

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BRYCER, LLC, and BRYCER MANAGEMENT, INC.,
Petitioners

v.

TEGRIS, INC.,
Patent Owner.

Case No. IPR2023-01196
Patent No. 11,126,966

Before HUBERT C. LORIN, MEREDITH C. PETRAVICK,
and BRENT M. DOUGAL, *Administrative Patent Judges*.

PATENT OWNER RESPONSE

EXHIBIT LIST

Ex. #	Description
1001	U.S. Patent No. 11,126,966
1002	File History of U.S. Patent No. 11,126,966
1003	Declaration of Richard MacInnes
1004	Curriculum Vitae of Richard MacInnes
1005	U.S. Patent App. Pub. No. 2002/0029222 to <i>Key</i>
1006	U.S. Patent App. Pub. No. 2005/0021449 to <i>Sweeney</i>
1009	U.S. Patent Prov. App. No. 60/886,269
1016	WO 2004/104891 to <i>Chauhan</i>
1020	U.S. Patent App. Pub. No. 2004/0230455 to <i>McKinney</i>
2001	Declaration of David Williams
2002	David Williams CV
2003	https://www.wsp.wa.gov/wp-content/uploads/2021/09/Application-Level-ITT-Specialized-Certificate-of-Competency-420263.pdf
2004	Lynnwood Case Study
2005	https://www.nfpa.org/News-and-Research/Publications-and-media/Blogs-Landing-Page/NFPA-Today/Blog-Posts/2020/10/30/guide-to-fire-extinguisher-inspection-testing-and-maintenance
2006	U.S. Published App. No. 2008/0114638 to Colliau
2007	U.S. Published App. No. 2003/0171957 to Watrous
2008	U.S. Published App. No. 2005/0108038 to Cober
2009	U.S. Patent No. 6,446,053 to Elliott
2010	U.S. Published App. No. 2006/0235611 to Deaton
2011	Annual Hydrant Inspection Procedures 2001
2012	U.S. Publication No. 2008/0084291 to Champion
2013	Claim 8
2014	Potts v. Martin & Bayley, Inc. Case Opinion
2015	Declaration of Andrew Moren
2016	Declaration of Leroy McNulty
2017	Declaration of Mike A. Miller
2018	Claim chart mapping Challenged Claims to Tegrifire
2019	Claim chart mapping Challenged Claims to Brycer <i>TCE</i>
2020	Declaration of David Williams in Support of Patent Owner Response

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2021	Excerpts from MacInnes Deposition Transcript
2022	Merriam-Webster Definition of Notice
2023	Anacortes, WA Fire Department Case Study
2024	Marysville, WA Fire Department Case Study
2025	Richland, WA Fire Department Case Study
2026	Welcome to ACS Firehouse Solutions—Website Aug 23, 2007
2027	Information system - Automation, Data Processing, Decision Support _ Britannica Website, accessed 4/12/2024
2028	www.researchgate.net/figure/Example-of-geographical-information-system-GIS-mapping-in-environmental-studies-Photo_fig1_330567969
2029	GIS electric utility map data layers - Search Images.pdf2
2030	https://www.giscloud.com/blog/gis-for-electric-utilities/ , Accessed April 12, 2024
2031	EX2031 - fire hydrant gis map data layer, fire hydrant gis map data layer - Search (bing.com)
2032	examples of life safety map data layers inside a building - Search (bing.com) , Examples of life safety map data layers inside a building - Search.pdf
2033	Life Safety Plans - 2018 Project Standards (weebly.com) , Life Safety Plans - 2018 Project Standards.pdf
2034	fire hydrant map data layer - Search (bing.com) , Fire hydrant map data layer - Search.pdf
2035	Quantifying the High Cost of Delayed Em...pdf
2036	Fire Hydrant System in Buildings_ Office_ Industries _ Best 2022.pdf
2037	Fire Hydrant Systems - Torvac.pdf
2038	Standpipe Connection for Fire Protection - What You Need to Know.pdf
2039	Relational Database vs Flat File (Differences & Similarities) - DatabaseTown.pdf
2040	City of Tumwater Brycer RFP
2041	12/16/2011 Richland WA email
2042	Benefits of Proactive Compliance Program
2043	10 Ways to Improve Fire and Life Safety Instructions with Software

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<i>In re Kao</i> , 639 F.3d 1057 (Fed. Cir. 2011)	59
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I. INTRODUCTION

Patent Owner Tegriss, Inc. (“Tegriss”) respectfully submits this Patent Owner Response, which is timely filed on or before April 17, 2024, pursuant to the Scheduling Order (Paper 10). On January 24, 2024, the Patent Trial and Appeal Board (“PTAB”) instituted *inter partes* review of claims 8-16 (collectively, the “Claims”) of U.S. Patent No. 11,126,966 (the “’966 Patent”) on the single ground of obviousness based on the combination of: (i) U.S. Patent Publication No. 2002/0029222A1 to Key (EX1005, “Key”); (ii) U.S. Patent Publication No. 2005/0021449A1 to Sweeney (EX1006, “Sweeney”); (iii) W.O. International Publication No. 2004/104891A1 to Chauhan (EX1016, “Chauhan”); and (iv) U.S. Patent Publication No. 2004/0230455A1 to McKinney (EX1020, “McKinney”) (collectively the “References”).

The Claims recite using a web-based registry to run a fire hydrant management software that provides collaboration between three primary stakeholders to track inspections of fire hydrants and related life safety assets, thereby saving lives. (See EX1001, 10:10-21.) The claimed invention achieves remarkable improvements in compliance, needed system repair, and annual inspection notification. (EX2015, ¶¶65-77, 89-190; EX2020, ¶¶95-104; EX2004; EX2023, EX2024, EX2025.)

The success and efficiency of the claimed invention is attributable to the steps of the Claims, which provide a collaborative, proactive, and efficient method for tracking asset inspection. (EX2015, ¶¶40-77; EX2016, ¶¶24-49; EX2020, ¶¶105-115.) The method in independent claim 8 (the only independent claim at issue) proactively notifies an asset owner and approval authority (*i.e.*, the authority having jurisdiction or “AHJ”) of an upcoming inspection in steps [8d]¹ and [8e] and allows an inspector, selected by an asset owner, to access the system, identify an upcoming inspection, and obtain a web-based template for conducting the inspection and standard format compliance report in [8f] through [8i] for noting compliance or deficiencies in the asset the latter of which is stored. (EX1001, 15:15-16:13; EX2013.) The claimed method provides an asset owner notice of an inspection deadline, including the information needed for the inspection, *e.g.*, type of inspection, costs, and a list of inspectors in proximity to the asset needing inspection as recited in [8d] and [8f]. (*Id.*) In [8e], it provides notice to the AHJ of the asset status. (*Id.*) The asset records are maintained in real-time and are

¹ Petitioners referred to the nine steps of claim 8 as [8a] through [8i], a nomenclature that Tegriss follows for consistency and clarity. EX2013 shows claim 8 with enumerated paragraphs.

accessible to the AHJ, owners, and inspectors. The References, alone or combined, do not disclose teach or suggest the features of claim 8 and thus do not render claim 8 obvious.

A. Patent Owner Requested Relief

The Petition is procedurally and substantively defective for at least the reasons set forth herein. Tegriss requests that the Board enter an order finding that Petitioners (“Brycer”) failed to meet their burden of proving the Claims are obvious under 35 U.S.C. § 103.

B. Summary of the Argument

The sole ground of unpatentability fails for several reasons. First, the proposed combination of Key with McKinney, Sweeney, and/or Chauhan fails to teach every limitation in the Claims. As set forth in the Declaration of David Williams (EX2020, ¶¶218-279), the References fail to disclose at least the following limitations of claim 8, from which the other Claims depend:

(1) [8b] and [8c] analyzing records of assets to identify notification events, then based on that analysis, [8d] notifying an owner of the asset regarding the type and cost of the inspection, and based on the same analysis, and [8e] sending a standard format notice to an approval authority of the status of the asset (EX2020, ¶¶239-260);

(2) [8d] notice sent to the owner including a “standard format description of the type of inspection, and a cost associated with the type of inspection” and “wherein the notification event comprises a designatable interval in advance of an impending deadline for the inspection” (EX2020, ¶¶252-257.)

(3) [8e] sending a standard format notice to the approval authority of the status of an asset in advance of an inspection (EX2020, ¶¶258-262);

(4) [8f] owner selection of an inspector based “upon a list of qualified inspectors that are available to inspect the asset based upon attributes including proximity to the asset” (EX2020, ¶¶263-279);

(5) [8a], [8b] and [8f] “web-based registry is configured to run a fire hydrant management software” performing the steps of retrieving real-time records from a data base and providing the inspector a web-based inspection template (EX2020, ¶¶218-251).

Key discloses an Inspection Routine exemplified in Fig. 5 for boilers or other pressure vessels, in which the asset owner has no role in the inspection. (EX1005, [0080]-[0092]; EX2020, ¶¶183-194.) Key explains the asset owner’s sole role is to pay fees. (EX1005, Figs. 6, [0097], [0098]; EX2020, ¶254.) Key

explains jurisdictions delegate inspections to insurers, which provide the inspectors. (EX2005, [0048]-[0050].) For scheduling an inspection, Key describes a work assignment unit that places a task in the insurance company's scheduled inspection listing, and, when an inspection report is available, it places a task in the jurisdiction's item task listing. (EX1005, [0076], [0184].) Key does not disclose [8d] transmitting to the asset owner notice comprising a "standard format description of the type of inspection, and a cost associated with the type of inspection, and wherein the notification event comprises a designatable interval in advance of an impending deadline for the inspection transmitting to the approval authority." (EX1001, 15:33-38; EX2020, ¶¶254-257)) Key does not disclose that the owner can augment the database as recited in [8b]. (EX2020, ¶¶239-243.) Key also does not disclose the claimed real-time records. (EX2020, ¶¶221-237, 244-247.)

Key teaches away from [8d] (notifying an asset owner of upcoming inspections), by disclosing that jurisdictions delegated inspections to insurers. (EX2020; ¶¶254-257.) Key teaches away from [8f] (the asset owner selecting the inspector), by requiring the insurer to select the inspector, wherein the selection is not "based upon a list of qualified inspectors that are available to inspect the asset based upon attributes including proximity to the asset." (EX1001, 15:49-54;

EX2020, ¶¶255, 264.)

Key does not disclose [8e] sending a standard formant notice to the AHJ of an upcoming inspection. (EX1001, 15:43-54.) Key teaches away, describing a task placed in the jurisdiction task list, after the inspection is complete and a report issued. (EX2020, ¶¶258-262; EX1005, [0076], [0184].)

Petitioners assert it would have been obvious and logical to a POSA to notify an asset owner in advance of an inspection. (Paper 1, p. 43 citing EX1003, MacInnes Decl. ¶¶177-183.) Mr. MacInnes, asserts, with no supporting citation, that Key discloses a “notification system” to notify users of “notification events” in advance of an inspection, including “automatic notification to owners, based on database analysis.”. (EX1003, ¶175.) He likewise opines, without supporting citation, the recited notice contents “would have been logical, and was in fact known to a POSITA”. (*Id.* at ¶177.)

Petitioners argue Key and Sweeney combined disclose “notifying the owner of an asset” “in advance of an inspection,” by disclosing an asset owner may query a database (with archived inspection reports) to generate a report and an email may be sent to the owner when the report is posted. (Paper 1, pp. 46-47 citing EX1006, [0042], [0017].) Even if an asset owner queried archived inspection reports, it would not constitute [8d] “notifying the owner of an asset” in advance of an

inspection nor would it disclose the recited contents of such notice, *e.g.*, a standard format description of the type of inspection to be performed and a cost associated therewith. The Key and Sweeney combination does not disclose or suggest [8d]. (EX2020, ¶¶252-254.)

Petitioners also assert Key discloses [8e] (sending a standard format notice to the approval authority of the status of an asset), or that it would have been obvious to include in Key. (Paper 1, p. 49.) Petitioners argue Key discloses a notification system to notify users, while failing to cite language - instead asserting it would be obvious to provide relevant users with the relevant information. (Paper 1, pp. 49-50 citing EX1003, ¶¶197-199.) Mr. MacInnes states “the importance and logic of providing necessary information to the necessary stakeholder at the appropriate time” was known to a POSA. (EX1003, ¶199.) Key discloses the jurisdiction online manager (“JOM”) places a task in a task list when review by the jurisdiction is required. (EX1005, [0077].) Key is devoid of disclosure notifying the jurisdiction in advance of an upcoming inspection since inspections are delegated to insurers. Accordingly, there would be no need in Key for “sending a standard format notice to the approval authority of the status of the assets,” as 8[e] recites. (EX2020, ¶¶255-262.)

Petitioners argue Key combined with McKinney and/or Sweeney disclose [8f] (the asset owner selecting the inspector from a list of available inspectors based upon attributes including the inspector's proximity to the asset). (Paper 1, pp. 58-59). However, Key teaches away from the asset owner selecting the inspector, explaining that jurisdictions delegated inspections to insurance companies, not owners of asset, as referenced above. (EX1005, [0044]; EX2020, ¶¶263-267.) While McKinney discloses online contracting between a home owner and a wastewater service company and that regulations may require that service personnel be "authorized representatives" (*see* EX1020, ¶¶[0063],[0064])), it does not disclose [8f] (providing an asset owner a list of service providers from which to choose for an inspection, where the selection is based in part on their proximity to the asset"). (EX2020, ¶271-275.) Sweeney describes a system for contractors to submit bids on a construction project from which the asset owner may select a winning bid (*see* EX1006, [0043]), but it too does not disclose the bidder proximity to the asset or that the bids are for inspection, as opposed to construction. (EX2020, ¶272.) The Key, McKinney, Sweeney combination, for which there is no motivation to combine, does not teach the limitations of [8f]. (EX2020, ¶279.)

Mr. MacInnes admits the references fail to disclose the fire hydrant management software ("FHMS") in claim 8 preamble and recited steps, which,

inter alia, retrieve real-time records ([8b]) and provide a web-based inspection template ([8f]). (EX1003, ¶143 citing EX1016, [207].) He opines it would have been obvious to manage the inspections of fire hydrants employing Key, in part, based on Chauhan mentioning a HYDRANT themed user interface, in the context of limiting access to contractors. (EX1003, ¶¶122-127 citing EX1016, [207].)

Claim 8 recites systems and processes using geographic information systems (“GIS”) employing GPS to identify the location of fire hydrants and related systems. (EX1001, Figs. 4A, Fig. 4B, Fig. 6, 4:17-20, 8:4-10.) GIS systems require layers of data that are particular to the application, type of asset, and data collected. (EX2020, ¶¶118-169.) ‘966 Patent Figures 4A and 4B depict a relational database with data fields, including GPS location data, and interrelations between them unique to managing the inspection process for fire hydrants.

(EX1001.) A POSA would not look to Key’s management of pressure vessels or Chauhan’s public utility system, nor combine them, nor have a reasonable expectation of success in doing so, for claim 8’s use of FHMS for the “requisite inspections” of fire hydrants and related assets. (EX2020, ¶¶142-149; 169-179.)

The ITM processes for those assets are subject to extensive regulation, to which the claim 8 process must conform, that would not be met by Key alone or combined with the References. (EX2015, ¶¶31-64.)

Asset management systems are not interchangeable, where the software for managing one category of assets for a particular application can be used to manage other categories of assets. Such software and related systems are designed for a particular application to achieve one or more purposes. (EX2020, ¶¶151-180.) The ‘966 Patent describes methods and software for improving the compliance of fire hydrants and related assets, which ultimately save lives and property, as first responders can assess the real-time records therein when responding to a fire. (EX1001, 10:10-21.) Conversely, Chauhan is directed to managing the assets of a public utility; hence, it does not describe managing inspections for hydrants or its systems being accessible by first responders. (EX2020, ¶¶118-151.) It would not have been contemplated for a POSA to modify Key or combine it with Chauhan to achieve the FHMS recited in claim 8. (*Id.*)

Petitioners failed to meet their burden of proof, relying on conclusory statements instead of well-reasoned and evidenced arguments. The Petition lacks any claim construction analysis to support the assertion that the prior art taught the steps of the Claims. When claim 8 is properly construed, it becomes apparent that numerous limitations recited therein are not disclosed by the References. Brycer relies on unrelated snippets from several references, and at times on the alleged knowledge of a POSA, to assert functionality that is allegedly similar to various

the steps of claim 8, while failing to demonstrate the alleged combination teaches all the limitations of the Claims, which is insufficient as a matter of law. *Virtek Vision Int'l ULC v. Assembly Guidance Sys., Inc.*, Nos. 2022-1998, 2022-2022, 2024 U.S. App. LEXIS 7185, *8 (Fed. Cir. 2024).

Petitioner's reliance on MacInnes' declaration does not supply the elements missing in the References. Mr. MacInnes' opinions are defective and inadmissible because: (i) he does not have the requisite experience of a POSA (EX1004; EX2021, pp. 10-15; 24-25; EX2020, ¶44); (ii) he did no investigation and had no prior knowledge or experience regarding managing the inspections of fire hydrants or related equipment, the regulations mandating inspections thereof, or methods used by others, including software, for managing inspections and compliance; instead, accepting the references provided by Petitioners' counsel (EX2021, pp. 33-34); (iii) the portion of his declaration regarding the References are not his opinions, as it was written by Petitioners' counsel -- MacInnes adopted them after-the-fact without change (EX2021, pp. 40-42); (iv) he did not review the prosecution history, even though he swore the contrary in his declaration, which includes extensive analysis thereof (*compare* EX1003, ¶48 *with* EX2021, p. 75); and (v) he did not investigate or consider objective indicia of nonobviousness, a fact which he attempted to obfuscate declaring, "I am not aware of any objective

indicia of nonobviousness relevant to the claims of the '966 Patent.” (*compare* EX1003, ¶21 with EX2021, pp. 91-93).

Mr. MacInnes’ adopted obviousness analysis and opinions are also defective, as he fails to explain the motivation, other than impermissibly gleaned from the '966 Patent, to combine the References to arrive at the invention recited in Claim 8. An expert witness cannot opine on obviousness when he failed to consider all pertinent factors, like objective indicia of nonobviousness. *InTouch Techs., Inc. v. VGo Communs., Inc.*, 751 F.3d 1327, 1352 (Fed. Cir. 2014). None of the cited references relate to the inspection, testing, and maintenance (“ITM”) of fire hydrants or other emergency or life-safety equipment, which is a unique category of assets for management, with unique challenges addressed by the '966 Patent. (EX2015, ¶¶31-64; EX2020, ¶¶67-74.) Mr. MacInnes broadly defines the pertinent field of technology as asset management to encompass the References, cherry-picks them for disparate disclosures, but fails to explain his motivation to combine thus failing to obviate claim 8.

C. The Objective Indicia of Non-Obviousness Weigh in favor of Validity.

Petitioners and Mr. MacInnes failed to address or consider any objective indicia of nonobviousness. A nexus exists between the commercial success each

party's services and the Claims. As detailed below, Tegrifire and Brycer's TCE both practice the Claims. As will be seen below, over the last decade, thousands of municipalities in all 50 states have adopted Tegrifire and Brycer's TCE. Property owners, inspectors, and AHJs all use, propagate, and advocate for the patented method. The commercial success of Tegrifire and Brycer's TCE weigh in favor of a nonobviousness conclusion.

At least two case studies discussed below illustrate the unexpected results achieved by using the patented methods. Momentous improvements in compliance and significant decreases in the percentage of systems with a deficiency were achieved. Compelling increases were realized in the number of identified properties, the number of known assets, the number of licensed inspectors and the number of assets being inspected. Finally, the level of communication with owners and inspectors increased significantly. Tegrifire has received consistent industry praise. These unexpected results and industry praise favor a finding of nonobviousness.

Before the '966 Patent, most property owners would only complete inspections if the fire marshal required it. The prior process and programs taxed limited budgets and manpower, allowing assets to be ignored. Conventional fire and life safety industry programs could not efficiently and

effectively achieve significant levels of compliance. The '966 Patent provided this long-needed efficiency and effectiveness. This also weighs in favor of validity.

Brycer copied Tegrifire shortly after Tegrifire disclosed it to the National Fire Sprinkler Association ("NFSA"). Brycer incorporated thereafter and its TCE was on the market a year later. Since that time, Brycer's TCE has had great success gaining adoption with major cities. Copying by others weighs in favor of validity.

Finally, BuildingReports.com is in the process of licensing the '966 Patent from Tegrifire; another factor in favor of validity.

II. RELATED LITIGATION AND PATENT PROSECUTION

Tegrifire has a pending suit enforcing the '966 Patent against Petitioner Brycer, LLC in *Tegrifire, Inc. v. Brycer, LLC*, Case No. 1:23-cv-07744, in the Northern District of Illinois, which is stayed pending the resolution of this proceeding. There are also pending U.S. continuation patent applications, application serial No. 17/405,909 and application serial No. 17/942,876, that each claim priority to the '966 Patent.

III. BACKGROUND: THE LACK OF COMPLIANCE PROBLEM

The Claims recite methods using FHMS and a web-based registry to track asset inspection. The ITM of fire hydrants and related life safety equipment is a distinct field, with different requirements and challenges from other assets, such as those in the References.

The ‘966 Patent discloses “to ensure that a fire hydrant is working and is capable to dispense water the hydrant is preferably inspected annually.” (EX1001, 1:39-41.) The inspection process encompasses ITM pursuant to jurisdiction-dependent regulations. (*See e.g.*, EX2015, ¶¶6-8, 19, 31-64, 106; EX2016, ¶¶7-11.) AHJs are responsible for compliance with such regulations. Prior to 2007, before the first provisional application for the ‘966 Patent was filed, most AHJs maintained paper records. (*See e.g.*, EX2015, ¶124; EX2016, ¶25; EX1001, 2:9-12.)

Some AHJs used in-house software to create databases or listings to assist in ITM for hydrants and related assets; however:

These previous software approaches focus on collecting limited data on each fire hydrant and keeping the information local to the fire department or owner only. A typical fire hydrant management software program allows the user to input hydrant information,

schedule maintenance, and create reminders for service. The local fire department can evaluate inputted data to determine water flow information and general location. These programs do not record data such as water quality, GPS location, or condition. Also, they do not record requests for maintenance or improvements. None of previous approaches communicate with each other or communicate with a global registry. In fact, none of them communicate with other users who use the same program....

(EX1001, 1:59-2:6.)

These processes were labor-intensive and cumbersome to maintain given that a fire department could be responsible for compliance for tens of thousands of assets, with new, decommissioned, or other changes in assets, inspections thereof, and following-up on repairs to correct deficiencies. (EX1001, 3:55-4:8; EX2015, ¶124.) Even with the aid of inhouse software, these were manual processes that AHJs implemented in a “top-down” fashion to enforce compliance with regulations requiring periodic inspections. (See EX1001, 2:64-3:4.) These compliance efforts were difficult to maintain, as AHJs had limited budgets and resources for ITM enforcement and many other responsibilities. (EX2016, ¶¶24-27.) They did not provide real-time updated information. (*Id.*)

Conventional ITM process for hydrants would include: (i) top-down compliance programs (driven/pushed by jurisdictions, with little regard for other stakeholders), (ii) fragmented data (little-to-no coordination among stakeholders), and (iii) paper-based with limited technology (typically, file cabinets).

Compliance rates were typically well below fifty percent (50%), and in some instances as low as twenty percent (20%). (EX2015, ¶¶ 89-154; EX1001, 1:54-58.)

The primary factors attributed to such low rates were:

- Lack of Collaborative Design —Few tools were available for proactively complying with regulations. Asset owners could not meaningfully contribute to the compliance process, which caused the prior attempts to fail. (EX2015, ¶¶53-59; 65, 68-71; EX2020, ¶77.)
- Data Fragmentation and Lack of Visibility by All Key Stakeholders— When ITM data was predominately on paper, or in standalone systems, asset owners were often unaware of ITM requirements or deadlines, relying on the AHJ to notify them. (EX2015, ¶¶67, 93-95; EX2016, ¶25; EX2020, ¶¶69, 77; EX1001, 1:43-49.)

- Top-Down Processes— With compliance programs driven from “the top,” *e.g.*, the AHJs, other stakeholders, inspectors and asset owners, generally did nothing until notified -- this often did not happen due to AHJ limited resources and labor-intensive processes. (EX2020, ¶77.)

By 2007, networking generally was maturing, including using client-server architectures, (stationary) computers, and enterprise-wide applications, along with (some) business use of the internet. (EX2020, ¶79.) However, other networking technology, *e.g.*, mobile technology, was not commonly used. (EX2020, ¶80.) Further, cloud services, are now extremely helpful in web-based applications; however, before the invention, they were new, Amazon Web Services (“AWS”) was launched in 2006. (EX2020, ¶79.) The information technologies used by business were primarily for internal computing, not typically for end customers, and then primarily for rudimentary data collection and delivery (obtaining customer information and delivering documents). (EX2020, ¶80.)

While GIS existed in 2007, it required powerful computers and specialized knowledge, which were often scarce in AHJs. (EX2020, ¶81.) Even more scarce were the large scale, specialized map data needed for key GIS-enabled applications, such as public/outside fire hydrant map data and inside-building private hydrant sprinkler data. (*Id.*; EX1001, 2:50-54.) Such layers required significant—and

different—efforts to collect, process, structure, store, and adapt GIS tools for such data to be both viewable and integrated with other data to provide key life safety functionality, such as the real-time providing to fire departments geographically-visible maps of working and non-working hydrants and sprinkler systems in a particular area of a building being consumed by fire. (EX2020, ¶82.)

Importantly, GIS systems—notably the data layers used, the operational layers they overlay, and what the combinations are used for—vary greatly across industries *and are not interchangeable*. (EX2020, ¶82, 118-150.) The data layers and data differ. *Id.* A utility GIS system, with its utility-specific map data layers (such as electrical transmission networks) and integration with utility industry-specific operational data (such as distribution substations and field crews responsible for a given area), for purposes of managing outages, differs from FHMS/life safety GIS systems, where fire hydrant asset network map data (public AND private) must be integrated with building layouts (outside and inside), and with data about which systems are working (in compliance) or not, to assist fire departments in responding to fires and other emergencies. *Id.* GIS systems are not interchangeable, and a

POSA would not look to a utility GIS system to use for FHMS/life safety purposes.

Id.

IV. THE ‘966 PATENT’S COMPLIANCE SOLUTION

The ‘966 Patent solved compliance deficiencies by providing a collaborative, proactive, and efficient process for ITM for fire hydrants and related life safety assets. (EX2015, ¶¶46-61; EX2016, ¶¶24-34, 47-49; EX2020, ¶¶69, 74, 79-80, 84-98.) Collaborative software systems are a unique genre of software design, with generally recognized features, such as, facilitating communication and teamwork among users, allowing different individuals to work simultaneously on a shared project. (EX2020, ¶¶105-117.) While the concept of collaboration may now appear intuitive, it does not occur “naturally” in software design; indeed, it has to be specifically designed that way, particularly in treating all stakeholders as equal. (EX2020, ¶¶105-112.)

The ‘966 Patent describes and claim 8 recites a process embodying these collaborative features. (EX2020, ¶¶113-117.) First, the claimed process facilitates communications and teamwork across organizations (AHJs, inspectors, and owners). (*Id.*) The claimed ITM process is very much an example of a workflow system, where the inspection, need for repair, actual repair, and (if needed) re-inspection work steps are done in a certain order, and the recited process provides

for stakeholders to efficiently work in tandem. (*Id.*) The recited process provides a web-based registry with real-time records, where all stakeholders have access to and the ability to update the records. (*Id.*) This process effectively expands the database and maintains records in real-time, while relieving the AHJs of that burden. (*Id.*)

The References do not disclose collaborative systems and do not disclose asset owners as an equal participant. (EX2020, ¶¶113-117.) Key describes a process for use across jurisdictions, essentially for selecting jurisdiction-dependent inspection report forms. (*Id.* at ¶116.) Chauhan, Sweeney and McKinney are closed systems, managed top-down for their particular applications. (EX2020, ¶¶117-119, 165-169.) None are designed with all the stakeholders contributing to building and maintaining the system database.

Claim 8 of the ‘966 Patent recites automatically sending, based on an analysis of records, [8d] and [8e] notices of upcoming inspection to the asset owner and approval authority, a core improvement over existing systems. (EX2020, ¶¶77, 91-95.) While “simple” in the abstract, it is hard to successfully implement, if not designed from the start, to facilitate cross-stakeholder communications. (*Id.*) By automating the process for sending notices to the AHJs and asset owners, the claimed process removes that administrative burden from the

AHJ and initiates the process where the asset owner has the responsibility to select an inspector to perform an inspection. (*Id.* at ¶¶97-98)

Another core improvement driven by the ‘966 Patent is efficiency. (*See* EX2020, ¶¶76, 95-98.) The [8d] notice sent to the asset owner not only indicates the need for an inspection, but also identifies the asset to be inspected, type of inspection, and cost related thereto. The asset owner can obtain an [8f] list of available inspectors and information regarding proximity to the asset, all of which increases efficiency for asset owners to meet their obligations. [8f] also provides for inspectors’ FHMS access to identify assets they have been selected to inspect, obtain a template for such inspections and a standard format compliance report, that can be generated and automatically uploaded to the web-based registry in [8g]-[8i]. The AHJ receives that standard format compliance report, from which it can determine whether an asset is compliant or deficient. Claim 8’s process efficiency also extends to deficiency tracking, which had always only been done manually. (*See* EX2020, ¶¶95-96.)

The effect of the ‘966 innovations were extraordinary, resulting in major improvements to compliance rates and related metrics. Tegriss conducted case studies of early implementations of its system covered by the Claims and found that compliance improved over 100%, the number of systems repaired improved

over 180%, and the number of property owners receiving annual notices in advance of needed inspections improved from 20% to practically 100%. (EX2015, ¶¶43-123; EX2020, ¶¶98-104; EX2004; EX2023, EX2024, EX2025.) The success of the claimed invention is directly attributable to the collaboration between stakeholders, proactivity in notifying them, and efficiency driven by standardized notices, web-based inspection templates, and standardized compliance reports. (EX2015, ¶¶21-66; EX2016, ¶¶24-47; EX2020, ¶¶105-115.)

V. PROSECUTION OF THE CHALLENGED CLAIMS

The prosecution of the '966 Patent extended for over thirteen years, with several Office Actions. Challenged Claim 8 (Claim 21 during prosecution), was added by Response to Office Action on November 21, 2011. (EX1002, pp. 133-141). The Section 103 rejections are summarized below:

Date	EX1002 pg. ref.	§103 Rejections for Claim 8
3/29/13	192-199	Watrous (US 2003/0171957 A1) in view of Colliau (US 2008/0114638 A1)
5/9/2014	232-240	www.buildingreports.com Sept. 4, 2004, in view of US Pg Pub Frost Interactive process for real estate transactions in further view of “America’s Tunnel Highway”

3/9/18 321-343 *Campion* (2008/0084291) in view of *Colliau*
(2008/0114638)

11/26/18 373-399 *Campion* (2008/0084291) in view of *Colliau*
(2008/0114638)

10/31/19 438-480 *Campion* (2008/0084291) in view of *Colliau*
(2008/0114638) in further view of *Deaton*
(2006/0235611)

Claim 21 was also rejected under Section 101. Tegrís overcame the rejection by amending the claim to employ a web-based registry and “fire hydrant management software”. (See EX1002, pp. 604-616, 628 - 629.)

The Patent Examiner explained the claimed invention is directed to using a fire hydrant management software system accessible via a web registry to track a requisite inspection of an owned asset and the combination of *Campion*, *Silva*, *Cober*, *Elliott*, *Colliau*, and *Deaton* references would not teach, suggest, or otherwise render obvious, claimed invention. (EX1002, pp. 629-632.)

VI. CLAIM CONSTRUCTION

A patent claim shall be construed using the same claim construction standard in a civil action under 35 U.S.C. § 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the

patent. 37 C.F.R. § 42.100 (2018); *see also Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005). Claim language should be read in light of the specification, as it would be interpreted by a POSA. *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004).

The Claims are independent claim 8 and dependents 9-16. Petitioners failed to construe the Claims, as Mr. MacInnes allegedly employed the understanding of a POSA. Claim 8 as properly construed reinforces that several elements are missing from the asserted references.

**A. [8b], [8c], [8d], and [8e] Collectively Recite Simultaneously
Sending Separate Notices to the Approval Authority and Asset
Owner of an Upcoming Inspection.**

Claim 8 recites using a “fire hydrant management software” and “web-based registry” to “track the inspection compliance of an owned asset,” and states in [8a] that the web-based registry is configured to run a fire hydrant management software. (EX1001, 15:16-26.) It then recites steps taken by or in connection with the fire hydrant management software. (EX1001, 15:14-56.) [8b] recites the “fire hydrant management software” retrieving “real-time records of assets from a database,” [8c] recites “analyzing the records of assets” “to identify notification events,” and [8d] and [8e], respectively, recite “based on that analysis” notifying

the asset owner of the type of inspection and costs thereof, and sending a standard format notice to the approval authority of the status of the asset.

Mr. MacInnes acknowledged a POSA would understand that notices sent to the owner and AHJ are based on the same analysis of records in [8c] and would be sent out at the same time. (EX2021, pp. 62-63.) He acknowledged that those notices are represented by item 510 in ‘966 Patent, Fig. 5, depicting a method for a web-based inspection registry. (EX2021, pp. 73-74.) The ‘966 Patent explains that at block 510 an owner/inspection authority is notified that an inspection is needed on an owned asset. (EX1001, 8:15-19.) These steps should collectively be construed to mean that notices are sent simultaneously to the owner and AHJ regarding an upcoming “notification event,” which is construed below as an upcoming inspection for a fire hydrant or other life safety asset.

**B. [8d] “Notifying” and [8e] “Sending a ... Notice” Means
Automatically Sending A Message, As Opposed to Providing
Access to a Web-Registry or Software Where Information May
Be Found.**

[8d] recites “notifying the asset owner of a notification event.” That step further recites that such notice includes information, such as, a standard format description of the type of inspection, and estimated cost thereof. [8e] recites

sending a “standard format notice” to the inspection authority regarding the status of the asset to be inspected. By contrast, [8d] and [8e] provide that the asset owner and approval authority, respectively, may “update and review the status of the assets” “upon accessing the fire hydrant management software.” Likewise, [8f] provides that “an inspector” “upon logging into a password-controlled website” is provided “a web-based template” describing the asset and the steps for the inspection thereof.

The ‘966 specification states:

...the fire marshal/building official will input information via the online registry regarding properties with fire sprinkler systems after initial inspection. A year later, the property owner will receive notice (via email, physical mail, or other) that the fire sprinkler system is due for annual inspection. The fire marshal will receive weekly or monthly updates of all due and overdue inspections. He/she will then use the registry to communicate to the owner his intention to enforce the inspection and the requirement for using the registry. The owner will use the registry to find qualified inspection companies and/or request bids from participating inspection companies.

EX1001, 4:24-36, emphasis added. Accordingly, [8d] “notice” or [8e] “notifying”

should be construed to mean automatically sending a message to the asset owner and AHJ. (EX2020, ¶¶57-66.)

Brycer construed those claim terms impermissibly broadly, conflating an affirmative action (notice/notifying) with a passive action (making information available via access to software or a database). (EX2021, pp. 102-104, 106.)

Like the '966 Patent, Key also differentiates between sending a message and providing access to a system. Key describes a work assignment unit 430 that responds to communications via a web browser. (EX1005, [0076].) It explains that users are not allowed to access/login to that unit without proper authorization. (*Id.*) For an inspection, that unit places a task in the insurance company scheduled inspection listing, and when the inspection is completed, it places a task in the review changes listing of the jurisdiction. (*Id.*) Key then distinguishes this and describes a notification system 414 that sends communications to users via email, automatically generated telephone calls, facsimile and other wireless communications. (*Id.* at [0071].)

Neither the '966 specification, nor the plain language of claim 8, support a construction of passive notice or notifying that includes merely placing information in a list or database that requires a user to login to a system to view it. (EX2020, ¶¶59-66.)

**C. [8c] “Notification Event” Should Be Construed To Mean an
Upcoming Inspection for a Fire Hydrant or Related Life Safety
Device or System.**

[8c] recites analyzing the records of assets to identify “notification events.” Claim 8 also recites a “method for using a fire hydrant management software and a web-based registry to track requisite inspection of an owned asset.” In [8d], a notice of the “notification event” is sent to the asset owner, where it includes a “standard format description of the type of inspection” and “a cost associated with the type of inspection”.

[8f] provides that the asset owner selects an inspector and may be provided a list of qualified inspectors including their proximity to the asset to be inspected. [8f]-[8i] address web-based templates for taking the inspection, standard format compliance report, storing data from the inspection, and communicating with the approval authority the compliance report.

The ‘966 Patent describes managing a registry of owned assets, “more specifically fire hydrant inspections.” (EX1001, 3:55-56.) It describes the stakeholders regarding the maintenance and inspection of fire hydrants, the difficulty in maintaining communications between them, and that the importance of properly maintaining such devices “may be the difference in the survival of

personnel and total destruction of the burning building.” (EX1001, 3:58-4:8.) It then generally describes the compliance steps recited in claim 8 including steps to “take an owner of an asset from a notification that an inspection is needed, through bidding for an inspector, inspection, approval and payment and finally posting of the inspection in the registry.” (EX1001, 4:13-17.) It also provides that the “registry further stores location information in order to allow a user with a global positioning system and access to the web-based registry to review the status of all of the hydrants in the general area.” (EX1001, 4:17-20.)

While Tegriss urges a different construction of “fire hydrant management software,” the Board construed that term as “management software that processes information about fire hydrant assets.” (Paper 8, p. 22.)

In the context of the other elements of claim 8 and the ‘966 specification, “notification events” in [8b] should be construed as “upcoming inspections for fire hydrants and related assets.”

D. Tegriss’ Proposed Construction of Fire Hydrant Management

Software Is Consistent with the Intrinsic Record.

The term “fire hydrant management software”, in view of claim 8 and the ‘966 specification by POSA, should be construed as:

Software that allows the user to input fire hydrant information, schedule maintenance, and create reminders for service.

(EX2020, ¶¶54-56.) The Board did not agree with that construction. (Paper 9, p. 22.) Patent Owner’s proposed construction is essentially the same as the description of fire hydrant management software in the specification and is consistent with the plain language of claim 8. (EX1001, 1:62-65, 15:16-13.)

The Board disputed whether “fire hydrant” relates to a functional characteristic of the “fire hydrant management software, citing MPEP § 2111.05 Functional and Nonfunctional Descriptive Material (R- 07.2022). (Paper No. 9, p. 20.)

Yet *In re Lowry*, 32 F.3d 1579, 1583-84 (Fed. Cir. 1994) overruled the Board’s reliance on MPEP 2111.05 because:

The printed matter cases have no factual relevance where “the invention as defined by the claims requires that the information be processed not by the mind but by a machine, the computer.” [citation omitted.] Lowry's data structures, which according to Lowry greatly facilitate data management by data processing systems, are

processed by a machine. Indeed, they are not accessible other than through sophisticated software systems. The printed matter cases have no factual relevance here.

The printed matter cases have no factual relevance here for the same reason.

[8a] recites “the web-based registry is configured to run a fire hydrant management software,” [8b] recites that software retrieving real-time records of assets from a database, and [8c] recites analyzing such records to identify notifications events. [8f] recites that software providing to an inspector the owner selects “a web-based template configured to describe the asset an each of the steps of the inspection.” The term “fire hydrant” is not merely descriptive as it provides the subject of the “management” of “requisite inspections” performed by the software, which must conform to hydrant-specific regulations. (EX2015, ¶¶30-64.) Also, GIS is a significant part of the invention; hence, a POSA would recognize that “fire hydrant management software” would have a very different structure than general asset management software or software used to track the location and condition of other assets, like Key’s pressure vessels or Chauhan’s utility assets. (EX2020, ¶¶118-150, 152-169.)

The ‘specification discusses earlier attempts to deploy fire hydrant management software by AHJs; however, the top-down approach employed was

difficult to maintain and failed to cure low compliance rates. (EX1001, 1:59-2:13, 2:66-3:4.) The specification describes, and claim 8 recites, fire hydrant management software in combination with a web-registry and collaborative design which solved that problem. (*Id.* at 3:8-16.)

Figs. 4A and 4B evince the uniqueness of a GIS software system for managing the inspections of fire hydrants and related equipment showing the data collected for that application. (EX1001, Figs. 4A and 4B.) The data fields include but are not limited to; hydrant ownership, make, model, year, color, condition, rating of needed maintenance (critical, important, light, or none), specific recommended maintenance, pressure, flow, GPS location, address, time of inspection, digital picture of hydrant, nozzle size and orientation, physical description of hydrant, special markings, service record, water quality, and hydrant number. (EX1001, 8:4-14.) The relational database shows how the fire hydrant management software can be configured to receive and analyze information for each fire hydrant and generating compliance reports based on the stored information and updated information received from stakeholders. (See EX2020, ¶¶174-177.)

The '966 Patent explains advantages of using the fire hydrant management software as recited in claim 8 as:

The global registry is intended to assist the government, private owners, insurance bureaus, businesses, and the general public in providing information regarding hydrant condition, location, and water quality. The most important purpose is to prepare the fire department for the hydrant and water conditions prior to arriving at a fire incident.

(EX1001, 10:10- 10:15.) It explains how numerous other entities will benefit from the described fire hydrant management software, including budgeting committees, private hydrant owners, fire hydrant management crews, inspection crews, residents, city planners, etc. (*Id.* at 10:15-11:16.)

For these reasons among others, “fire hydrant” is not merely a descriptive part of “fire hydrant management software,” but rather, a functional aspect thereof.

VII. PERSON OF ORDINARY SKILL IN THE ART

Petitioners’ proposed POSA fails to consider the express scope of the Claims, which are limited to a method for “using a fire hydrant management software and web-based registry.” Petitioners fail to consider the prosecution history, which shows the claims were allowed after they were limited to the field of technology relating to fire hydrant management software. A POSA should at

minimum have knowledge of and experience in the inspection and maintenance of fire hydrants or at least similar emergency or life safety assets, applicable regulations, and software available for use in connection therewith in 2007.

(EX2020, ¶¶40-43.) Mr. MacInnes does not have this knowledge or experience and did not confer with anyone who does to provide a sufficient foundation for his opinions (EX2020, ¶44), instead he merely adopted the opinions and analysis of Petitioners' counsel. (EX2021, pp. 40-42.)

VIII. Claim 8 Limitations Missing from the References.

A. Applicable Standard

Petitioners must prove that the claimed subject matter would have been obvious to a person of ordinary skill in the art at the time of the invention. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The Board must determine the scope and content of the prior art, differences between the prior art and the claims, and the level of ordinary skill in the art, as well as consider any objective indicia of nonobviousness. *Graham v. Deere*, 383 U.S. 1, 17 (1966). Proper analysis under § 103 requires proof that even if all elements of a claimed invention are taught or suggested by the prior art, the prior art would have also suggested to one skilled in the art that they should make the claimed invention as a whole and that they would have a reasonable expectation of success in so making. *Intri-Plex Techs., Inc. v.*

Saint-Gobain Performance Plastics Rencol Ltd., IPR2014-00309, Paper 83 at 19 (PTAB Mar. 23, 2014); *Endo Pharm., Inc. v. Actavis LLC*, 922 F.3d 1365, 1373 (Fed. Cir. 2019) (“An obviousness determination requires finding that a POSA would have been motivated to combine or modify the teachings in the prior art and would have had a reasonable expectation of success in doing so.”).

“[A] patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *KSR* 550 U.S. at 418. To determine whether there was a reason to combine known elements in the manner claimed, it is often necessary to “look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art.” *Id.* Conclusory assertions from a third party about general knowledge in the art cannot, without supporting evidence of record, supply a limitation that is not evidently and indisputably within the common knowledge of those skilled in the art. *K/S Himpp v. Hear-Wear Techs., LLC*, 751 F.3d 1362, 1365 (Fed. Cir. 2014).

“[C]ommon sense” – whether to supply a motivation to combine or a missing limitation – cannot be used as a wholesale substitute for reasoned analysis and evidentiary support, especially when dealing with a limitation missing from

the prior art references specified”. *Arendi S.A.R.L. v. Apple, Inc.* 832 F.3d 1355 (Fed. Cir. 2016).

Petitioners failed to prove that every limitation in the Claims can be found in the References, failed to disclose a motivation to combine the References and Mr. MacInnes’ unsupported conclusory statements are legally insufficient impermissible to cure these defects.

B. The References Do Not Teach Sending Notices to the Asset Owner and Approval Authority in Advance of An Upcoming Inspection.

[8b] and [8c] respectively recite retrieving and analyzing real-time records of assets to identify notification events; then based on that analysis, [8d] recites notifying an owner of the asset regarding the type and cost of the inspection; and based on the same analysis, [8e] recites sending a standard format notice to an approval authority of the status of the asset. (See EX1001, 15:27-47.) Mr. MacInnes acknowledged these limitations collectively recite simultaneously sending a notice to the asset owner and approval authority regarding an upcoming inspection. (EX2021, pp. 62-63.)

Petitioners argue that [8d] notifying the asset owner was obvious based on Key alone or combined with Sweeney (discussed below), and that [8e] notifying the approval authority was obvious in view of Key. (Paper 1, pp. 42, 49.) Key

describes an Inspection Routine for pressure vessels (Fig. 6) where the asset owner has no role, and a Review Routine (Fig. 7), where the asset owner's sole role is to pay fees after inspection but before certificate issuance. (EX1005, Figs. 6-7, [0080]-[0098].) Key explains that jurisdictions delegate inspections to insurers, who then select the inspectors. (*Id.* at [0048]-[0050].) A work assignment unit places tasks in the insurance company's scheduled inspection listing, and after an inspection, it places a task in the jurisdiction's item task listing. (*Id.* at [0076], [0184].) Key does not disclose providing notices to asset owners or to the jurisdiction/approval authority of an upcoming inspection (i.e., in advance). (EX2020, ¶¶59-65, 252-257.)

C. The References Do Not Disclose Step 8[d] Sending a Notice to an Asset Owner, Including The Type of Inspection and Associated Cost.

[8d] recites notifying an asset owner regarding the type and cost of the inspection. Petitioners argue that [8d] notifying the asset owner was obvious based on Key alone or combined with Sweeney. (Paper 1, pp. 42-47.) Petitioners rely on Key claim 19 which recites "receiving an inspection notification," and MacInnes' bald conclusion that a POSA would have understood "that such an inspection notice is sent to the owner to notify the owner of the upcoming

inspection.” (See Paper 1, p. 42 citing EX1003, ¶176.) Key claim 19 recites “dispatching an inspector by a nongovernmental entity.” (EX1005, cls. 12, 19.) MacInnes admitted the “nongovernmental entity” in Key is an insurer based on the specification (i.e., the entity that receives the inspection notification). (EX2021, pp. 109-110.)

Petitioners cite to the general notification function in Key. (See Paper 1, p. 42 citing EX1003, ¶¶166-171.) MacInnes acknowledged that when an inspection is due, Key describes placing a task in a task listing for an insurance company, not sending a notice. (EX1003, ¶167.) MacInnes opined that placing a task in the insurance company task list was within the “notice” recited in [8d]. (EX2021, pp. 110-112.) That assertion fails for at least three reasons: (1) [8d] “notice” to the asset owner, if properly construed, is not the same as placing a task in a listing where it may be discovered after logging in (e.g., the difference between leaving a person’s paycheck on their office chair to find if/when they next come to work, vs. mailing it to their residence); (2) notice to an insurer is not notice to an asset owner; (3) Key fails to disclose that the task “includes standard format description of the type of inspection, and a cost associated with the type of inspection.” Key teaches away from [8d] by delegating inspections to insurers instead of asset owners. (EX1005, [0048].)

Petitioners argue it was known that it was necessary to provide stakeholders with relevant information in a timely manner needed to perform tasks. (Paper 1, p. 45 citing EX1003, ¶181.) MacInnes restates the same assertion of counsel without any citation to Key. (EX1003, ¶181.) However, as indicated above, Key delegates inspections to insurers not asset owners, asset owners only have limited participation (paying fees) after an inspection, and there is no disclosure of a notice indicating a standard format description of the type of inspection and cost associated therewith. In Fig. 2 of Key, the asset owner arranges for repairs at step 230 and pays fees at step 245, both of which occur after the physical inspection in step 215. (EX1005, [0049]-[0055].) For the “Inspection Routine” shown in Fig. 5, the asset owner has no role. (*Id.* at [0080]-[0092].) For the “Review Routine” of Fig. 6, the asset owner pays a fee at step 650, after completion of the jurisdiction review of an inspection report, all of which occurs after the inspection has been performed. (*Id.* at [0080]-[0098].) Key teaches the asset owner is only engaged in arranging for repairs or making a payment due, both of which occur after an inspection. Petitioners’ argument that it would have been necessary in Key to provide [8d] advance notice of an inspection to an asset owner is belied by Key itself.

Key also does not disclose or suggest [8d]’s “notification event compris[ing] a designatable interval in advance of an impending deadline for the inspection” (EX2020, ¶¶59-66, 252-257), and Petitioners do not assert otherwise.

Petitioners argue Sweeney discloses the [8d] owner notice by describing stored inspection reports that an asset owner may query for information regarding an inspection. (Paper 1, p. 47 citing EX1003, ¶¶185-187.) MacInnes states Sweeney teaches that “relevant information is provided in the form of a report to the owner such that the owner can take necessary action, e.g. engage inspectors for the appropriate inspection[.]” (EX1003, ¶187.) However, MacInnes acknowledged the inspection reports described in Sweeney were for ongoing or completed inspections (*i.e.*, not in advance of the inspection). (EX2021, pp. 88-89.) Querying such reports is not providing [8d] notice to an asset owner in advance of any inspection, with a standard description of the type of inspection and cost thereof. (EX2020, ¶206.) Neither Key alone nor in combination with Sweeney teaches the [8d] asset owner notice.

D. The References Do Not Disclose [8e] Sending a Standard Format Notice to An Approval Authority of an Upcoming Inspection Deadline.

[8e] recites sending a standard format notice to the approval authority of the asset status. (EX1001, 15:43-45.) Petitioners argue this is disclosed in Key or it would have been obvious to include with Key. (Paper 1, p. 49.) This is an improper, unsupported hind-sight argument with no basis in fact. (Paper 1, pp. 49-50 citing EX1003, ¶¶197-199.) Petitioners attempt to compensate for this problem with Mr. MacInnes’ unsubstantiated statement “the importance and logic of providing necessary information to the necessary stakeholder at the appropriate time” was known to a POSA (EX1003, ¶199), even though Key discloses that a task is posted to the jurisdiction’s task list only after the inspection, when an inspection report or other action requires review by the jurisdiction. (EX1005, [0076].) Petitioners do not identify any portion of Key that teaches it was necessary to notify the jurisdiction in advance of an upcoming inspection, or “sending a standard format notice to the approval authority of the status of the assets.”. (EX2020, ¶¶258-262.) Key teaches away from notifying an approval authority in advance of an inspection by having jurisdictions delegate inspections to insurers. (EX1005, [0044.]; EX2020, ¶260.) Key also does not teach sending an

email or other message using its notification unit in advance of an inspection. (See EX1005, [0071], [0083]; EX2020, ¶261.)

E. The References Do Not Disclose The Asset Owner Selecting an Inspector from a List.

In [8f], the asset owner selects the inspector from a list of available inspectors based upon attributes including the inspector's proximity to the asset. (EX1001, 15:52-54.) Petitioners argue this is disclosed by Key combined with McKinney and/or Sweeney. (Paper 1, pp. 58-59.) However, as discussed above, Key teaches away from the asset owner selecting the inspector, by having jurisdictions perform inspections themselves or delegating them to insurance companies - not owners of asset. (See EX1005, [0044], [0083].) Key does not disclose providing the asset owner (or insurer) with a list of inspectors, much less their proximity to the asset. (EX2020, ¶¶263-267.)

Petitioners argue Key teaches [8f] because an inspector must be qualified by a jurisdiction and be commissioned to perform inspections therein. Thus, it teaches that inspections are performed by inspectors located "within proximity of the asset." (Paper 1, p.57.) The recited limitation is that the asset owner may select from a list of qualified inspectors, which are available to inspect the asset based, in part, on proximity to the asset. Petitioners improperly conflate a "qualified

inspector” with proximity to the asset, essentially reading the latter requirement out of the claim. (EX2020, ¶267.)

Petitioners also incorrectly argue this limitation should not be considered as inventive alleging that the ‘966 Patent provides no details. (Paper 1, p. 58.) The ‘966 Patent provides that a list of at least one qualified inspector is electronically transmitted to the asset owner. (EX1001, Abstract, 3:8-12, 8:24-29.) Alternatively, the “owner may select their own inspector or use the web-based compliance registry to find a qualified inspector or inspectors,” which also provides “a list of inspectors is available that includes licensed and bonded inspectors.” (EX1001, 8:42-45.) Further, Figs. 4A and 4B illustrate that an asset owner can view a specific hydrant or hydrants in an area, with links to lists of registered service providers. (EX1001, Figs. 4A and 4B *generally*, 1:7-15, 6:6-14; EX1009, pp. 23-24, U.S. Prov. App. 60/886,269 incorporated into the ‘966 specification.)

Petitioners’ assertion is belied by the plain words of the ‘966 Patent. (EX2020, ¶¶268-270.)

Petitioners further assert that [8f] is disclosed by the combination of Key and McKinney and/or Sweeney. (Paper 1, pp. 58-59 citing EX1003, ¶217-222.) While McKinney provides online contracting between a homeowner and a wastewater service company and provides that regulations may require that service personnel

be “authorized” (*see* EX1020, ¶¶[0063],[0064]), it does not disclose [8f] providing an asset owner a list of service providers from which to choose for an inspection, where the selection is based in part on their proximity to the asset as recited. (EX2020, ¶271.) Sweeney describes a system for contractors to submit bids on a construction project from which the asset owner can select a winning bid (*see* EX1006, [0043]), but it does not disclose the bidder’s proximity to the asset or that the bids are for inspection. (EX2020, ¶272.)

Mr. MacInnis relied on McKinney’s disclosure of service personnel being authorized and certified, and its scheduler function used to reduce a service provider’s operating cost for its service personnel to allege the existence of [8f]. (EX1003, ¶219 citing EX1020 [0063]-[0064], [0080].) However, Mr. MacInnes also acknowledged the McKinney scheduler merely coordinates service personnel and is not related to an asset owner selecting an inspector from a list. (EX2021, pp. 118-120.)

Mr. MacInnes also relied on Sweeney’s construction bid submission process asserting: “Contractors authorized to submit bids may be limited by location (‘e.g., area, regional, or national’), that is, in proximity to the asset.” (EX1003, ¶220 citing EX1006, [0043].) This is a misstatement of Sweeney which describes contractors as “area, regional, or national” – it does not limit bidding based on that

designation or on proximity to a construction project. (EX1006, [0043].) The combination of Key with McKinney and Sweeney does not teach the limitations of [8f]. (EX2020, ¶¶276-279.)

F. The References Do Not Disclose [8a] Web-based Registry Configured to Run Fire Hydrant Management Software” That Performs, at least, [8b] Retrieving Real-time Records and [8f] Providing the Inspector a Web-based Inspection Template.

Petitioners assert Key alone or in combination with Chauhan, render it obvious that “asset” in Key could be a fire hydrant. (Paper 1., p. 33 citing EX1003, ¶¶150, 124-139.) Mr. MacInnes admits Key does not disclose a “fire hydrant” or “fire hydrant management software.” (EX1003, ¶150.) However, he notes that Key states it could be employed to other objects, and that pressure vessels disclosed in Key may be dangerous; hence, a POSA would have been motivated and found it logical to apply Key’s system to manage fire hydrants. (EX1003, ¶¶124-126.) Implicit in that assertion are the incorrect assumptions that: (1) applications are interchangeable for an asset management system, (2) different kinds of additional assets, like fire hydrants, can be merely plugged into an asset management system, even if it is directed to a different application, such as Key’s

pressure vessels or Chauhan's public utility, and (3) the management of fire hydrants is related to pressure vessels because the latter are dangerous.

Asset management systems are designed for particular applications *and are not interchangeable*. (EX2020, ¶¶219-224, *see also* 118-180.) They differ with respect to a) their purpose (e.g. what it is used for, by whom, and why); and b) the data captured to support that purpose, and how it is captured, stored, and retrieved. Claim 8 is directed to managing the “requisite inspections” of hydrants and related life-safety systems as is apparent from the relational database show in Figs. 4A and 4B and Figs. 7-23 depicting a “Hydrant Works Inspection System” and a “Hydrant Scout” hand-held device. (See EX1001.) It is not a broad based “asset management system.” Those assets are subject to, and the claim 8 process must conform with, extensive regulations that do not apply to other assets, like Key's pressure vessels. (EX2015, ¶¶30-64.) Figs. 4A and 4B illustrate the complex requirements for managing ITM for fire hydrants. (*Id.*) That database and schema are vastly more complex than flat file systems, such as the database shown in Key. (EX1005, Fig. 7.)

The process recited in claim 8 improves fire safety infrastructure with real-time data and a greater degree of compliance for fire hydrants and other life safety systems, while making the real-time data available to first responders to make them

more effective, efficient and safe. (EX1001, 10:10-21.) Key does not disclose that the owner can augment the database as recited in [8b]. (EX2020, ¶¶239-243.) Key also does not disclose the claimed real-time records. (EX2020, ¶¶231-237, 244-247.) A POSA would not look to Key (or Chauhan as discussed below) to manage ITM for fire hydrants and other life safety systems, as their systems were not designed to be employed in emergency situations and are not focused on obtaining real-time data from all stakeholders and making the information available to first responders and others as emergencies arise. (EX2020, ¶¶169, 179.)

Mr. MacInnes also ignores that claim 8 recites a process that employs a GIS with respect to the location of fire hydrants and related life safety systems. (EX2020, ¶223.) A POSA would readily understand that such systems are built upon layers of data that are specific to the intended application, what data is collected, and how it is used. (*Id.*) The GIS layers in a complex system, as needed to manage ITM for fire hydrants, and related systems may exceed thousands of layers. (*Id.*) Those layers, the data collected, and the manner in which they interoperate is unique to a particular application. (*Id.*) A POSA would not look to Key's pressure vessel system or Chauhan's public utility system, and it would not be obvious to combine them, to make the invention recited in claim 8. (*Id.*)

MacInnes asserts Chauhan teaches that devices to be monitored are interchangeable because it discloses a database with GIS applications that manage information across the utility. (EX1003, ¶¶128-129.) He notes Chauhan describes a “new Security Manager” that allows restricted, temporary access, e.g., a contractor inspecting a hydrant, by providing a laptop for only viewing and editing a “HYDRANT theme” interface. (EX1003, ¶127 citing EX1016, [0207].) A POSA would not consider combining Key’s and Chauhan’s GIS systems, with each designed for different applications, merely because Chauhan discloses restricted access to a Hydrant themed user interface, for the reasons set forth above. (EX2020, ¶¶224-238.)

Chauhan discloses a system for a utility to improve its outage management systems. (See EX1016, ¶0001-0002.) Petitioners fail to explain why or how a POSA would combine Key’s pressure vessel inspection process with Chauhan’s system for improving power outage management, to realize [8a], which relates to a different technical field than both of those references. (See Paper 1, pp. 29-33.) While Mr. MacInnes notes Chauhan states that the same technology “has been tailored to the specific needs of public agencies, such as fire and police departments” (see EX1003, ¶130), Chauhan nowhere explains the needs of the fire department or how the utility outage management system was modified, or why a

fire department would need a power outage management system, as described in Chauhan.

IX. Petitioners Fail To Show That It Would Have Been Obvious for a POSA to Make the Combined Steps of Claim 8 or a Reasonable Expectation of Success in Doing So.

An obviousness analysis, *inter alia*, requires showing that the prior art suggested to one skilled in the art that they should make the claimed invention and that they would have a reasonable expectation of success. *Intri-Plex Techs., Inc. v. Saint-Gobain Performance Plastics Rencol Ltd.*, IPR2014-00309, Paper 83 at 19 (PTAB Mar. 23, 2014). “[A] patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

The Federal Circuit, in *Virtek Vision Int’l ULC v. Assembly Guidance Sys., Inc.*, Nos. 2022-1998, 2022-2022, 2024 U.S. App. LEXIS 7185, * 6 (Fed. Cir. March 27, 2024), held that mere knowledge in the art of claimed components is not sufficient reasoning :

There is no evidence of a design need or market pressure...this case involves nothing other than an assertion that because two coordinate systems were

disclosed in a...reference and were therefore "known,"

that satisfies the motivation to combine analysis.

That analysis applies here. Petitioners argue, location-based asset management software was known in applications like Key's pressure vessels, Chauhan's utility, Sweeney's construction contracts, and McKinney's wastewater treatment systems; thus, the components of those systems could be used to fill-holes in Key to make the invention recited in the Claims. However, Petitioners failed to disclose how someone being able to combine the systems would lead someone to combine them. Mr. MacInnes, who had no experience with fire hydrant management, conducted no investigation, and relied entirely on counsel's statements and reasoning for his declaration, also relied on the ability to combine rather than the motivation to combine, which is deficient as a matter of law.

**A. A POSA Would Neither Combine nor Have A Reasonable
Expectation of Success in Combining the Disparate Applications
in the References.**

None of the References addresses the same technology recited in the Claims. (EX2020, ¶¶72-74, 181-182.) The Claims provide a method that employs fire hydrant management software and a web-based registry system to address various specific problems. While the term "asset" recited in claim 8 is not limited to fire

hydrants *per se*, the plain language of the Claims are directed toward managing requisite inspections for fire hydrants and other life safety. Limiting claim 8 to include the “fire hydrant management software” was part of the stated reasons for allowance of that claim, in that, it was directed to a particular technology.

The Cited references, alone or combined, fail to disclose a solution that would have fixed the fire hydrant compliance problem, addressed by the collaborative process recited in the Claims, where the asset owner plays a critical pre-inspection role in the solution. Key, as described above, provides a solution for managing pressure vessel compliance, where the third-party insurer plays the critical pre-inspection role and the asset owner’s role is limited to post-inspection payment. (EX2020, ¶¶183-197.) It is a closed system that teaches away from the owner focused, collaborative solution of the claimed invention. Petitioners failed to demonstrate why someone would rearrange the roles in Key or that a POSA would have a reasonable expectation of success modifying Key, given the flat file data base disclosed in Key and Chauhan, versus the ‘966 relational database, and the differences in the GIS data and asset management functions in the disparate applications of the References versus ITM for fire hydrants. (EX2015, ¶¶30-64; EX2020, ¶¶177, 239, 249-250.)

While MacInnes concludes that the References disclose systems that “are complementary in the same field” (EX1003, ¶106), he does so by over-generalizing the pertinent technical field as “web-based asset management” (EX1003, ¶109.) He also relies on a misquote of the ‘966 Patent to support his assertion that a POSA would have “readily appreciated that any known asset could be substituted for each other.” (EX1003, ¶139.) The alleged interchangeability of an asset does not address whether an asset management process would solve the fire hydrant lack of compliance problem addressed by the Claims or that a POSA would have a reasonable expectation of success solving that problem by modifying Key and/or Chauhan. (EX2020, ¶¶118-180.)

It is also incorrect, as demonstrated above, that asset management systems are interchangeable with respect to their application or that the functionality in one system could be readily used in another, even if directed to a different application. (EX2020, ¶¶118-150.) Those assertions would be absurd to a POSA, especially for GIS systems, like the process recited in the Claims, which are highly dependent on the layers of data employed, which varies depending on the application and the purpose of the system, and the interrelation between them. (*Id.*)

Petitioners’ reliance on the declaration of Mr. MacInnes is misplaced, as he fails to demonstrate that a POSA would have been motivated to combine Petitioners’ references to create the specific combined steps of claim 8. Like *Virtek Vision*, he failed to consider the technology and processes used in connection with managing fire hydrant compliance, whether limited potential solutions existed, applicable regulatory environment, or the market forces related thereto. (EX2021, pp. 33-34.) He followed the same deficient path as Petitioners, first describing the relevant field of technology broadly to include any “web-based asset management” (EX1003, ¶109), second cherry-picking functionality between them to approximate the individual steps of claim 8 (*id.* at ¶¶110-121), and third concluding that they could be combined while ignoring whether they would be combined. (EX1003, ¶¶140-141). MacInnes provides no motivation to combine or a reasonable expectation of success when combining disparate references which are each, alone or in combination, missing limitations from claim 8. *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 (August 24, 2022) (precedential opinion)

B. Key Teaches Away from Claim 8.

Key addresses insurance companies managing the inspection/compliance of pressure vessels with a JOM that selects forms used in a particular jurisdiction.

(EX1005 ¶¶0003-0011.) It teaches inspections are delegated to third-party insurers, who select the inspectors, while asset owners are limited to paying post inspection fees so that a certificate can be issued after a jurisdiction approves an inspection report. Key does not teach notifying the asset owner and approval authority of an upcoming inspection. Key teaches that the JOM places a task in the jurisdiction's list only after an inspection report is ready for review. Key teaches away from the details recited in the owner notice in [8d], the owner selecting the inspector in [8f], and the owner provided a list of inspectors with their proximity to the asset of [8f].

C. No Motivation to Combine Key with Chauhan and Sweeney to Provide and Advance Notice of an Inspection to an Owner and Approval Authority.

[8b] and [8c] respectively recite retrieving and analyzing real-time records of assets to identify notification events; then based on that analysis, [8d] recites notifying an owner of the asset regarding the type and cost of the inspection; and based on the same analysis, [8e] recites sending a standard format notice to an approval authority of the status of the asset. (*See* EX1001, 15:27-47.) Petitioners argue those steps are disclosed by Key alone or combined with Chauhan and Sweeney. (Paper 1, pp. 34, 38, 42, 49.) Petitioners are mistaken.

Key manages the inspection process for pressure vessels by placing a task in the insurer's list when an inspection is to be performed, then placing a task in the jurisdiction's list when an inspection report is ready for review. (EX1005, [0076].) Key's Inspection Routine shown in Fig. 5 does not include providing notice to an owner or jurisdiction in advance of an inspection. (EX1005, [0080]-[0092].)

Sweeney is directed to online construction contracts. It stores inspection reports in a database but does not address managing inspections or notifying parties in advance thereof. (EX1006, Fig. 1 12, 12A, 12B, [0027].) Petitioners assert that Sweeney discloses providing relevant information to the owner as it discloses generating reports in response to a user query. (Paper 1, p. 27.) Petitioners failed to demonstrate that Sweeney teaches providing notices to an owner and AHJ of an upcoming inspection, such that, a POSA would have been motivated to combine it with Key to realize the steps of claim 8.

Chauhan refers to a "Hydrant" inspection theme that may be used in its utility outage system, as an example of a user interface that would allow a hydrant inspector to edit inspection fields, while limiting access to the system via a "new Security Manager." (EX1016, [0207].) Chauhan does not describe that user interface or how it is otherwise used in connection with the utility outage system

described therein. Assuming *arguendo* that Petitioners demonstrated that a POSA would have been motivated to combine Key and Chauhan (and they did not), that combination would show the inspector in Key, selected by an insurer as taught in Key, may use a Hydrant themed user interface. Petitioners failed to identify any aspect of Chauhan that fills the gaps in Key regarding notifying the asset owner and approval authority of the upcoming inspection, such that, a POSA would have been motivated combine Key and Chauhan to make the claimed invention.

D. No Motivation to Combine Key with Sweeney for [8d].

Petitioners argue that Key combined with Sweeney discloses [8d] providing the owner notice of an upcoming inspection, including the type of inspection and cost associated therewith. Paper 1, pp. 46-47. They assert Key discloses providing relevant information to an owner by providing access to a website, where the owner may generate computerized reports that include information, like an inspection history. Paper 1, p. 47. Petitioners argue that Sweeney discloses that inspection reports are stored in a database, which is cumulative of Key Fig. 7, which also shows inspection reports shown in a database. Petitioners failed to demonstrate that Sweeney discloses providing notice to the owner of an upcoming inspection, with that notice including the details recited in [8d] or explain why a POSA would modify the insurer in Key to be the asset owner. Even if Petitioners

could meet their burden to prove a motivation to combine Key and Sweeney, and they have not, they failed to show that Sweeney would have motivated a POSA to combine those references to satisfy the limitations recited in [8d].

E. No Motivation to Combine Key with McKinney and Sweeney for [8f].

Petitioners argue Key combined with McKinney and Sweeney discloses [8f] where the owner selects the inspector and is provided a list of qualified inspectors with their proximity to the asset to be inspected. (Paper 1, p. 53.) They assert that McKinney discloses online contracting with a wastewater service company and a scheduler where the service company can manage the efficiency of its service personnel. (*Id.* at p. 59 citing EX1020 [0063]-[0064],[0080].) Petitioners argue Sweeney discloses online construction contracts, where an owner may select from bids submitted online. (*Id.* at p. 60 citing EX1006 [0043]-[0044]) Petitioners then assert, “Based on these teachings, a POSA would have understood that it would have been logical and obvious that the owner could select... a qualified inspector in proximity to the asset.” Petitioners failed to demonstrate that these references provide a motivation to combine them with Key to satisfy [8f], as they do not teach an owner selecting an inspector or providing a list of inspectors to the owner with their proximity to the asset. They also do not explain why a POSA would

exchange the role of the insurer in Key with the asset owner.

X. OBJECTIVE INDICIA OF NONOBVIOUSNESS

Notwithstanding what the teachings of the prior art may have suggested to one skilled in the art, objective evidence of nonobviousness (so called “secondary considerations”) may lead to a conclusion that the challenged claims would not have been obvious. *In re Piasecki*, 745 F.2d 1468, 1471-72 (Fed. Cir. 1984)).

“Objective evidence of nonobviousness is an important component of the obviousness inquiry because “evidence of secondary considerations may often be the most probative and cogent evidence in the record. It may often establish that an invention appearing to have been obvious in light of the prior art was not.”

Transocean Offshore Deepwater Drilling, Inc. v. Maersk Drilling USA, Inc., 699 F.3d 1340, 1349 (Fed. Cir. 2012).

“Evidence of secondary considerations must be reasonably commensurate with the scope of the claims.” *In re Kao*, 639 F.3d 1057, 1068 (Fed. Cir. 2011).

“For objective evidence to be accorded substantial weight, its proponent must establish a nexus between the evidence and the merits of the claimed invention.” *In re GPAC Inc.*, 57 F.3d 1573, 1580 (Fed. Cir. 1995). “The term “nexus” is often used [...] to designate a legally and factually sufficient connection between the proven success and the patented invention, such that the objective evidence should

be considered in the determination of nonobviousness.” *Demaco Corp. v. F. Von Langsdorff Licensing Ltd.*, 851 F.2d 1387, 1392 (Fed. Cir. 1988). “[I]f the marketed product embodies the claimed features, and is coextensive with them, then a nexus is presumed and the burden shifts to the party asserting obviousness to present evidence to rebut the presumed nexus.” *Brown & Williamson Tobacco Corp. v. Philip Morris Inc.*, 229 F.3d 1120, 1130 (Fed. Cir. 2000).

Objective indicia of nonobviousness can serve as an important check against hindsight bias and “must always when present be considered.” *In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Litig.*, 676 F.3d 1063, 1075-76 (Fed. Cir. 2012) (quoting *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538-39 (Fed. Cir. 1983)). “Thus, the Board should give the objective indicia its proper weight and place in the obviousness analysis, and not treat objective indicia of nonobviousness as an after-thought.” *Leo Pharm. Prods. V. Rea*, 726 F.3d 1346, 1358 (Fed. Cir. 2013). “Objective indicia of nonobviousness play a critical role in the obviousness analysis. They are “not just a cumulative or confirmatory part of the obviousness calculus but constitute[] independent evidence of nonobviousness.” *Id.* (citing *Ortho-McNeil Pharm., Inc. v. Mylan Labs., Inc.*, 520 F.3d 1358, 1365 (Fed. Cir. 2008)). “Objective indicia” can be the most probative evidence of nonobviousness in the record and enables the court to

avert the trap of hindsight.: *Id.* (citing *Crocs, Inc. v. Int'l Trade Comm'n*, 598 F.3d 1294, 1310 (Fed. Cir. 2010)).

A. Nexus

A nexus exists between each party's commercial success and the Claims. The Tegrifire and Brycer's TCE service offerings embody the claimed features and are coextensive with them.

Tegrifire™ is a computer-implemented method for using asset management software and a web-based registry to track inspection of an owned asset. (EX2015, ¶68; EX2018, p. 1; EX2016, ¶26.) It grants remote access to a web-based registry system configured to run the management software to the owner, approval authority, and inspector. (EX2015, ¶69; EX2018, p. 1-2; EX2016, ¶26.) The computer-based asset management software retrieves real-time records of assets from a database (EX2015, ¶70; EX2018, p. 3; EX2016, ¶27.) The software analyzes the records of assets from the database to identify notification events. (EX2015, ¶71; EX2018, p. 3-4; EX2016 ¶28.) Tegrifire™ notifies owners of notification events, including a description of the type of inspection, the cost for the inspection, at selected intervals of a deadline. (EX2015, ¶72; EX2018, p. 3-5; EX2016, ¶29.) The owner of the asset may update and review the status of the assets. *Id.*

Based upon the analysis, Tegrifire™ notifies the AHJ of the status of the asset, and the AHJ may update and review the status of the assets assigned online in real-time. (EX2015, ¶73; EX2018, p. 4-5; EX2016, ¶30.) The owner may select an inspector based on attributes such as proximity and provide the inspector a description of the asset and the inspection using a web-based template. (EX2015, ¶74; EX2018, p. 4-5; EX2016, ¶31.) The inspector may then submit inspection information in the web-based template. (EX2015, ¶75; EX2018, p. 9-14; EX2016, ¶32.) Tegrifire™ stores the inspection information for each asset and provides updated information to users in real-time. (EX2015, ¶76; EX2018, p. 16-17; EX2016, ¶33.) The patented method then transmits to the AHJ a compliance report noting compliance and deficiencies in the asset. (EX2015, ¶77; EX2018, p. 18-23; EX2016, ¶34.)

Brycer's system also practices the claimed invention. *TCE* provides a method using an asset management software and web-based registry to track inspection of assets. (EX2015, ¶79; EX2019, p. 1-2; EX2016, ¶38.) *TCE* provides remote access to owners, AHJs and inspectors. (EX2015, ¶80; EX2019, p. 3-10; EX2016, ¶39.) Users may retrieve and update real-time records of assets from a database. (EX2015, ¶81; EX2019, p. 10-11; EX2016, ¶42.)

TCE analyzes the data and identifies notification events. (EX2015, ¶82; EX2019, p. 12-16; EX2016 ¶41.) TCE notifies owners of events using a standard format description of the type and cost of inspection at preselected intervals. (EX2015, ¶83; EX2019, p. 17-19; EX2016 ¶42.) The owner may remotely access the system, review an update the asset status. Id. Based upon the analysis, TCE sends notifies the AHJ of the status of the asset, and the AHJ may update and review the status of the assets. (EX2015, ¶84; EX2019, p. 17-19; EX2016 ¶43.) TCE provides inspectors selected by owners a web-based template configured to describe the asset an each of the steps of the inspection. (EX2015, ¶85; EX2019, p. 19-24; EX2016 ¶44.) After the inspection, the inspector submits inspection information using a web-based template. (EX2015, ¶86; EX2019, p. 24; EX2016, ¶45.) TCE stores the updated inspection information and makes it accessible to users. (EX2015, ¶87; EX2019, p. 25-9; EX2016, ¶46.) TCE sends a compliance report to the AHJ noting compliance and deficiencies. (EX2015, ¶88; EX2019, p. 30; EX2016, ¶47.)

B. Unexpected Results.

At least two case studies exemplify the unexpected results achieved by using the patented methods. Lynwood, WA experienced a 110.6% improvement in compliance. (EX2015, ¶128; EX2004, pp. 9-10.) Lynwood experienced a 384%

decrease in the percentage of systems with a deficiency. *Id.* It had a 42% increase in the number of known properties with a system an 18% increase in the number of known assets. *Id.* The number of licensed inspectors increased 147%. *Id.* The number of assets being inspected increased 250%. *Id.* The number of impaired assets decreased over 300%. *Id.* The level of communication with owners and inspectors increased 1000%. *Id.*

Richland, WA experienced similar unexpected results. It experienced a 280% improvement in compliance. (EX2015, ¶155; EX2025.) It experienced a 181% decrease in the percentage of assets with a deficiency. *Id.* It more accurately tracked the number of assets in the jurisdiction. *Id.* The number of known assets increased 26%. *Id.* The number of licensed inspectors increased 200%. *Id.* The number of assets being inspected increased 457%. *Id.* The number of impaired assets decreased over 177%. *Id.* The level of communication with owners and inspectors increased 1000%. *Id.*

C. Commercial Success

Municipalities started looking at solutions that practice the methods disclosed and claimed in the '966 Patent. (EX2015, ¶90.) Over the last decade, over 1,000 municipalities in 50 states have adopted the methods disclosed and claimed in the '966 Patent. *Id.* Stakeholders such as the property owner, inspection

contractor, and fire departments use, propagate, and advocate for Tegriss' patented method because it has provided safer buildings, lower insurance premiums, more inspection work, cost savings, and metric-proven effectiveness for fire departments. (EX2015, ¶91.) The aforementioned case studies reinforce the commercial success.

Brycer has claimed 500% growth year over year with its system that practices the inventions of the '966 Patent. (EX2015, ¶¶94, 100. Brycer operates in 38 states with over 20,000 users. (EX2015, ¶101.) Brycer lists 662 municipalities it serves. (EX2015, ¶104.)

D. Long-Felt But Unresolved Need for Compliance

Before the '966 Patent, inspection compliance laws did not motivate property owners to complete inspections. (EX2015, ¶191; EX2016, ¶49.) Property owners would only complete inspections if fire marshal required them. *Id.* The fundamental problem for ITM compliance was enforcement. *Id.* AHJs lacked resources to manually manage the process. *Id.* Then existing programs required manual input and manual enforcement. *Id.* Then existing service offerings failed to meet the compliance national, state, and local laws required. *Id.* It was not feasible to achieve 100% compliance at any given time, let alone to maintain it year after year. *Id.* No prior art services offerings had

any system in the fire and life safety industry. *Id.* When Tegriss presented TegrissFire to the NFSA, including, it learned it was exactly what the industry needed. *Id.*

TegrissFire offset the large costs of developing and managing a sophisticated system across several jurisdictions. (EX2015, ¶198; EX2016, ¶25.) That was not a feasible option for, at least, small or medium sized cities. *Id.* Even for large sized cities, the program required participation from inspection contractors who work throughout the region and within multiple cities. *Id.* Without assistance from Tegriss, home-grown programs required significant resources to enforce compliance. *Id.* The city of Seattle attempted such a system before abandoning their efforts and adopting the Brycer system. *Id.*

E. Copying

After Tegriss disclosed its inventions in the '966 Patent to the NFSA, it discussed ways to provide the Tegriss' patented methods to jurisdictions around the nation. (EX2015, ¶206.) NFSA told Tegriss it intended to partner with a competitor, and a year later, two competitors incorporated. *Id.* NFSA invited Tegriss to a NFSA forum to discuss ways of gaining program adoption. *Id.* NFSA shared Tegriss' information with Brycer who threatened to take legal action. *Id.* Tegriss warned Brycer to avoid the potential of patent infringement.

Id. at 208. Since that time, Brycer has had great success gaining adoption of its methods covered by the Claims with major cities. *Id.*

F. Licensing

There were 5 known third party ITM Compliance Providers in the industry. (Tegris, IROL, Building Reports.com, LIV, and Brycer) BuildingReports.com recently acquired IROL and is in the process of licensing the ‘966 Patent from Tegris. It is expected that this license will be finalized on or about April 17, 2024. (EX2015, ¶197.)

Here, the objective indicia represent the most probative evidence of nonobviousness, enabling the Board to avert the trap of hindsight. Viewed through the lens of the objective indicia, as opposed to the hindsight lens used by Petitioners, the ‘966 Patent would not have been obvious over the references cited by Petitioners. The objective indicia of nonobviousness, including the copying, commercial success, unexpected results, and long felt need, outweighs Petitioners’ evidence regarding obviousness. *See Innopharma Licensing Inc. v. Senju Pharmaceutical Co. Ltd.*, IPR2015-00902 and IPR2015-00903, Paper 83, p. 37 (July 28, 2016).

XI. CONCLUSION

For the foregoing reasons, Tegriss respectfully urges that the Board find the claims of the '966 Patent to be valid, as Petitioners fail to show that the cited references disclose all of the limitations of claim 8, as properly construed, and Petitioners fail to show that a POSA would be motivated to combine their disparate references to make the combined steps of claim 8 or that there would have been a reasonable expectation of success in doing so.

Date: April 17, 2024

Respectfully submitted,

/Chris Perque/
Chris Perque
Reg. No. 37,696
Fisher Boyles LLP

Richard Lehrer
Reg. No. 38,536
Fisher Boyles LLP

CERTIFICATE OF WORD COUNT

The undersigned hereby certifies that the portions of the above-captioned PATENT OWNER'S RESPONSE specified in 37 C.F.R. §42.24 has 13775 words in compliance with the 14,000 word limit set forth in 37 C.F.R. §42.24. This word count was prepared using Microsoft Word.

/Chris Perque/
Chris Perque
Reg. No. 37,696
Fisher Boyles LLP

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing Patent Owner Response was served on the above referenced date via email on the following attorneys for the Petitioners:

mberkowitz@reichmanjorgensen.com
pcolsher@reichmanjorgensen.com
khoang@reichmanjorgensen.com
rjbrycertegris@reichmanjorgensen.com

/Richard Lehrer/
Richard Lehrer
Reg. No. 38,536
Fisher Boyles LLP