

UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT TRIAL AND APPEAL BOARD

Berkshire Hathaway Energy Company,
Interstate Power & Light Company,
MidAmerican Energy Company,
PacifiCorp,
WEC Energy Group, Inc., and
Wisconsin Power & Light Company

Petitioners

v.

Birchtech Corp.

Patent Owner

IPR2025-00422
Patent No. 10,668,430

**PETITIONERS' AUTHORIZED REPLY TO PATENT OWNER'S
PRELIMINARY RESPONSE**

TABLE OF CONTENTS

I. INTRODUCTION 1

II. THE PETITION IS NOT TIME-BARRED 1

 A. Patent Owner Misrepresents the 2020 IPR Proceedings.....3

 B. Patent Owner’s RPI Analysis is Backwards4

 C. The Delaware Defendants Are Not RPIs/Privies to these Petitions5

 D. Petitioners Are Not RPIs/Privies to the Delaware case or 2020 IPRs ..5

 E. A Generic Business Relationship Is Insufficient for RPI or Privity7

III. DOWNS-BOILER IS PRIOR ART.....10

 A. A Swear Behind Is Not Available11

 B. No Evidence of Early Conception.....12

 C. No Evidence of Early Actual Reduction to Practice.....13

IV. COMBINATIONS WITH THE VOSTEEN589 REFERENCE15

V. CONCLUSION.....15

TABLE OF AUTHORITIES

	Page(s)
Cases	
<i>Applications in Internet Time, LLC v. RPX Corp.</i> , 897 F.3d 1336 (Fed. Cir. 2018)	5
<i>Arista Networks, Inc. v. Orckit Corp.</i> , IPR2024-01239, Paper 7 (P.T.A.B. Mar. 12, 2025)	2
<i>ASSA ABLOY AB v. CPC Patent Techs. Pty, Ltd.</i> , IPR2022-01094, Paper 19 (P.T.A.B. Feb. 2, 2023).....	1, 2, 8, 9
<i>Burroughs Wellcome Co. v. Barr Labs., Inc.</i> , 40 F.3d 1223 (Fed. Cir. 1994)	13
<i>Google LLC v. DDC Techn., LLC</i> , IPR2023-00708, Paper 41 (P.T.A.B. Oct. 25, 2023).....	5, 8
<i>Luminex Int’l Co. v. Signify Holdings B.V.</i> , IPR2024-00101, Paper 20 (P.T.A.B. Nov. 21, 2024).....	2, 5, 9
<i>Medichem, S.A. v. Rolabo, S.L.</i> , 437 F.3d 1157 (Fed. Cir. 2006)	13
<i>Mueller Sys., LLC v. Rein Tech, Inc.</i> , IPR2020-00100, 2020 WL 2478524 (P.T.A.B. May 12, 2020)	12
<i>PowerOasis, Inc. v. T-Mobile USA, Inc.</i> , 522 F.3d 1299, 1304-05 (Fed. Cir. 2008).....	11
<i>Samsung Electrons. Co. v. NetList</i> , IPR2022-00615, Paper 62 (Public) (P.T.A.B. June 30, 2023)	2
<i>SAS Inst., Inc. v. Iancu</i> , 584 U.S. 357 (2018).....	14
<i>Semiconductor Component Indus. v. Greenthread</i> , IPR2024-00266, Paper 23 (P.T.A.B. Aug. 4, 2024).....	9, 10
<i>Semiconductor Components Indus. v. Greenthread, LLC</i> , IPR2023-01242, Paper 94 (P.T.A.B. Apr. 24, 2025)	10

SharkNinja Operating LLC v. iRobot Corp.,
IPR2020-00734, Paper 11 (P.T.A.B. Dec. 4, 2020)4

Shenzhen Tuozhu Technology Co., Ltd. v. Stratasy, Inc.,
IPR2025-00321, Paper 10 (P.T.A.B. June 18, 2025)14

Sonos, Inc. v. Implicit, LLC,
IPR2018-00767, 2019 WL 4419356 (P.T.A.B. Sept. 16, 2019)11

In re Steed,
802 F.3d 1311 (Fed. Cir. 2015)13

Tronzo v. Biomet, Inc.,
156 F.3d 1154 (Fed. Cir. 1998)14

Uniloc 2017 LLC v. Facebook Inc.,
989 F.3d 1018, 1028 (Fed. Cir. 2021)1, 2, 3, 7

Ventex Co. v. Columbia Sportswear N. Am.,
IPR2017-00651, Paper 148 (P.T.A.B. Jan. 24, 2019)9, 10

Virtek Vision Int’l ULC v. Assembly Guidance Sys., Inc.,
97 F. 4th 882 (Fed. Cir. 2024)15

WesternGeco LLC v. Ion Geophysical Corp.,
889 F.3d 1308 (Fed. Cir. 2018)*passim*

Other Authorities

M.P.E.P. § 2152.0112

PETITIONERS' EXHIBIT LIST

Exhibit	Description of Exhibits
1001	U.S. Patent No. 10,668,430 to Olson et al. (filed May 8, 2018) (“430 Patent” or “Challenged Patent”)
1002	Declaration of Dr. Stephen Niksa in Support of Petition for <i>Inter Partes</i> Review of U.S. Patent No. 10,668,430 (“430 Niksa Decl.”)
1003	Curriculum Vitae of Dr. Stephen Niksa
1004	Family Tree of ME2C Patents
1005	U.S. Patent Publication No. 2004/0013589 to Vosteen et al. (filed July 24, 2002) (“Vosteen589”)
1006	U.S. Patent Pub. No. 2008/0107579 to Downs et al. (published May 8, 2008) (“Downs-Boiler”)
1007	U.S. Patent Prov. App. No. 60/555,353 (filed Mar. 22, 2004) (“Downs-Boiler-Provisional”)
1008	Travis Starns, “Full-Scale Test of Mercury Control with Sorbent Injection and an ESP at Wisconsin Electric’s Pleasant Prairie Power Plant,” Session AE1-C, Paper No. 43249, AIR & WASTE MANAGEMENT’S ASSOCIATION’S 95 TH ANNUAL CONFERENCE (Baltimore, MD: June 23-27, 2002) (“Starns”)
1009	Massachusetts Dep. of Environmental Protection, Bureau of Waste Prevention, “Evaluation of the Technological and Economic Feasibility of Controlling and Eliminating Mercury Emissions from the Combustion of Solid Fossil Fuel” (Dec. 2002) (“Mass-EPA”), available at https://web.archive.org/web/20030411074158/http://www.state.ma.us/dep/bwp/daqc/files/mercfeas.pdf and at https://www.mass.gov/doc/evaluation-of-technological-economic-feasibility-of-controlling-eliminating-mercury-emissions/download

Exhibit	Description of Exhibits
1010	Sharon Sjostrom, “Full Scale Evaluations of Mercury Control Technologies with PRB Coals,” Track A, Session A3 (Mercury – Control), Presentation A3b, EUEC: 8TH ELECTRIC UTILITIES ENVIRONMENTAL CONFERENCE (Tucson, Arizona: January 25, 2005) (“ Sjostrom ”)
1011	Craig Eckberg et al., “Mercury Control Evaluation of Halogen Injection into a Texas Lignite-Fired Boiler,” Track A, Session A3 (Mercury – Control), Presentation A3c, EUEC: 8TH ELECTRIC UTILITIES ENVIRONMENTAL CONFERENCE (Tucson, Arizona: January 25, 2005) (“ Eckberg ”)
1012	U.S. Patent Pub. No. 2006/0048646 to Olson et al. (published Mar. 9, 2006) (“ Olson-646 ”)
1013	U.S. Patent No. 6,953,494 to Nelson (filed May 6, 2003) (“ Nelson ”)
1014	U.S. Patent No. 7,514,052 to Lissianski et al. (filed Jan. 6, 2004) (“ Lissianski ”)
1015	RESERVED
1016	RESERVED
1017	RESERVED
1018	U.S. Patent No. 8,652,235 to Olson et al. (issued February 18, 2014) (“ Olson-235 ”)
1019	File History of U.S. Patent Application No. 15/974,343, which ultimately issued as U.S. Patent No. 10,668,430 (“ 430 Patent File History ”).
1020	File History of U.S. Patent Prov. App. No. 60/605,640 (“ Provisional ”)

Exhibit	Description of Exhibits
1021	File History of U.S. Patent Application No. 11/209,163, which ultimately issued as U.S. Patent No. 7,435,286 (“ 163 Application File History ”)
1022	File History of U.S. Patent Application No. 12/201,595, which ultimately published as 2009/0062119 and was abandoned (“ 595 Application File History ”)
1023	Excerpts of File History of U.S. Patent Application No. 15/951,970, which ultimately issued as U.S. Patent No. 10,933,370 (“ 370 Patent File History ”).
1024	File History of U.S. Patent Application No. 15/997,091, which ultimately issued as U.S. Patent No. 10,596,517 (“ 517 Patent File History ”).
1025	File History of U.S. Patent Application No. 12/419,219, which ultimately issued as U.S. Patent No. 8,168,147 (“ 147 Patent File History ”).
1026	File History of U.S. Patent Application No. 15/978,760 (issued as U.S. Patent No. 10,343,114) (“ 114 Patent File History ”)
1027	Babcock & Wilcox, STEAM: ITS GENERATION AND USE, 40th ed. (The Babcock & Wilcox Company: 1992) (“ B&W: Steam ”)
1028	J. Bustard, S. Sjostrom, et al., “Full Scale Evaluation of Sorbent Injection for Mercury Control on Coal-Fired Power Plants,” International Conference on Air Quality III, Paper No. A5-4 (Sept. 9-12, 2002: Arlington, VA) (“ Bustard ”)
1029	U.S. Patent No. 1,984,164 to Stock et al. (issued Dec. 11, 1934) (“ Stock ”)
1030	Electric Utilities Environment Conference 2005 Handout (“ EUEC Handout ”)

Exhibit	Description of Exhibits
1031	Scan of jacket/cover of CD mailed to conference attendees from EUEC: 8th Electric Utilities Environmental Conference (Tucson, Arizona: January 23-26, 2005) (“ EUEC CD Scan ”)
1032	Redline comparison between U.S. Patent Pub. No. 2008/0107579 (Downs-Boiler, EX1006) and U.S. Patent Prov. Appl. No. 60/555,353 (Downs-Boiler-Provisional, EX1007), using Downs-Boiler-Provisional as the original version (“ Downs-Boiler-Redline ”)
1033	U.S. Patent No. 8,512,655
1034	U.S. Patent No. 8,821,819
1035	U.S. Patent No. 9,757,689
1036	CRC Handbook of Chemistry and Physics, 86th Ed.; Lide, D.R., ed. (“ CRC Press: March 2005 ”)
1037	Paul Chu, “Power Plant Evaluation of the Effect of SCR Technology on Mercury,” Paper No. 106, COMBINED POWER PLANT AIR POLLUTANT CONTROL MEGA SYMPOSIUM (MEGA) (Washington, DC: May 19-22, 2003) (“ Power Plant Evaluation ”)
1038	Evan J. Granite et al., “Sorbents for Mercury Removal from Flue Gas,” DOE/FETC/TR-98-01, U.S. Department of Energy (Jan. 1998) (“ Granite ”)
1039	Thomas J. Feeley, et al., “A Review of DOE/NETL’s Mercury Control Technology R&D Program for Coal-Fired Power Plants,” <i>DOE/NETL Hg R&D Program Review</i> (April 2003) (“ Feeley ”)
1040	Oxtoby et al., PRINCIPLES OF MODERN CHEMISTRY, 4 th ed (Saunders College Publishing: 1999) (“ Oxtoby ”)
1041	N.N. Greenwood and A. Earnshaw, CHEMISTRY OF THE ELEMENTS, 2nd ed. (Butterworth-Heinemann: 1997) (“ Greenwood ”)

Exhibit	Description of Exhibits
1042	B.R. Puri, <i>Surface Complexes on Carbons</i> , in CHEMISTRY AND PHYSICS OF CARBON 191 (Philip L. Walker, ed.) (Marcel Dekker: 1970) (“ Puri ”)
1043	Frank E. Huggins et al., “XAFS Examination of Mercury Sorption on Three Activated Carbons,” <i>Energy & Fuels</i> 1999(13), p. 114-121 (1999) (“ XAFS ”)
1044	S. Niksa et al., <i>Predicting Complete Hg Speciation Along Coal-Fired Utility Exhaust Systems</i> , MEGA SYMPOSIUM, Paper # 45 (Washington, DC: Aug. 2004) (“ Hg Speciation ”)
1045	D.L. Laudal et al., <i>Evaluation of Mercury Speciation at Power Plants Using SCR and SNCR NOx Control Technologies</i> , Paper No. A5-01, INT’L CONF. ON AIR QUALITY III (Arlington, VA: Sept. 9-12, 2002) (“ Laudal ”)
1046	U.S. Patent No. 4,196,173 to DeJong (“ DeJong ”)
1047	U.S. Patent No. 5,695,726 to Lerner (“ Lerner ”)
1048	Carey, T. R., Jr., O. W. H., Richardson, C. F., Chang, R., & Meserole, F. B. (1998). Factors Affecting Mercury Control in Utility Flue Gas Using Activated Carbon. <i>Journal of the Air & Waste Management Association</i> , 48(12), 1166–1174. https://doi.org/10.1080/10473289.1998.10463753 (“ Carey ”)
1049	NETL - Mercury Emissions Control, February, 2003, available at https://web.archive.org/web/20030315093905fw/http://www.netl.doe.gov/coalpower/environment/mercury/control-tech/inactive.html (“ U.S. DOE, Completed Mercury Projects, February, 2003 ”)
1050	Proposed National Emission Standards for Hazardous Air Pollutants; and, in the Alternative, Proposed Standards of Performance for New and Existing Stationary Sources: Electric Utility Steam Generating Units, 69 Fed. Reg. 4652-4752 [Volume 69, No. 20] (Jan. 30, 2004) (“ EPA-Proposal ”)

Exhibit	Description of Exhibits
1051	U.S. EPA, “Study of Hazardous Air Pollutant Emissions from Electric Utility Steam Generation Units -- Final Report to Congress,” (Vol. 1 1998), available at https://www3.epa.gov/ttn/utox/eurtc1.pdf (“ U.S. EPA – Vol. 1 1998 ”)
1052	U.S. EPA, “Mercury Study Report to Congress Volume 1: Executive Summary,” EPA-452/R-97-003 (Dec. 1997), available at https://www.epa.gov/sites/production/files/2015-09/documents/volume1.pdf (“ U.S. EPA – Exec. Summary Vol. 1 Dec. 1997 ”)
1053	U.S. EPA, AP-42: External Combustion Sources, Chapter 1: Fifth Edition, Volume I (Sep. 1998), available at https://www3.epa.gov/ttn/chief/ap42/ch01/index.html (last visited Nov. 20, 2024) (“ Chapter 1 of AP-42 ”)
1054	U.S. DOE, Mercury Emissions Control - Regulatory Drivers (Jan. 24, 2003), available at https://web.archive.org/web/20030416142937/http://www.netl.doe.gov/coalpower/environment/mercury/regs.html (“ Mercury Emissions Control ”)
1055	Clean Air Mercury Rule: Basic Information, available at https://web.archive.org/web/20050920005951/http://www.epa.gov/mercuryrule/basic.htm (“ Clean Air Mercury Rule ”)
1056	EPA Newsroom, “EPA Announces First-Ever Rule to Reduce Mercury Emissions from Power Plants” (Mar. 15, 2005), available at https://archive.epa.gov/epapages/newsroom_archive/newsreleases/91ab7266e65751b985256fc50067d9b0.html (“ 3/15/2005 EPA Press Release ”)
1057	EPA Newsroom, “Public Comment Period Begins for Proposed Power Plant Regulations” (Jan. 29, 2004), available at https://archive.epa.gov/epapages/newsroom_archive/newsreleases/4

Exhibit	Description of Exhibits
	daf1d46e8dd755c85257036005511f9.html (“1/29/2004 EPA Press Release”)
1058	EPA Newsroom, “EPA Supplements Proposal to Reduce Power Plant Mercury Emissions,” (Feb. 24, 2004), available at https://archive.epa.gov/epapages/newsroom_archive/newsreleases/5810096dabfc9eba85256e440078905f.html (“2/24/2004 EPA Press Release”)
1059	Sharon Sjostrom et al., “Field Studies of Mercury Control Using Injected Sorbents,” AWMA ANNUAL MEETING, Session Ae-1b (2002) (“ Field Studies of Mercury Control ”)
1060	EPA, “Mercury Study Report to Congress Volume VIII: An Evaluation of Mercury Control Technologies and Costs,” EPA Report No. EPA-452/R-97-010 (Dec. 1997), available at https://www3.epa.gov/airtoxics/112nmerc/volume8.pdf (“ EPA 1997 Mercury Study Report Vol. VIII ”)
1061	EUEC 2005 home page, available at https://web.archive.org/web/20050303090129/http://www.euec.com/
1062	Charlene R. Crocker et al., “Mercury Control with the Advanced Hybrid Particulate Collector Technical Progress Report,” U.S. DOE-NETL (Nov. 2003) (“ Crocker ”)
1063	Redline Comparison, showing changes from ’163 Application (as published at 2006/0048646) to ’970 Application (as published at 2018/0229182)
1064	Redline Comparison, showing changes from ’558 Application (as published at 2015/0246315) to ’970 Application (as published at 2018/0229182)
1065	U.S. Patent No. 8,168,147
1066	U.S. Patent No. 10,933,370

Exhibit	Description of Exhibits
1067	U.S. Patent No. 10,589,225
1068	File History of U.S. Patent Application No. 14/712,558, which ultimately issued as U.S. Patent No. 10,589,225 (“ 225 Patent File History ”)
1069	U.S. Patent Pub. No. 2018/0257030 to Olson et al. (published Sep. 13, 2018) (“ Published ’343 Application ”)
1070	Roop Chand Bansal, et al., ACTIVE CARBON (Marcel Dekker:1988). (“ Bansal ”)
1071	<i>Midwest Energy Emissions Corp., et al. v. Arthur J. Gallagher & Co., et al.</i> , No. 1:19-cv-01334-CJB, Dkt. No. 440 (D. Del. June 24, 2022). (“ Dkt No. 440 ”)
1072	<i>Midwest Energy Emissions Corp., et al. v. Arthur J. Gallagher & Co., et al.</i> , No. 1:19-cv-01334-CJB, Dkt. No. 447 (D. Del. July 12, 2022). (“ Dkt No. 447 ”)
1073	Welcome Page of CD mailed to conference attendees of the 2002 Air & Waste Management’s Association’s 95 th Annual Conference & Exhibition (Baltimore, Maryland: June 23-27, 2002) (“ AWMA CD Scan ”)
1074	Main Menu of CD mailed to conference attendees of the 2002 Air & Waste Management’s Association’s 95 th Annual Conference & Exhibition (Baltimore, Maryland: June 23-27, 2002) (“ AWMA CD Scan, Main Menu ”)
1075	Author Index of CD mailed to conference attendees of the 2002 Air & Waste Management’s Association’s 95 th Annual Conference & Exhibition (Baltimore, Maryland: June 23-27, 2002) (“ AWMA CD Scan, Author Index ”)
1076	Papers by Session of CD mailed to conference attendees of the 2002 Air & Waste Management’s Association’s 95 th Annual Conference

Exhibit	Description of Exhibits
	& Exhibition (Baltimore, Maryland: June 23-27, 2002) (“AWMA CD Scan, Papers by Session”)
1077	Scan of jacket/cover of CD mailed to conference attendees of the 2002 Air & Waste Management’s Association’s 95th Annual Conference & Exhibition (Baltimore, Maryland: June 23-27, 2002) (“AWMA CD Photo”)
1078	AWMA Website (Internet Archive), available at https://web.archive.org/web/20020613041559/http://www.awma.org/about/overview.htm (AWMA Overview)
1079	AWMA Website (Internet Archive), available at https://web.archive.org/web/20020527005933/http://www.awma.org/ (AWMA Homepage, advertising AWMA 2002 Conference)
1080	AWMA Website (Internet Archive), available at https://web.archive.org/web/20020604012426/http://www.awma.org:80/about/ (AWMA About Page)
1081	AWMA Website (Internet Archive), available at https://web.archive.org/web/20020601173851/http://www.awma.org/ACE2002/tech-program/MondayPM.asp#AE-1c (AWMA Technical Program Schedule for June 24, 2002 for Session AE-1C)
1082	AWMA Website (Internet Archive), available at https://web.archive.org/web/20020616091740/http://www.awma.org/ACE2002/exhibition/list.asp (AWMA 2002 Conference list of exhibitors)
1083	AWMA Website (Internet Archive), available at https://web.archive.org/web/20020601121532/http://www.awma.org/ACE2002/top10list.asp (AWMA 2002 Conference Top Ten Reasons)
1084	AWMA Website (Internet Archive), available at https://web.archive.org/web/20020610093515/http://www.awma.org

Exhibit	Description of Exhibits
	/ACE2002/welcome.asp (AWMA 95th Annual Conference and Exhibition Welcome Page)
1085	AWMA Website (Internet Archive), available at https://web.archive.org/web/20020806044928/http://www.awma.org:80/pubs/bookstore/ItemInfo.asp?OrderCode_s=VIP-110-CD (AWMA Bookstore Page, Order form for 2002 AWMA Conference CD)
1086	AWMA Website (Internet Archive), available at https://web.archive.org/web/20020806041256/http://www.awma.org:80/pubs/bookstore/ (AWMA Bookstore Homepage)
1087	State of Massachusetts Mass-EPA (Internet Archive) (dated Jan. 6, 2003), available at https://web.archive.org/web/20030106044457/http://www.state.ma.us/dep/bwp/about.htm (describing mission of Mass Department of Environmental Protection, Bureau of Waste Prevention)
1088	State of Massachusetts Mass-EPA (Internet Archive) (dated Dec. 21, 2002), available at https://web.archive.org/web/20021221040816/http://www.state.ma.us/dep/bwp/bwpprogs.htm (describing the divisions and programs of the Mass Bureau of Waste Prevention)
1089	State of Massachusetts Mass-EPA (Internet Archive) (dated Jan. 6, 2003), available at https://web.archive.org/web/20030106024342/http://www.state.ma.us/dep/bwp/bwppubs.htm (describing the publications by program of the Mass Bureau of Waste Prevention)
1090	State of Massachusetts Mass-EPA (Internet Archive) (dated Dec. 20, 2002), available at https://web.archive.org/web/20021220143210/http://www.state.ma.us/dep/bwp/daqc/daqcpubs.htm#ecp (describing the Air Program Planning Unit Publications of the Mass Bureau of Waste Prevention)

Exhibit	Description of Exhibits
1091	Internet Archive Standard Affidavit, explaining how to interpret hyperlinks, available at https://archive.org/legal/affidavit.php
1092	Expert Report of Philip J. O’Keefe, PE Regarding Infringement (Oct. 25, 2022) (excerpted), submitted by Patent Owner in <i>Midwest Energy Emissions Corp., et al. v. Arthur J. Gallagher & Co., et al.</i> , No. 1:19-cv-01334-CJB
1093	Deposition Transcript of Phillip O’Keefe Vol. 1 (Mar. 2, 2023), taken in <i>Midwest Energy Emissions Corp., et al. v. Arthur J. Gallagher & Co., et al.</i> , No. 1:19-cv-01334-CJB.
1094	Deposition Transcript of Phillip O’Keefe Vol. 2 (Mar. 3, 2023), taken in <i>Midwest Energy Emissions Corp., et al. v. Arthur J. Gallagher & Co., et al.</i> , No. 1:19-cv-01334-CJB.
1095	Deposition Transcript of Edwin Olson (Aug. 26, 2022) (excerpted), taken in <i>Midwest Energy Emissions Corp., et al. v. Arthur J. Gallagher & Co., et al.</i> , No. 1:19-cv-01334-CJB.
1096	Deposition Transcript of Michael Holmes (Aug. 24, 2022) (excerpted), taken in <i>Midwest Energy Emissions Corp., et al. v. Arthur J. Gallagher & Co., et al.</i> , No. 1:19-cv-01334-CJB.
1097	Deposition Transcript of John Pavlish (Aug. 25, 2022) (excerpted), taken in <i>Midwest Energy Emissions Corp., et al. v. Arthur J. Gallagher & Co., et al.</i> , No. 1:19-cv-01334-CJB.
1098	Affidavit of Tanya Zeif, Custodian of Records for Internet Archive (1/10/2025), sponsoring Exhibits 1078-1086
1099	Affidavit of Tanya Zeif, Custodian of Records for Internet Archive (1/13/2025), sponsoring Exhibits 1009, 1061, 1087-1090
1100	RESERVED
1101	RESERVED

Exhibit	Description of Exhibits
1102	RESERVED
1103	RESERVED
1104	RESERVED
1105	RESERVED
1106	RESERVED
1107	RESERVED
1108	RESERVED
1109	RESERVED
1110	Petitioner PacifiCorp’s Stipulation Regarding District Court Proceedings
1111	Petitioner MEC’s Stipulation Regarding District Court Proceedings
1112	Petitioners WPL and IPL’s Stipulation Regarding District Court Proceedings
1113	Puget Sound Energy, <i>Colstrip Facts</i> , available at: https://www.colstripfacts.com/faqs#:~:text=Talen%20Energy%20owns%2030%25%20interest,operator%20of%20all%20four%20plants.&text=PacifiCorp%20owns%20a%2010%25%20interest%20in%20units%203%20%26%204
1114	Plaintiff’s Initial Infringement Contentions (March 18, 2025) served in <i>In re: Midwest Energy Emissions Corp. Patent Litig.</i> , No. 4:24-md-03132-SHL-WPK (S.D. Iowa) and filed publicly at ECF 106-3
1115	Exhibit A to Plaintiff’s Initial Infringement Contentions (March 18, 2025) served in <i>In re: Midwest Energy Emissions Corp. Patent Litig.</i> , No. 4:24-md-03132-SHL-WPK (S.D. Iowa) and filed publicly at ECF 106-3

Exhibit	Description of Exhibits
1116	<p><i>Coal Explained: Use of Coal</i>, U.S. Energy Information Administration (last updated Sept. 14, 2023), available at: https://www.eia.gov/energyexplained/coal/use-of-coal.php#:~:text=In%202022%2C%20coal%20accounted%20for,19.5%25%20of%20U.S</p>
1117	<p><i>What EPA is Doing to Reduce Mercury Pollution, and Exposures to Mercury</i>, U.S. Env't Protection Agency (last updated July 11, 2024), available at https://www.epa.gov/mercury/what-epa-doing-reduce-mercurypollution-and-exposures-mercury</p>
1118	<p>Birchtech, <i>Technology Overview</i>, available at https://www.birchtech.com/tech-overview</p>
1119	<p>Exec. Order No. 14261, 90 Fed. Reg. 15517 (April 8, 2025)</p>
1120	<p>Patent Owner's Response to Petitioners' Motion to Stay Pending <i>Inter Partes</i> Review <i>In re: Midwest Energy Emissions Corp. Patent Litig.</i>, No. 4:24-md-03132-SHL-WPK, ECF 128 (S.D. Iowa)</p>
1121	<p>Docket Navigator, <i>Time to Trial in the Southern District of Iowa</i>, https://search.docketnavigator.com/patent/binder/0/0 (last accessed June 2, 2025)</p>
1122	<p><i>Deere & Co. et. al v. Kinze Mfg., Inc. et. al</i>, 4:20-CV-00389 (S.D. Iowa) (Docket Sheet)</p>
1123	<p><i>Piatz v. State Farm Mut. Auto. Ins. Co.</i>, 3:21-CV-00007 (S.D. Iowa) (Judge Locher) (Docket Sheet and ECF 8)</p>
1124	<p><i>Probasco et al v. MFA Inc.</i>, 4:22-CV-00117 (S.D. Iowa) (Judge Locher) (Docket Sheet and ECF 7, 9)</p>
1125	<p><i>Shin v. Winnebago Indus., Inc. et. al</i>, 3:23-CV-00077 (S.D. Iowa) (Judge Locher) (Docket Sheet)</p>
1126	<p><i>Nuhn Industries Ltd v. Bazooka Farmstar LLC</i>, 3:22-cv-00015 (S.D. Iowa) (Docket Sheet and ECF 286)</p>

Exhibit	Description of Exhibits
1127	<i>G.W. Lisk Company, Inc. v. Gits Manufacturing Company</i> , 4:17-cv-00273 (S.D. Iowa) (Docket Sheet)
1128	<i>In re: Midwest Energy Emissions Corp. Patent Litig.</i> , No. 4:24-md-03132-SHL-WPK, ECF 131 (S.D. Iowa May 22, 2025) (Order Denying Without Prejudice Pre-Institution Stay)
1129	<i>In re: Midwest Energy Emissions Corp. Patent Litig.</i> , No. 4:24-md-03132-SHL-WPK, ECF 111 (S.D. Iowa Apr. 18, 2025) (Order re: Petitioners' Deadline to File Surreply)
1130	<i>In re: Midwest Energy Emissions Corp. Patent Litig.</i> , No. 4:24-md-03132-SHL-WPK, ECF 19 (S.D. Iowa Jan 10, 2025) (Order on Motions to Dismiss and Motion to Sever)
1131	<i>In re: Midwest Energy Emissions Corp. Patent Litig.</i> , No. 4:24-md-03132-SHL-WPK, ECF 1 (S.D. Iowa December 17, 2024) (MDL Transfer Order)
1132	<i>In re: Midwest Energy Emissions Corp. Patent Litig.</i> , No. 4:24-md-03132-SHL-WPK, ECF 129 (S.D. Iowa May 21, 2025) (Petitioners' Reply Brief In Support of Motion to Stay Pending <i>Inter Partes</i> Review)
1133	Email from Justin Nemunaitis to Joe Jacobi (Jan. 16, 2024, 11:01 AM)
1134	<i>In re Midwest Energy Emissions Corp. Patent Litig.</i> , MDL No. 3132 ECF 35 (J.P.M.L. Nov. 14, 2024) (Patent Owner's Reply Brief in Support of Consolidation)
1135	<i>Midwest Energy Emissions Corp. v. Arthur J. Gallagher & Co.</i> , No. 19-1334-RGACJB ECF 1 (D. Del. July 17, 2019) (Complaint for Patent Infringement)
1136	<i>Midwest Energy Emissions Corp. v. Arthur J. Gallagher & Co.</i> , No. 19-1334-RGACJB ECF 130 (D. Del. July 15, 2020) (First Amended Complaint for Patent Infringement)

Section II is identical in Petitioners' reply briefs in IPR2025-00422 and -423.

I. INTRODUCTION

In the POPR, PO does not identify any claim limitations missing from any grounds. Rather, PO argues: (i) the Petition is time-barred; (ii) Downs-Boiler is not prior art because of a swear behind; and (iii) lack of motivation to combine Vosteen589 with other references. These arguments are without merit and mirror those the Board already rejected in previously instituted proceedings against the ancestor '147 Patent (IPR2020-00926, -00928) and counterpart '114 Patent (IPR2020-00832, -00834). The same outcome is warranted here.

II. THE PETITION IS NOT TIME-BARRED

PO does not “attempt to differentiate its position as to RPI and privity, instead simply asserting that [the unnamed party] must be one or the other.” *See Uniloc 2017 LLC v. Facebook Inc.*, 989 F.3d 1018, 1028 (Fed. Cir. 2021). Petitioners address both because Petitioners expect PO to present its privity arguments for the first time in sur-reply—as PO did in its 7/23/2025 sur-replies in IPR2025-00274, -278, -280, and -281. PO presents “[t]heoretical, hypothetical, or speculative” assertions that “are neither probative nor persuasive.” *See ASSA ABLOY AB v. CPC Patent Techs.*, IPR2022-01094, Paper 19 at 13–14 (P.T.A.B. Feb. 2, 2023).

There are no unnamed RPIs. Petitioners confirmed in the petitions, and PO does not dispute, that no “unnamed party is controlling, funding, or directing an IPR

proceeding.” *See Luminex Int’l Co. v. Signify Holdings B.V.*, IPR2024-00101, Paper 20 at 9 (P.T.A.B. Nov. 21, 2024) (standard for RPI); IPR2025-00422, Paper 1 at 1-2; IPR2025-00423, Paper 1 at 1-2.

There are also no unnamed privies. This is not a case in which any Petitioner is “now lodging a successive attack for which it already had a first bite.” *Uniloc*, 989 F.3d at 1028. PO does not (and cannot) contend that Petitioners were parties to the Delaware Litigation or 2020 IPR proceedings, or that Petitioners had any role in defending, funding, controlling, or other involvement in those proceedings. The “general rule against nonparty preclusion” applies here, as Petitioners did not have a “full and fair opportunity to litigate the claims and issues.” *See WesternGeco LLC v. Ion Geophysical Corp.*, 889 F.3d 1308, 1319 (Fed. Cir. 2018).

The two groups—the Delaware defendants (in 2020) and current Petitioners (in 2025)—have “acted independently and had [their] own motivations for pursuing” the various proceedings, and they are not RPIs/privities of one another. *See Samsung Electronics Co. v. NetList*, IPR2022-00615, Paper 62 (Public) at 22 (P.T.A.B. June 30, 2023). The reason there are two groupings of petitions—four instituted petitions filed by Delaware defendants in 2020 (two patents) and the twelve petitions at issue from the Petitioners in 2025 (six patents)—is solely attributable to PO “choosing to stagger the filing of its infringement suits.” *Arista Networks, Inc. v. Orckit Corp.*, IPR2024-01239, Paper 7 at 3-4 (P.T.A.B. Mar. 12, 2025); *see ASSA ABLOY*,

IPR2022-01094, Paper 19 at 33 (finding no privity, noting that PO “ignores the practical consequences of its own actions that precipitated the current situation.”).

There is no evidence of direction, control, funding, or coordination between the 2020 petitioners and the current Petitioners, either in 2020 or now. Petitioners should be allowed a full and fair opportunity to defend themselves. “Without such evidence of control, in addition to no evidence of joint funding, or even any evidence of substantial coordination between the parties as to their respective decisions to bring these proceedings, a finding that [Petitioners are] an RPI of or in privity with [2020 petitioners] here would be improper.” *See Uniloc*, 989 F.3d at 1029.

A. Patent Owner Misrepresents the 2020 IPR Proceedings

PO misrepresents the 2020 proceedings when it argues that “Talen specifically identified PacifiCorp as a real party in interest in its 2020 IPR” and that “NRG identified Chem-Mod as a real party in interest, and the Board agreed with NRG.” IPR2025-00422, Paper 19 at 48-49, 52 n.24. PO is wrong.

Talen did not name PacifiCorp “as a real party in interest.” Rather, Talen and the 2020 petitioners named two groups of companies: (i) “real-parties-in-interest” that were parties to the Delaware Lawsuit (which did not include any of the current Petitioners); and (ii) “potential real parties-in-interest” that included over 100 entities, named “out of an abundance of caution,” that included co-owners of plants (e.g., PacifiCorp) and suppliers (e.g. Chem-Mod). IPR2020-00832, Paper 3 at 1-3.

None of the 100+ companies in the second group “agreed to be listed as a real party-in-interest for this Petition” and “[n]one of these companies or any unnamed entity is funding, controlling, or directing, or otherwise has an opportunity to control or direct this Petition or proceeding.” *Id.* at 2. There is no evidence presented, then or now, to suggest that the current Petitioners “funded, controlled, or influenced the [2020] petitions,” so there is no privity or RPI. *See WesternGeco*, 889 F.3d at 1320.

The Board found the over-inclusive identification of “potential” RPIs “does not appear problematic,” as there were “reasons for not committing those parties to the real party-in-interest category.” IPR2020-00832, Paper 17 at 9; IPR2020-00834, Paper 18 at 11. Notably, the PTAB had not yet made precedential *SharkNinja*, which held that failing to name an RPI was “not jurisdictional” and that an unnamed RPI can be added later. *See SharkNinja Operating LLC v. iRobot Corp.*, IPR2020-00734, Paper 11, at 18-20 (P.T.A.B., designated precedential Dec. 4, 2020). At no point did the Board find PacifiCorp or Chem-Mod to be “actual” RPIs or privies.

B. Patent Owner’s RPI Analysis is Backwards

PO focuses its RPI arguments on the 2020 petitioners and Delaware defendants, but that is the wrong perspective. When determining a time bar for RPIs, the focus should be on the current petitions. Section 315(b) asks whether “the petition requesting the proceeding” (e.g., IPR2025-00422 and -00423) is filed “more than 1 year after the date on which the petitioner, real party in interest, or privy of

the petitioner” was served with a complaint. The “petitioner” is not Talen, Chem-Mod, or any Chem-Mod affiliate. The petitioners are BHE, WEC, etc., and the only relevant inquiry is whether Talen, Chem-Mod, or any unnamed party is an RPI to the current petition. PO does not argue these entities are RPIs to the current petitions.

C. The Delaware Defendants Are Not RPIs/Privies to these Petitions

Talen, Chem-Mod, and its affiliates are licensed to the '430 Patent, as PO concedes. IPR2025-00422, Paper 19 at 48-51; EX2004 at 26:5-25, 391:19-392:13. Thus, they have no interest in these IPR proceedings.

The point is not to probe [Petitioner’s] interest (it does not need any); rather, it is to probe the extent to which [the unnamed party] has an interest in and will benefit from [Petitioner’s] actions, and inquire whether Petitioner can be said to be representing that interest after examining its relationship with [an unnamed party].

Applications in Internet Time, LLC v. RPX Corp., 897 F.3d 1336, 1353 (Fed. Cir. 2018). Talen, Chem-Mod, and its affiliates are not RPIs or privies to this Petition, as none of them “provided any funding for this *inter partes* review,” none “desires review of the patent,” and PO does not argue that the “Petition was filed at [the non-party’s] behest.” *See Google LLC v. DDC Tech., LLC*, IPR2023-00708, Paper 41 (public version of Paper 29) at 27 (P.T.A.B. Oct. 25, 2023); *see Luminex*, IPR2024-00101, Paper 20 at 8-9, 20 (“behest” standard is central to RPI and privity).

D. Petitioners Are Not RPIs/Privies to the Delaware case or 2020 IPRs

None of the current Petitioners were parties to the Delaware Litigation or 2020

IPRs. “[T]here is a general rule against nonparty preclusion” because “[a] person who was not a party to a suit generally has not had a ‘full and fair opportunity to litigate’ the claims and issues in that suit.” *WesternGeco*, 889 F.3d at 1319 (quoting *Taylor v. Sturgell*, 553 U.S. 880, 892 (2008)). Petitioners did not have any opportunity to litigate the claims in the Delaware Litigation or 2020 IPRs, and PO does not contend otherwise. Indeed, no one litigated validity of the ’430 Patent, as it was not asserted at trial in Delaware or in an IPR. And for the patents actually asserted at trial, the Delaware defendants did not present any evidence of invalidity, instead presenting a pure non-infringement case. EX2004 at 117:2-4, 921:12-17, 1194:11-1120:8, 1135:13-16, 1139:11-1141:5.

PO asserts that “Petitioners have argued that Chem-Mod and its affiliates defended [PO]’s infringement claims and negotiated a license on their behalf” and that “PacifiCorp has alleged that Talen defended that claim and obtained a license on its behalf. EX2008 at 94-100.” IPR2025-00422, Paper 19 at 49-51 (citing EX2009 at 91); IPR2025-00423, Paper 19 at 31-33. PO’s cited pleadings do not support its “on their behalf” assertions. Rather, certain Petitioners argued that PO cannot pursue infringement claims against them, because PO granted a covenant-not-to-sue. This covenant was so broad that it not only benefited the Delaware defendants, but also others—including some Iowa defendants and others that were never sued. None of the Petitioners defended the Delaware

Litigation, were involved in the 2020 IPR proceedings, negotiated the licenses, or had the licenses negotiated “on their behalf.”

PO cannot have it both ways. On one hand, it claims that Delaware defendants or 2020 IPR petitioners acted “on behalf” of the current Petitioners—negotiating a license/covenant and defending against infringement for their benefit. On the other hand, PO sues the Petitioners in Iowa and the MDL Court, contending that the covenants do not cover Petitioners. Either the covenants apply or they don’t—but PO’s attempt to play both sides cannot be reconciled.

In reality, the 2020 IPR petitioners and Delaware defendants independently defended themselves in 2020 (with no coordination from the current Petitioners), and the current Petitioners are independently defending themselves after ME2C sued them in 2024 (with no coordination from the Delaware defendants or 2020 IPR petitioners). There is no “evidence of control, in addition to no evidence of joint funding, or even any evidence of substantial coordination between the parties as to their respective decisions to bring these [IPR] proceedings,” so the two groups are not RPIs or privities of one another. *Uniloc*, 989 F.3d at 1028-1029.

E. A Generic Business Relationship Is Insufficient for RPI or Privity

Whether privity is viewed from the perspective of the earlier Delaware action or the current IPRs, the result is the same: there is no control, coordination, or shared interest to link Petitioners to the Delaware defendants. Talen and PacifiCorp co-

owning a power plant (among many other co-owners, EX1113) is not sufficient to create RPI or privity. Nor is it sufficient that Chem-Mod and affiliates supplied refined coal to some Petitioners through agreements that expired in 2021. These are nothing “other than a traditional business relationship between [third party] and Petitioner.” *Assa Abloy*, IPR2022-01094, Paper 19 at 35. A general business relationship “does *not* establish a relationship sufficient to make [the third party] a real party-in-interest or a privy of Petitioner in this *inter partes* review.” *Id.* That is, the “mere existence of some relationship between a petitioner and another entity is not sufficient—that relationship must be related to the lawsuit and be sufficiently close that it can be fairly said the petitioner had a full and fair opportunity to litigate the validity of the patent in that lawsuit.” *See Google*, IPR2023-00708, Paper 41 at 23. Petitioners had no prior ability to litigate validity of the ’430 Patent

PO argues that agreements with Chem-Mod and its affiliates (Louisa, Portage, Arbor Fuels) “contain indemnity provisions.” IPR2025-00422, Paper 19 at 51. An “indemnity provision does not amount to a sufficiently-close relationship to warrant ... privity.” *WesternGeco*, 889 F.3d at 1321-22; *see ASSA ABLOY*, IPR2022-01094, Paper 19 at 34 (no privity where option to indemnify was not exercised).

PO cites an agreement (EX2037) between WPL and Portage Fuels that expired in 2021 with generic indemnity language regarding patent infringement of refined coal. IPR2025-00422, Paper 19 at 50. This is nothing more than a “fairly

standard customer-manufacturer relationship”; referencing “the accused product” in an agreement does not suggest, “without more, that the parties were litigating either the district court action or IPRs as proxies for the other.” *WesternGeco*, 889 F.3d at 1321; *see Luminex*, IPR2024-00101, Paper 20 at 11 (Director explaining that “a standard, non-exclusive, manufacturer-customer indemnification agreement relating to patent infringement” is not enough for RPI or privity).

The relationship between Arbor Fuels and a subsidiary of Petitioner WEC is even more tenuous (PO incorrectly names WPSC as the parent of WEC). POPR at 51-52. There is “no authority” to apply “Section 315(b) to a party that may be a real party in interest to a conjectured privity of a petitioner.” *Semiconductor Component Indus. v. Greenthread*, IPR2024-00266, Paper 23 at 30 (P.T.A.B. Aug. 4, 2024).

PO cites to *Ventex* and suggests that because the petitioner in that case “was obligated to indemnify” an accused infringer (that was not a petitioner), the Board found the accused infringer “was a real party in interest with respect to [petitioner].” POPR at 47-48. But “Patent Owner mischaracterizes the holding in *Ventex*. The existence of an indemnification agreement was not the determining factor in finding the existence of an RPI relationship,” because “the Board has held repeatedly that an indemnification agreement, without something more, is insufficient to establish an RPI relationship.” *See ASSA ABLOY*, IPR2022-01094, Paper 19 at 24 (distinguishing *Ventex Co. v. Columbia Sportswear N. Am.*, IPR2017-00651, Paper

148 (P.T.A.B. Jan. 24, 2019)). Rather, the Board found that Seirus (customer) should have been named as an RPI/privy to the petition filed by Ventex (manufacturer), because the two had an “Exclusive Manufacturing Agreement” and Ventex had an “express desire to shield its customers and potential buyers from infringement lawsuits.” *Id.* at 25 (distinguishing *Ventex*). Here in contrast, the customers filed the instant Petition, and PO argues that the non-exclusive manufacturer (e.g., Chem-Mod) should have been named as an RPI or privy. Chem-Mod supplies other entities beyond Petitioners (such as also supplying NRG, *see* IPR2025-00422, Paper 19 at 47-48). Chem-Mod did not file IPR petitions in 2020, and PO does not argue that they are contributing to the current Petition.

PO cites to *Greenthread* and argues that “sales agreements that included indemnity provisions ... can create privity.” POPR at 49-50. In *Greenthread*, the Director did not rule on the ultimate issue of privity, but instead faulted the Board for “denying the discovery motions.” *Semiconductor Components Indus. v. Greenthread, LLC*, IPR2023-01242, Paper 94 at 2-3 (P.T.A.B. Apr. 24, 2025). Here, Petitioners *agreed* to PO’s discovery requests before PO filed its POPR.

III. DOWNS-BOILER IS PRIOR ART

The ’430 Patent was filed in 2018, purportedly claiming priority to a Provisional filed August 30, 2004. Both dates are after the March 22, 2004, prior art date for Downs-Boiler. Accordingly, Downs-Boiler is presumptively prior art.

The burden of production shifts to PO to produce evidence: (i) that the '430 Patent qualifies as a pre-AIA patent and PO can avail itself of a swear behind; and (ii) supporting a date of invention before the prior art. *Sonos, Inc. v. Implicit, LLC*, IPR2018-00767, 2019 WL 4419356, at *6 (P.T.A.B. Sept. 16, 2019). PO has not met its burden for either, and PO does not even seek to swear behind Vosteen589, Starns, or Mass-EPA. The Board already rejected nearly identical arguments in IPR2020-00834 in connection with a related patent that PO concedes “cover[s] similar subject matter” (EX1134; *see also* EX1114 at 20-25): “[W]e are not persuaded that the evidence and arguments before us are sufficient to show the asserted conception date, reduction to practice date(s), or diligence.” IPR2020-00834, Paper 18 at 33; *see also* IPR2020-00926, Paper 19 at 32-33 (similar reasoning when rejecting conception/RTP for ancestor '147 Patent). The same result is warranted here, as PO relies upon the same Pavlish declaration from 2020. Ex. 2018.

A. A Swear Behind Is Not Available

As stated in the Petition, “PO bears the burden to come forward with evidence that it is entitled to a priority date earlier than the actual filing date. *PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299, 1304-05 (Fed. Cir. 2008).” Paper 1 at 18. This is because Petitioners provided evidence that Downs-Boiler is prior art by March 2004, which is before the filing date of the '430 Patent (May 2018) and the earliest filing date set forth on the cover (August 2004). Paper 1 at 61-62; *see*

Mueller Sys., LLC v. Rein Tech, Inc., IPR2020-00100, 2020 WL 2478524, at *10 (P.T.A.B. May 12, 2020) (burden on PO to “argue or produce evidence that ... the reference is not prior art because the claims are entitled to an earlier filing date”). PO has not produced evidence that the ’430 Patent is entitled to a pre-AIA filing date, such that that a “swear behind” is available. *See* Ex. 1004; Paper 1 at 13 (citing EX1063-EX1064); M.P.E.P. § 2152.01 (“no longer possible to antedate or ‘swear behind’” references for post-AIA patents). The Board addressed the issue in IPR2020-00834, holding that PO was obligated to establish pre-AIA status when asserting a pre-filing invention date. *See* IPR2020-00834, Paper 18 at 36-38 (“Petitioner, however, appears to make its Reply argument in response to Patent Owner’s assertion of a prior invention date in their Preliminary Response Patent Owner argues that Petitioner may not ‘raise the issue after the fact,’ but we are not directed to any authority indicating that we must disregard this potentially dispositive issue entirely, particularly if the parties are on notice that the issue is relevant to this proceeding.”); *see also* IPR2020-00926, Paper 19 at 35 (similar reasoning for ’147 Patent, an ancestor of the ’430 Patent).

B. No Evidence of Early Conception

PO’s assertion of early conception should be rejected. First, the only support for the August 2002 date is an uncorroborated declaration related to other patents (i.e., not the ’430 Patent), discussing a hodgepodge of “research ideas” from others

that “Mr. Pavlish maintained.” POPR at 23; Ex. 2015. PO fails to describe the “specific, settled idea, [the] particular solution to the problem at hand” required for conception, and is “just a general goal or research plan he hopes to pursue.” *Burroughs Wellcome Co. v. Barr Labs., Inc.*, 40 F.3d 1223, 1228 (Fed. Cir. 1994) (requiring “every feature of [the] claimed invention” for conception). Nor does PO articulate diligence in reduction to practice. *See* IPR2020-00834, Paper 18 at 32-33. PO’s assertions of early conception are irrelevant.

C. No Evidence of Early Actual Reduction to Practice

Though PO asserts that “reduction to practice is confirmed by testimony from all three inventors” (POPR at 29), PO submits an inventor declaration only from Mr. Pavlish (Ex. 2018), who does not even discuss the ’430 Patent. PO asserts, based on unwitnessed laboratory notebooks, that “the inventors reduced the claims of the ’430 Patent to practice by performing tests using sodium bromide [(NaBr)] as the pre-combustion chamber additive and activated carbon as a post-combustion sorbent.” POPR at 24. But “an unwitnessed notebook is insufficient on its own to support a claim of reduction to practice.” *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1170 (Fed. Cir. 2006). There is also no evidence of an actual reduction to practice “that met all the limitations of the claim.” *In re Steed*, 802 F.3d 1311, 1318 (Fed. Cir. 2015). There is no corroborating evidence for limitations from the independent claims, such as: (i) “the coal comprises an additive comprising Br₂, HBr, bromide

compound, or a combination thereof, wherein the additive is added to the coal before the coal enters the combustion chamber”; (ii) the “combustion chamber comprises” these species; and (iii) “the mercury-containing gas comprises a halogen or halide promoter comprising HBr, Br⁻, or a combination thereof.” Disclosure of one species (NaBr) does not demonstrate possession of the undisclosed “HBr” or “Br₂” species or the “bromide compound” genus. *See Tronzo v. Biomet, Inc.*, 156 F.3d 1154, 1158-60 (Fed. Cir. 1998) (denying priority where earlier application did not support the full scope of alternative shapes in the claims).

Beyond the above deficiencies in independent claims, PO ignores the vast majority of ’430 Patent claims. *SAS Inst., Inc. v. Iancu*, 584 U.S. 357, 365 (2018) (“reasonable prospect of success on a single claim justifies review of all”). For claims 2-4, 6-7, 10-12, 14, and 18-29, PO points only to “the same reasons described above and also with respect to claim 1 of the ’114 Patent,” citing to the Pavlish declaration which never once mentions the ’430 Patent. POPR at 47 (citing Ex. 2018). That cannot carry PO’s burden.

Last, where “[t]he evidence of the dates of conception and actual reduction to practice consists of declaration testimony from [] people who have not yet had their testimony tested by deposition,” that inquiry “is best left for trial after full development of the record.” *Shenzhen Tuozhu Technology Co., Ltd. v. Stratasy, Inc.*, IPR2025-00321, Paper 10 at 20-21 (P.T.A.B. June 18, 2025). Petitioners have

had no opportunity to depose the declarants to probe their declarations.

IV. COMBINATIONS WITH THE VOSTEEN589 REFERENCE

PO is wrong that “Petitioners offer no evidence to support [obviousness] other than the fact that the references qualify as prior art.” POPR at 11.

First, PO admits that “activated carbon injection was known in the art,” as was “the use of halogen additives.” POPR at 13; *see also* EX1008 at 2 (“most mature, retrofit technology available today [i.e., in 2002] is the injection of sorbents such as powdered activated carbon (PAC) into the flue gas”).

Second, the Petition includes a section entitled “Reasons to Combine.” Paper 1 at 25-30. Dr. Niksa also explains, consistent with *KSR*, how “injecting” activated carbon (as in *Starns* and *Mass-EPA*) represents no more than combining prior art elements according to known methods to yield predictable results. EX1002 ¶¶97-115, 129-151, 302-315. This contrasts with *Virtek* cited by PO, where the expert “stated eleven times that he did not provide any reason to combine the references in his expert declaration.” *Virtek Vision Int’l ULC v. Assembly Guidance Sys., Inc.*, 97 F. 4th 882, 887 (Fed. Cir. 2024).

V. CONCLUSION

Petitioners respectfully request that IPR of the ’430 Patent be instituted.

Respectfully submitted,

July 29, 2025

Date

/s/ David J. Tobin

David J. Tobin (Reg. No. 60,776)
McDermott Will & Emery LLP
2501 North Harwood Street, Suite 1900
Dallas, TX 75201
Tel: (214) 210-2793
Email: dtobin@mwe.com

ATTORNEYS FOR PETITIONERS

CERTIFICATE OF SERVICE

Pursuant to 37 CFR § 42.6(e)(4), the undersigned certifies that on July 29, 2025, a complete copy of the foregoing Petitioners' Authorized Reply to Patent Owner's Preliminary Response was served on Lead and Back-up Counsel for Petitioner at the service address provided in Patent Owner's Mandatory Notices:

hhamad@caldwellcc.com
jnemunaitis@caldwellcc.com
rcochrane@caldwellcc.com
midwest@caldwellcc.com

July 29, 2025

Date

/s/ David J. Tobin

David J. Tobin (Reg. No. 60,776)
McDermott Will & Emery LLP
2501 North Harwood Street, Suite 1900
Dallas, TX 75201
Tel: (214) 210-2793
Email: dtobin@mwe.com

ATTORNEYS FOR PETITIONERS