorporated herein. Kahn and Almadi disclose claim element 30.11 for the reasons discussed above in Claim 3 and incorporated herein. Kahn and Almadi disclose claim element 30.12 for the reasons discussed above in Claim 9 and incorporated herein.

Claim 30 would be obvious to a POSITA over Kahn in view of Almadi.

C. The Board Should Not Discretionarily Deny Institution

1. 35 U.S.C. §314(a) Analysis

Petitioner hereby stipulates that, if IPR of the ‘403 Patent is instituted based on this Petition, Petitioner will not assert in the Parallel Litigation invalidity of any Challenged Claim based on any ground that was raised or that reasonably could have been raised in this Petition. In light of this stipulation, this Petition should not be discretionarily denied pursuant to *Fintiv*. See USPTO Memorandum, Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation, 2 (June 21, 2022), at 3.

Further, the PTAB should not exercise its discretion to deny review where, as here, the Petition is strong on the merits. *Apple Inc. v. RFCyber Corp.*, No. IPR2022-00412, Paper 11, at 33-34 (P.T.A.B. July 21, 2022); Interim Procedure for Discretionary Denials In AIA Post Grant Proceedings With Parallel District Court Litigation (Discretionary Denial Memorandum), USPTO Dir.'s Memorandum 9 (June 21, 2022).

2. 35 U.S.C. §325(d) Analysis.

The factors in *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 at 17-18 (PTAB Dec. 15, 2017), favor institution. *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8-11 (PTAB Feb. 13, 2020) (precedential).

Advanced Bionics, step 1, and Becton, Dickinson factors (a), (b), and (d) favor institution because none of the references in this Petition were before the Office during prosecution. See Prosecution History; '403 patent, Cover. The references are also not cumulative of the prosecution prior art, at least because they explicitly teach “translating the plurality of commands into a plurality of translated commands” which applicants argued was not present in the examined art (Prosecution History, **CITE**), and they disclose “a sending the translated commands to the local controllers,” which Examiner identified as part of the reasons for allowance (id., **CITE**). Accordingly, discretionary denial under 35 U.S.C. §325(d) is not warranted.

IX. CONCLUSION

Trial should be instituted, and the Challenged Claims should be canceled as unpatentable.

Dated: April 15, 2024

Respectfully submitted,

By: / Winston O. Huff /

Winston O. Huff (Reg No. 51,825)

whuff@munsch.com

Jamil N. Alibhai (*Pro Hac Vice* Pending)

jalibhai@munsch.com

Chad Ray (Reg. No. 68,170)

cray@munsch.com

MUNSCH HARDT KOPF & HARR, P.C.

500 N. Akard Street, Suite 4000

Dallas, TX 75201

Telephone: (214) 855-7500

Facsimile: (214) 855-7584

**ATTORNEYS FOR PETITIONER
THE INTEGRATION GROUP OF
AMERICAS**

U.S. PATENT NO. 11,294,403 – LISTING OF CHALLENGED CLAIMS

<u>CLAIM NO.</u>	<u>CLAIM ELEMENTS</u>
Claim 1	[1.1] A system, comprising: [1.2] a first computer system disposed at a first fluid handling site, the first fluid handling site comprising a first pump, a first valve, and a first tank that handle a first fluid, the first tank having a first fluid-level sensor with which the first computer system is configured to communicate to obtain a level of the first fluid in the first tank, and the first computer system being configured to provide remote control of the first pump or the first valve; and [1.3] a server system remote from the fluid handling site, wherein the server system has memory storing instructions that, when executed, effectuate operations comprising: [1.4] receiving, with the server system, from the first computer, via a network, a first fluid level sensed by the fluid-level sensor; [1.5] obtaining, with the server system, credentials from a first client computing device; [1.6] determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site, wherein the server system hosts data about other fluid handling sites the user is not authorized to interact; [1.7] after the determination, providing, with the server system, via the network, information by which a first client computing device presents a user interface indicating the first fluid level, the first client computing device being remote from the server system and the first computer system;

<u>CLAIM NO.</u>	<u>CLAIM ELEMENTS</u>
	[1.8] receiving, with the server system, from the first client computing device, a first command to change a state of the first pump; and [1.9] causing, with the server system, the first computer system disposed at the first fluid handling site to effectuate the command by changing the state of the first pump to a sequence of different target states that change over time
Claim 2	[2] The system of claim 1, wherein: the first fluid handling site comprises a second pump and a second tank that handle a second fluid, the second tank having a second fluid-level sensor with which the first computer system is configured to communicate to obtain a level of the second fluid in the second tank, and the first computer system being configured to provide remote control of the second pump.
Claim 3	[3] The system of claim 2, comprising: the first tank, the first pump, the first valve, the second tank, and the second pump, wherein the first fluid is water and the second fluid is oil, wherein the first tank or the second tank is an oil/water separation tank.
Claim 4	[4] The system of claim 1, wherein: the sequence of different target states that change over time are configured to ramp up or down a speed of the first pump.
Claim 5	[5] The system of claim 1, wherein: the sequence of different target states that change over time are determined with steps for mitigating shocks to upstream or down-stream fluid-handling devices relative to the first pump.
Claim 6	[6] The system of claim 1, wherein: at least some of the sequence of different target states that change over time are determined by the first computer system in response to a rate of change in the level of the first fluid in the first tank.
Claim 7	[7] The system of claim 1, wherein: the server system is configured to interface with both a web browser on the client computing device and a special-purpose application executing on the client computing device to present the user interface indicating the first fluid level.

<u>CLAIM NO.</u>	<u>CLAIM ELEMENTS</u>
Claim 8	[8] The system of claim 1, wherein: the first computer system is configured to communicate with the server system via a cellular wireless connection.
Claim 9	[9] The system of claim 1, wherein the first computer system is configured to translate a plurality of commands from the server system, including the command, from an input format to a plurality of different formats and protocols configured to effectuate changes in states of a plurality of different fluid-handling devices at the first fluid handling site, the different fluid-handling devices including the first pump or the first valve.
Claim 10	[10] The system of claim 9, wherein translating the plurality of commands comprises steps for translating commands.
Claim 11	[11] The system of claim 9, wherein the plurality of different formats and protocols comprise: modbus protocol; and analog electrical signals.
Claim 12	[12] The system of claim 9, wherein at least some of the plurality of different fluid-handling devices comprise proportional-integral-derivative controllers configured to drive respective fluid-handling devices to different target setpoints determined by the first computer system responsive to corresponding commands from the server system.
Claim 13	[13.1] The system of claim 9, wherein: the first computer system is coupled to at least some of the plurality of different fluid handling devices via a bus; and [13.2] the first computer system comprises means for controlling which fluid handling devices are permitted to transmit signals on the bus at a given point in time.
Claim 14	[14] The system of claim 9, wherein the plurality of different formats and protocols comprise three different protocols communicated over three different types of control busses to corresponding fluid handling devices among the plurality of different fluid handling devices.
Claim 15	[15] The system of claim 9, wherein two of the plurality of different formats and protocols comprise binary frames with redundant bits used to detect errors.

<u>CLAIM NO.</u>	<u>CLAIM ELEMENTS</u>
Claim 16	[16] The system of claim 9, wherein the plurality of different formats and protocols comprise command code format, an on-off signal format, and an application-program interface format.
Claim 17	[17] The system of claim 9, wherein the first computer system is configured to operate in an automatic mode, a mixed automatic mode, and a manual mode.
Claim 18	[18] The system of claim 17, wherein the automatic mode comprise executing s process recipe in which a collection of set points are targeted.
Claim 19	[19] The system of claim 9, wherein translating the plurality of commands comprises steps for identifying protocols and control busses.
Claim 20	[20] The system of claim 1, wherein the first computer system comprises a protocol multiplexer.
Claim 21	[21] The system of claim 1, wherein the first computer system comprises a site-management module implemented with multiple threads.
Claim 22	[22] The system of claim 1, wherein the first computer system comprises means for implementing remotely issued commands, such that once remotely issued commands are issued and received, the remotely issued commands are executed to completion even if Internet access is lost before the commands are fully executed.
Claim 23	[23] The system of claim 1, wherein the first computer system is configured to receive another command, determine the another command will cause the first fluid handling site to violate a constraint, and determine not execute the another command.
Claim 24	[24] The system of claim 1, wherein the sequence of different target states that change over time are configured to cause the valve to open and close to release the valve from a position in which the valve is stuck.
Claim 25	[25] The system of claim 1, comprising: a second computer system disposed at a second fluid handling site that is remote from the first fluid handling site, the first fluid handling site being an oil or gas well and the second fluid handling site being a saltwater disposal facility, the second computer system

<u>CLAIM NO.</u>	<u>CLAIM ELEMENTS</u>
	being configured to control a second pump or a second valve at the second facility responsive to commands from the server system.
Claim 26	[26] The system of claim 1, wherein: receiving a first fluid level sensed by the fluid-level sensor comprises receiving a buffered fluid level reading pushed by the first computer system to the server system along with alarms and measurements from other sensors, the other sensors including a temperature sensor and a pressure sensor.
Claim 27	[27] The system of claim 1, wherein: receiving a first fluid level sensed by the fluid-level sensor comprises receiving a buffered fluid level reading pulled by the server system from the first computer system along with alarms and measurements from other sensors, the other sensors including a temperature sensor and a pressure sensor.
Claim 28	[28] The system of claim 1, comprising: a controller by which the first computer system is coupled to an actuator of the first pump or valve, wherein the controller is configured to exercise feedback control of the actuator according to setpoints corresponding to respective target states of the sequence of different target states.
Claim 29	[29.1] The system of claim 1, wherein: the first computer system comprises a site master controller; [29.2] the server system comprises a command-center server configured to provide user interfaces by which a plurality of users monitor and control a plurality of different site master controllers, including the site master controller of the first computer system, associated with a plurality of different accounts.
Claim 30	[30.1] A system, comprising: [30.2] a first computer system disposed at a first fluid handling site, the first fluid handling site comprising a first pump, a first valve, and a first tank that handle a first fluid, the first tank having a first fluid-level sensor with which the first computer system is configured to communicate to obtain a level of the

<u>CLAIM NO.</u>	<u>CLAIM ELEMENTS</u>
	first fluid in the first tank, and the first computer system being configured to provide remote control of the first pump or the first valve; and [30.3] a server system remote from the fluid handling site, wherein the server system has memory storing instructions that, when executed, effectuate operations comprising: [30.4] receiving, with the server system, from the first computer, via a network, a first fluid level sensed by the fluid-level sensor; [30.5] obtaining, with the server system, credentials from a first client computing device; [30.6] determining, with the server system, based on the credentials, that a user of the first client computing device is authorized to interact with the first fluid handling site, wherein the server system hosts data about other fluid handling sites the user is not authorized to interact; [30.7] after the determination, providing, with the server system, via the network, information by which a first client computing device presents a user interface indicating the first fluid level, the first client computing device being remote from the server system and the first computer system; [30.8] receiving, with the server system, from the first client computing device, a first command to change a state of the first pump; and [30.9] causing, with the server system, the first computer system disposed at the first fluid handling site to effectuate the command by changing the state of the first pump to a sequence of different target states that change over time, wherein:

<u>CLAIM NO.</u>	<u>CLAIM ELEMENTS</u>
	[30.10] the a first fluid handling site comprises a second pump and a second tank that handle a second fluid, the second tank having a second fluid-level sensor with which the first computer system is configured to communicate to obtain a level of the second fluid in the second tank, and the first computer system being configured to provide remote control of the second pump; [30.11] the first tank, the first pump, the first valve, the second tank, and the second pump, wherein the first fluid is water and the second fluid is oil, wherein the first tank or the second tank is an oil/water separation tank; and [30.12] the first computer system is configured to translate a plurality of commands from the server system, including the command, from an input format to a plurality of different formats and protocols configured to effectuate changes in states of a plurality of different fluid-handling devices at the first fluid handling site, the different fluid-handling devices including the first pump.

CERTIFICATION OF COMPLIANCE WITH TYPE-VOLUME LIMITS

This Petition includes 13,691 words, as counted by Microsoft Word, and is therefore in compliance with the 14,000-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: April 15, 2024

Respectfully Submitted,

/ Winston O. Huff /

Winston O. Huff (Reg. No. 51, 825)

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§ 42.6(4) and 42.105, lead counsel for Petitioners hereby certifies that on April 15, 2024, copies of this Petition, Power of Attorney, and all supporting exhibits were sent via Federal Express to the correspondence address of record for the '909 Patent:

John Wetherell
David Jakopin
Peter Hahn
Josh Tucker
PILLSBURY WINTHROP SHAW PITTMAN, LLP
PO Box 10500
McLean, VA 22102

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.

M. Craig Tyler
Texas State Bar No. 00794762
CTyler@perkinscoie.com
Dakota Kanetzky
Texas State Bar No. 24116599
DKanetzky@perkinscoie.com
PERKINS COIE LLP
405 Colorado St., Suite 1700
Austin, Texas 78701
Telephone: (737) 256-6100

Brianna Kadjo
Bkadjo@perkinscoie.com
PERKINS COIE LLP
1900 Sixteenth Street
Suite 1400
Denver, Colorado

80202-5255
Tel: 303.291.2349

Heather C. Martin
HeatherMartin@perkinscoie.com
Teeanna Brisco
TBrisco@perkinscoie.com
PERKINS COIE LLP
700 13th Street, NW
Suite 800
Washington, D.C. 20005-3960
Telephone: (20) 654-6200

Attorneys for SitePro, Inc.

Dated: April 15, 2024

Respectfully Submitted,

/ Winston O. Huff /
Winston O. Huff (Reg. No. 51,825)