IN THE UNITED STATES DISTRICT COURT FOR THE SOUTHERN DISTRICT OF IOWA CENTRAL DIVISION

IN RE: MIDWEST ENERGY EMISSIONS CORP. PATENT LITIGATION	MDL Case No. 4:24-md-03132-SHL-WPK **DEFENDANT MIDAMERICAN ENERGY COMPANY'S FIRST AMENDED ANSWER, AFFIRMATIVE DEFENSES, AND COUNTERCLAIMS TO PLAINTIFF'S FIRST AMENDED COMPLAINT** **JURY TRIAL DEMANDED**

Defendant MidAmerican Energy Company ("MidAmerican") by and through its undersigned counsel, submits the following First Amended Answer, Affirmative Defenses, and Counterclaims to the First Amended Complaint and Jury Demand by Plaintiff Midwest Energy Emissions Corp. ("ME2C"). Except as otherwise noted, the following headings and number paragraphs correspond to the headings and numbered paragraphs set forth in ME2C's First Amended Complaint. MidAmerican does not consider the headings to be allegations to which a response is necessary and does not admit the truth of any allegations contained in those headings. To the extent that a particular heading can be construed as an allegation, MidAmerican specifically denies all such allegations. MidAmerican responds to ME2C's First Amended Complaint as follows:

THE PARTIES

1. Midwest Energy Emissions Corp. is a Delaware corporation with its principal place of business at 1810 Jester Drive, Corsicana, Texas 75109.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 1, and therefore denies the same.

2. Defendant Berkshire Hathaway Energy Company ("BHE") is an Iowa corporation with a principal place of business at 666 Grand Avenue, Des Moines, Iowa 50309. Berkshire Hathaway Energy Company has designated C T Corporation System, 400 E Court Ave, Ste. 100, Des Moines, IA, 50309, as its agent for service of process.

ANSWER: MidAmerican understands that the claims this allegation relate to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 2. On these bases, MidAmerican denies the allegations in Paragraph 2.

3. Defendant MidAmerican Energy Company ("MidAmerican") is an Iowa corporation with a principal place of business at 666 Grand Avenue, Des Moines, Iowa 50309. MidAmerican Energy Company has designated C T Corporation System, 400 E Court Ave, Ste. 100, Des Moines, IA, 50309, as its agent for service of process.

ANSWER: Admitted that MidAmerican is an Iowa Corporation and has designated C T Corporation System, 400 E Court Ave, Ste. 100, Des Moines, IA, 50309, as its agent for service of process. MidAmerican's principal place of business is at 1615 Locust Street, Des Moines, Iowa 50309, and on that basis, MidAmerican denies the remaining allegations in Paragraph 3.

4. Defendant PacifiCorp is an Oregon corporation with a regular and established place of business at 666 Grand Avenue, Des Moines, Iowa 50309, and a principal place of business at 825 N.E. Multnomah Street, Suite 1900 Portland, Oregon 97232. PacifiCorp has designated C T Corporation System, 780 Commercial Street SE, Suite 100, Salem, OR, 97301, as its agent for service of process.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 4, and therefore denies the same.

5. Defendant Alliant Energy Corporation ("Alliant") is a Wisconsin corporation with a regular and established place of business at Ottumwa Generating Station, 20527-20583 Power Plant Rd, Ottumwa, IA 52501, and a principal place of business at 4902 N. Biltmore Lane, Madison, Wisconsin 53718. Alliant Energy Corporation has designated Corporation Service Company, 33 East Main Street, Suite 610, Madison, WI 53703, as its agent for service of process.

ANSWER: MidAmerican understands that the claims this allegation relate to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as

to the truth of the allegations in Paragraph 5. On these bases, MidAmerican denies the allegations in Paragraph 5.

6. Defendant Alliant Energy Corporate Services, Inc. ("AECS") is a Minnesota corporation with a regular and established place of business at Ottumwa Generating Station, 20527-20583 Power Plant Rd, Ottumwa, IA 52501, and a principal place of business at 200 1st St. SE, Cedar Rapids, IA 52401. AECS has designated Corporation Service Company, 505 5th Ave. Ste. 729, Des Moines, IA, 50309, as its agent for service of process.

ANSWER: MidAmerican understands that the claims this allegation relate to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 6. On these bases, MidAmerican denies the allegations in Paragraph 6.

7. Defendant Interstate Power and Light Company ("IPL") is an Iowa corporation with a principal place of business at Alliant Energy Tower, 200 1st St. SE, Cedar Rapids, IA 52401. Interstate Power and Light Company has designated Corporation Service Company, 505 5th Ave. Ste. 729, Des Moines, IA, 50309, as its agent for service of process.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 7, and therefore denies the same.

8. Defendant Wisconsin Power and Light Company ("WPL") is a Wisconsin corporation with a principal place of business at 4902 N. Biltmore Lane, Madison, Wisconsin 53718. Wisconsin Power and Light Company is registered to do business in Iowa and has designated Corporation Service Company, 505 5th Ave. Ste. 729, Des Moines, IA, 50309, as its agent for service of process.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 8, and therefore denies the same.

JURISDICTION AND VENUE

9. This action includes a claim of patent infringement arising under the patent laws of the United States, 35 U.S.C. §§ 1 *et seq*. This Court has jurisdiction over this action pursuant to 28 U.S.C. §§ 1331 and 1338(a).

ANSWER: The allegations in Paragraph 9 state legal conclusions to which no answer is necessary. To the extent an answer is required, MidAmerican admits that the First Amended

Complaint purports to state an action for patent infringement, which would provide this Court with jurisdiction under 28 U.S.C. §§ 1331 and 1338(a).

10. The Court has general personal jurisdiction over BHE, MidAmerican, and IPL because each of their affiliations with the State of Iowa are so systematic and continuous as to render each essentially at home in this state. In particular, each of BHE, MidAmerican, and IPL is incorporated in or organized under the laws of Iowa, has an agent for service of process in Iowa, and has a principal place of business in Iowa.

ANSWER: The allegations in Paragraph 10 state legal conclusions to which no answer is necessary. To the extent an answer is required, MidAmerican admits that it is incorporated in or organized under the laws of Iowa, has an agent for service of process in Iowa, and has a principal place of business in Iowa. MidAmerican understands that the claims against BHE have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations regarding other Defendants in Paragraph 10. On these bases, MidAmerican denies the remaining allegations in Paragraph 10.

11. The Court has general personal jurisdiction over Alliant because each of its affiliations with the State of Iowa are so systematic and continuous as to render it essentially at home in this state. In particular, Alliant services utility customers and operates power plants in only two states: Wisconsin and Iowa. The majority of its customers are located in Iowa. Alliant has offices, operates power plants, and supplies power throughout the state of Iowa, including within this forum.[1] Alliant also maintains one of its two largest offices in Cedar Rapids, Iowa at the Alliant Energy Tower, the largest skyscraper in Cedar Rapids, and employs hundreds of people in this state. Alliant also maintains a website for interacting with customers and investors in this state to sell utility services, pay bills, and provide information about Alliant.

ANSWER: MidAmerican understands that the claims this allegation relate to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as

[1] Alliant Energy, *Communities we serve* (last visited July 12, 2024), https://www.alliantenergy.com/aboutus/whoweare/communitiesweserve?state=iowa#filters

to the truth of the allegations regarding other Defendants in Paragraph 11. On these bases, MidAmerican denies the allegations in Paragraph 11.

12. The Court also has general personal jurisdiction over BHE, MidAmerican, AECS, IPL, and WPL because they have consented to jurisdiction and venue by maintaining registered agents in this state.

ANSWER: The allegations in Paragraph 12 state legal conclusions to which no answer is necessary. To the extent an answer is required, MidAmerican admits that the Court has personal jurisdiction over MidAmerican and that MidAmerican has a registered agent in Iowa. MidAmerican understands that the claims against BHE and AECS have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations regarding other Defendants in Paragraph 12. On these bases, MidAmerican denies the remaining allegations in Paragraph 12.

13. In addition or in the alternative, this Court has specific personal jurisdiction over Defendants because they have established minimum contacts with this forum such that the exercise of jurisdiction over Defendants would not offend traditional notions of fair play and substantial justice.

ANSWER: The allegations in Paragraph 13 state legal conclusions to which no answer is necessary. To the extent an answer is required, MidAmerican admits that the Court has personal jurisdiction over MidAmerican. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 13 regarding other Defendants, and therefore denies the same. MidAmerican denies the remaining allegations in Paragraph 13.

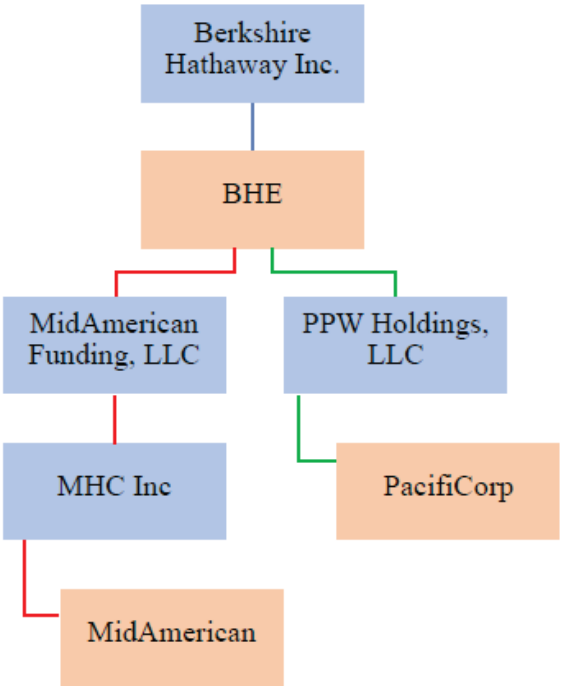
14. MidAmerican and PacifiCorp are indirectly owned subsidiaries of and controlled by BHE.

ANSWER: MidAmerican admits that it is an indirectly owned subsidiary of BHE. MidAmerican denies that it is "controlled by BHE." MidAmerican understands that the claims this allegation relate to have been dismissed (*see* ECF 146), and further lacks knowledge or

information sufficient to form a belief as to the truth of the allegations regarding other Defendants in Paragraph 14. On these bases, MidAmerican denies the remaining allegations in Paragraph 14.

15. Figure 1 below illustrates the corporate structure of BHE, MidAmerican, and PacifiCorp:

Figure 1 – *BHE, PacifiCorp, and MidAmerican Corporate Structure*



ANSWER: Admitted as to MidAmerican. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations regarding other Defendants in Paragraph 15. MidAmerican further understands that the claims this allegation relate to have been dismissed (*see* ECF 146).

16. Although BHE owns MidAmerican and PacifiCorp through intermediate companies (MidAmerican Funding, LLC, MHC Inc., and PPW Holdings, LLC), on information and belief, these entities are merely shell companies that BHE owns and controls.

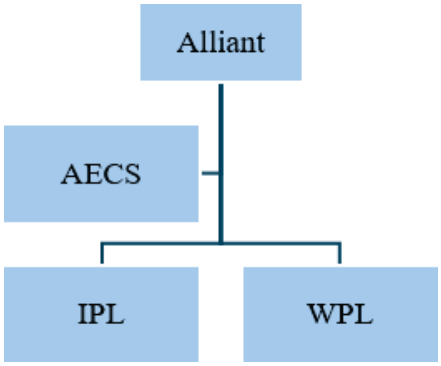
ANSWER: Denied. MidAmerican further understands that the claims this allegation relate to have been dismissed (*see* ECF 146).

17. AECS, IPL, and WPL are subsidiaries of and controlled by Alliant.

ANSWER: MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 17. On these bases, MidAmerican denies the allegations in Paragraph 17.

18. Figure 2 below illustrates the corporate structure of Alliant, AECS, IPL, and WPL:

Figure 2 – *Alliant, AECS, IPL, and WPL Corporate Structure*



ANSWER: MidAmerican understands that the claims that this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 18. On these bases, MidAmerican denies the allegations in Paragraph 18.

19. Specifically, Defendants BHE, MidAmerican, Alliant, and IPL own and/or operate within this state the coal-fired power plants that commit the acts of infringement alleged below.

ANSWER: MidAmerican admits that it owns and/or operates coal-fired powerplants within this state. MidAmerican denies any alleged infringement. MidAmerican understands that the claims against BHE and Alliant have been dismissed (*see* ECF 146), and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations regarding other Defendants in Paragraph 19. On these bases, MidAmerican denies the remaining allegations in Paragraph 19.

20. Moreover, Defendants BHE and Alliant have induced infringement at power plants and/or exercised control over infringement at power plants in this state by exercising control over their subsidiaries (MidAmerican and IPL, respectively) to intentionally cause infringement in this state.

ANSWER: MidAmerican denies infringement, and further denies that BHE exercises "control over [MidAmerican] to intentionally cause infringement in this state." MidAmerican understands that the claims against BHE and Alliant have been dismissed (*see* ECF 146), and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations regarding other Defendants in Paragraph 20. On these bases, MidAmerican denies the allegations in Paragraph 20.

21. In addition, Defendant Alliant has induced infringement at power plants and/or exercised control over infringement at power plants operated in the bordering state of Wisconsin. Because of interconnections between the Iowa and Wisconsin electrical grids, electricity generated while using ME2C's patented methods is sent into Iowa from those power plants.

ANSWER: MidAmerican understands that the claims that this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 21. On these bases, MidAmerican denies the allegations in Paragraph 21.

22. BHE subsidiaries MidAmerican and PacifiCorp rely on employees and administrative services provided by BHE and its subsidiaries to operate its coal-fired power plants that commit the acts of infringement alleged below. On information and belief, these employees and services are performed in or by individuals located in this state.

ANSWER: MidAmerican admits that it has an agreement to share administrative services and employees with BHE. MidAmerican denies infringement, and further denies that it relies on BHE to operate MidAmerican's coal plants. MidAmerican understands that the claims against BHE have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations regarding other Defendants in Paragraph 22. MidAmerican denies the remaining allegations in Paragraph 22.

23. Similarly, Alliant subsidiaries IPL and WPL rely on employees and administrative services provided by Alliant and AECS to operate its coal-fired power plants that commit the acts of infringement alleged below. On information and belief, these employees and services are performed in or by individuals located in this state.

ANSWER: MidAmerican understands that the claims this allegation relate to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 23. On these bases, MidAmerican denies the allegations in Paragraph 23.

24. In addition or in the alternative, BHE and Alliant infringe vicariously by profiting from the direct infringement of their subsidiaries despite having the right and ability to stop that infringement.

ANSWER: MidAmerican denies infringement. MidAmerican understands that the claims this allegation relate to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 24. On these bases, MidAmerican denies the allegations in Paragraph 24.

25. In addition or in the alternative, BHE is the alter ego of its subsidiaries MidAmerican and PacifiCorp, and Alliant is the alter ego of its subsidiaries AECS, IPL and WPL, as explained below.

ANSWER: MidAmerican denies that BHE is its alter ego. MidAmerican understands that the claims this allegation relate to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations regarding other Defendants in Paragraph 25. On these bases, MidAmerican denies the allegations in Paragraph 25.

26. Accordingly, the contacts of their subsidiaries are attributable to the parent companies BHE and Alliant.

ANSWER: MidAmerican denies BHE is the alter ego of MidAmerican and therefore denies the allegations regarding MidAmerican in Paragraph 26. MidAmerican understands that

the claims that this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 26. On these bases, MidAmerican denies the allegations in Paragraph 26.

27. Venue is proper in this district with respect to BHE, MidAmerican, AECS, IPL, and WPL because these entities have consented to venue in this district and waived any venue objections. In addition, Venue is proper in this district with respect to Alliant because it exercises dominion and control over AECS, IPL, and/or WPL, such that Alliant has also consented to venue and waived venue objections. In addition, Venue is proper in this district with respect to AECS because it acts as the agent of IPL, and WPL, such that AECS has also consented to venue and waived venue objections.

ANSWER: The allegations in Paragraph 27 state legal conclusions to which no answer is necessary. To the extent an answer is required, MidAmerican does not dispute that the Southern District of Iowa is the appropriate venue as to MidAmerican. MidAmerican specifically denies it has committed any acts of infringement, including infringement at either of the Louisa Generating Station or the Ottumwa Generating Stations. MidAmerican understands that the claims regarding BHE have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations regarding other Defendants in Paragraph 27. On these bases, MidAmerican denies the remaining allegations in Paragraph 27.

28. Venue is proper in this district pursuant to 28 U.S.C. § 1400(b) with respect to BHE, MidAmerican, and IPL, because they each reside in this district, and because these Defendants have committed acts of infringement and have a regular and established place of business at one or more power plants located within this district. For example, they have performed the patented methods at least at the Louisa Generating Station and/or the Ottumwa Generating Stations located in this district.

ANSWER: The allegations in Paragraph 28 state legal conclusions to which no answer is necessary. To the extent an answer is required, MidAmerican does not dispute that the Southern District of Iowa is the appropriate venue as to MidAmerican, and admits that its principal place of business is in the Southern District of Iowa. MidAmerican specifically denies it has committed any acts of infringement, including infringement at either of the Louisa Generating Station or the

Ottumwa Generating Stations. MidAmerican understands that the claims regarding BHE have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations regarding other Defendants in Paragraph 28. On these bases, MidAmerican denies the remaining allegations in Paragraph 28.

29. Venue is also proper in this district pursuant to 28 U.S.C. § 1400(b) with respect to Alliant because it has committed acts of infringement and has a regular and established place of business at one or more power plants or offices located within this forum. Alliant maintains offices in Marshalltown, Iowa and at the Ottumwa Generating Station. In addition, Alliant has committed acts of infringement in this district by exercising direction and control over its subsidiaries IPL and AECS, using IPL and AECS as its agents, and by inducing IPL and AECS to perform the patented methods at least at the Ottumwa Generating Station. Alliant is also the alter ego of IPL and AECS and vicariously liable with respect to IPL and AECS such that their acts of infringement in this district are attributable to Alliant.

ANSWER: The allegations in Paragraph 29 state legal conclusions to which no answer is necessary. To the extent an answer is required, MidAmerican understands that the claims this allegation relate to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 29. On these bases, MidAmerican denies the allegations in Paragraph 29.

30. Venue is also proper in this district pursuant to 28 U.S.C. § 1400(b) with respect to AECS because it has committed acts of infringement and has a regular and established place of business at one or more power plants or offices located within this forum. AECS maintains offices in Marshalltown, Iowa and at the Ottumwa Generating Station. In addition, AECS has committed acts of infringement in this district by acting as the agent of IPL and committing acts of infringement in this district with respect to power plants owned or operated by IPL. In particular, AECS employee Angela Arrington has identified AECS employees as being involved in acts of infringement occurring in this district.

ANSWER: The allegations in Paragraph 30 state legal conclusions to which no answer is necessary. To the extent an answer is required, MidAmerican understands that the claims this allegation relate to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 30. On these bases, MidAmerican denies the allegations in Paragraph 30.

31. Venue is proper in this district pursuant to 28 U.S.C. § 1400(b) with respect to PacifiCorp based on the fact that PacifiCorp is the agent and/or alter ego of BHE and otherwise acts under the direction and control of BHE such that performance of the patented methods by PacifiCorp are attributable to BHE. BHE exercises this control from within this district.

ANSWER: The allegations in Paragraph 31 state legal conclusions to which no answer is necessary. To the extent an answer is required, MidAmerican understands that the claims this allegation relate to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 31. On these bases, MidAmerican denies the allegations in Paragraph 31.

32. PacifiCorp maintains a regular and established place of business within this district at least at BHE's principal place of business in Des Moines, Iowa.

ANSWER: MidAmerican understands that the claims that this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 32. On these bases, MidAmerican denies the allegations in Paragraph 32.

33. PacifiCorp, MidAmerican, BHE, and other of BHE's subsidiaries are parties to an intercompany administrative services agreement and a mutual assistance agreement. Amounts charged to PacifiCorp under this agreement have totaled in the hundreds of millions of dollars per year.

ANSWER: MidAmerican understands that the claims this allegation relate to have been dismissed (*see* ECF 146). MidAmerican admits that it is party to an intercompany administrative services agreement and a mutual assistance agreement. The agreements speak for themselves, and therefore MidAmerican denies any remaining allegations regarding the agreements. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 33, and on that basis, denies the remaining allegations in Paragraph 33.

34. On information and belief, PacifiCorp relies on BHE employees working out of facilities located in this district to operate its business, and thus maintains a regular and established place of business in this district.

ANSWER: MidAmerican understands that the claims this allegation relate to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 34. On these bases, MidAmerican denies the allegations in Paragraph 34.

35. In addition, PacifiCorp relies on BHE employees to act as its officers and directors. For example, PacifiCorp has relied on Scott W. Thon to act as its CEO and Chairman of the Board of Directors despite the fact that Mr. Thon was employed by and paid by BHE while acting as BHE's president of operations. Additionally, PacifiCorp has relied on Calvin W. Haack and Natalie Hocken to act as directors while also acting as CFO and general counsel of BHE, respectively. On information and belief, these individuals have worked in, and work in, facilities in this district. By participating in, inducing, and approving the conduct giving rise to infringement in this case, these individuals' acts of infringement occurred in this district.

ANSWER: MidAmerican understands that the claims this allegation relate to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 35. On these bases, MidAmerican denies the allegations in Paragraph 35.

36. PacifiCorp has also committed acts of infringement within this district by virtue of the fact that it is the agent and alter ego of, and otherwise acts under the direction and control of, BHE.

ANSWER: MidAmerican understands that the claims this allegation relate to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 36. On these bases, MidAmerican denies the allegations in Paragraph 36.

37. Specifically, and as noted above, PacifiCorp relies on BHE to provide the officers and employees to operate PacifiCorp's business, including the power plants accused of infringement in this case.

ANSWER: MidAmerican understands that the claims this allegation relate to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as

to the truth of the allegations in Paragraph 37. On these bases, MidAmerican denies the allegations in Paragraph 37.

38. In addition, BHE, MidAmerican, and PacifiCorp tout the fact that MidAmerican and PacifiCorp are subsidiaries of BHE, part of the portfolio of BHE, and contribute to the consolidated financials of BHE.[2]

ANSWER: MidAmerican understands that the claims this allegation relate to have been dismissed (*see* ECF 146). MidAmerican admits that it is a subsidiary of BHE but denies that it "*touts*" that it is a subsidiary of BHE, "part of the portfolio of BHE," or "contributes to the consolidate financials of BHE." MidAmerican further lacks knowledge or information sufficient to form a belief as to the truth of the allegations relating to other Defendants in Paragraph 38, and therefore denies the same. MidAmerican denies any remaining allegations in Paragraph 38.

39. BHE also touts that it makes decisions regarding the operation of coal-fired power plants owned by MidAmerican and PacifiCorp, including power plants where acts of infringement have occurred.[3]

ANSWER: MidAmerican denies infringement. MidAmerican further understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 39. On these bases, MidAmerican denies the allegations in Paragraph 39.

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[2] Berkshire Hathaway Energy, 2024 Corporate Brochure, https://prdbhegtscom-cactbhecoracloud.ocecdn.oraclecloud.com/content/published/api/v1.1/assets/CONT63EBCAD93FCF48A7A1B34159EFC0A3CB/native/2024+BHE+Corporate+Brochure_FINAL.pdf?channelToken=43656b04884643bc9fe334ad550d375f&download=false.

[3] Berkshire Hathaway Energy, 2022 Fixed-Income Investor Conference Presentation, https://www.brkenergy.com/content/published/api/v1.1/assets/CONT5DA865379DCC4636AA0D1C00FA771EC2/native?cb=_cache_37c9&download=true&channelToken=43656b04884643bc9fe334ad550d375f

40. Although BHE and PacifiCorp are incorporated as separate entities, BHE maintains "unrestricted cash and other assets" that it may transfer to and from PacifiCorp and its other affiliated companies.[4]

ANSWER: MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 40. On these bases, MidAmerican denies the allegations in Paragraph 40.

41. PacifiCorp is undercapitalized relative to its outstanding liabilities. It has explained:

> These changes in PacifiCorp's credit ratings have and are expected to continue to have a material impact on PacifiCorp's liquidity and may result in, among other things, PacifiCorp being unable to maintain sufficient levels of cash or to obtain necessary short- and long-term financing to fund its operations and financial obligations, capital investments and potential future settlements associated with the Wildfires.[5]

ANSWER: MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 41. On these bases, MidAmerican denies the allegations in Paragraph 41.

42. Moreover, BHE has warned that it may exercise its control over PacifiCorp to the detriment of potential creditors (which would include ME2C as a judgment creditor):

> BHE indirectly owns all of the common stock of PacifiCorp. BHE is also the sole member of MidAmerican Funding and, accordingly, indirectly owns all of MidAmerican Energy's common stock. As a result, BHE has control over all

[4] BHE's Form 10-K for 2023 at 113, https://www.sec.gov/Archives/edgar/data/1081316/000108131624000003/bhe-20231231.htm ("It should not be assumed that the assets of any subsidiary will be available to satisfy BHE's obligations or the obligations of its other subsidiaries. However, unrestricted cash or other assets which are available for distribution may, subject to applicable law, regulatory commitments and the terms of financing and ring-fencing arrangements for such parties, be advanced, loaned, paid as dividends or otherwise distributed or contributed to BHE or affiliates thereof.").

[5] BHE's Form 10-K for 2023 at 77, https://www.sec.gov/Archives/edgar/data/1081316/000108131624000003/bhe-20231231.htm.

> decisions requiring shareholder approval, including the election of directors. In circumstances involving a conflict of interest between BHE and the creditors of the Subsidiary Registrants [including MidAmerican and PacifiCorp], BHE could exercise its control in a manner that would benefit BHE to the detriment of the Subsidiary Registrants' creditors.[6]

ANSWER: MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 42. On these bases, MidAmerican denies the allegations in Paragraph 42.

43. Accordingly, PacifiCorp is the alter ego of, and otherwise acts under the direction and control of, BHE. Thus, venue for BHE may be attributable to PacifiCorp.

ANSWER: The allegations in Paragraph 43 state legal conclusions to which no answer is necessary. To the extent an answer is required, MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 43. On these bases, MidAmerican denies the allegations in Paragraph 43.

44. Venue is proper in this district pursuant to 28 U.S.C. § 1400(b) with respect to WPL based on the fact that WPL is the agent and/or alter ego of Alliant and otherwise acts under the direction and control of Alliant such that performance of the patented methods by WPL are attributable to Alliant.

ANSWER: The allegations in Paragraph 44 state legal conclusions to which no answer is necessary. To the extent an answer is required, MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or

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[6] BHE's Form 10-K for 2023 at 76, https://www.sec.gov/Archives/edgar/data/1081316/000108131624000003/bhe-20231231.htm. [7] Alliant Energy, *About our operations, compliance and values* (last visited July 12, 2024), https://www.alliantenergy.com/aboutus/whoweare/whoweare.

information sufficient to form a belief as to the truth of the allegations in Paragraph 44. On these bases, MidAmerican denies the allegations in Paragraph 44.

45. Alliant, IPL and WPL tout the fact that IPL and WPL are subsidiaries of Alliant, part of the portfolio of Alliant, and contribute to the consolidated financials of Alliant.[7]

ANSWER: MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 45. On these bases, MidAmerican denies the allegations in Paragraph 45.

46. Alliant also touts that it makes decisions regarding the operation of coal-fired power plants owned by IPL and WPL, including power plants where acts of infringement have occurred.[8]

ANSWER: MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 46. On these bases, MidAmerican denies the allegations in Paragraph 46.

47. All of WPL's and IPL's officers and directors are employed as officers or directors of Alliant. Specifically, the individuals ultimately responsible for the acts of infringement at issue in this case, including WPL's CEO Lisa Barton, WPL's CFO Robert Durian, and Chairman of the Board John Larsen, are officers and/or directors of Alliant.

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[7] Alliant Energy, *About our operations, compliance and values* (last visited July 12, 2024), https://www.alliantenergy.com/aboutus/whoweare/whoweare.

[8] *See* Iulia Gheorghiu, *Alliant, We Energies walk back Wisconsin coal retirement plans in light of MISO's expected capacity shortfalls*, UTILITYDIVE (June 24, 2022), https://www.utilitydive.com/news/wisconsin-utilities-coal-retirement-miso-delay/626005/; Cindy Toopes, *Ottumwa Generating Station a 'shining star' in Alliant's fleet*, OTTUMWA COURIER (Aug. 4, 2012), https://www.ottumwacourier.com/news/local_news/ottumwa-generating-station-a-shining-star-in-alliant-s-fleet/article_59da4c54-27b5-5088-8cfb- 3cfa1a76c3dd.html.

ANSWER: MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 47. On these bases, MidAmerican denies the allegations in Paragraph 47.

48. Alliant negotiates intellectual property and commercial agreements related to performance of the patented methods at infringing power plants even if those power plants are nominally owned by IPL or WPL. Moreover, Alliant investigates, oversees, and controls operation of the patented methods at those power plants. For example, ME2C negotiations related to use of the patented methods at WPL power plants were conducted with Alliant.

ANSWER: MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 48. On these bases, MidAmerican denies the allegations in Paragraph 48.

49. Accordingly, WPL is the agent and alter ego of, and otherwise acts under the direction and control of, Alliant. Thus, venue for Alliant may be attributable to WPL.

ANSWER: The allegations in Paragraph 49 state legal conclusions to which no answer is necessary. To the extent an answer is required, MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 49. On these bases, MidAmerican denies the allegations in Paragraph 49.

50. In addition, the employees identified by WPL as participating in acts of infringement include employees of Alliant and/or AECS (including Eric Sandvig, Benjamin Depies, Lisa Barton, Robert Durian, John Larsen, Michael Li, and Jeff Hansen). These employees have investigated and advised regarding the use of additives and sorbents used in the infringing acts performed at power plants owned or operated by IPL and WPL. They have also interacted with state regulators regarding environmental regulations related to the patented methods for power plants owned or operated by IPL and WPL. In addition, they have operated as plant managers responsible for operating the IPL and WPL power plants accused of infringement in this case.

ANSWER: MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 50. On these bases, MidAmerican denies the allegations in Paragraph 50.

ASSERTED PATENTS

51. On July 9, 2019, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 10,343,114 (the "'114 patent") entitled "Sorbents for the Oxidation and Removal of Mercury." A copy of the '114 patent is attached as Exhibit A.

ANSWER: MidAmerican admits that the '114 patent is entitled "Sorbents for the Oxidation and Removal of Mercury" and issued on July 9, 2019, and further admits that a copy of the '114 patent is attached to the First Amended Complaint as Exhibit A. MidAmerican denies the remaining allegations in Paragraph 51.

52. On March 17, 2020, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 10,589,225 (the "'225 patent") entitled "Sorbents for the Oxidation and Removal of Mercury." A copy of the '225 patent is attached as Exhibit B.

ANSWER: MidAmerican admits that the '225 patent is entitled "Sorbents for the Oxidation and Removal of Mercury" and issued on March 17, 2020, and further admits that a copy of the '225 patent is attached to the First Amended Complaint as Exhibit B. MidAmerican denies the remaining allegations in Paragraph 52.

53. On March 24, 2020, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 10,596,517 (the "'517 patent") entitled "Sorbents for the Oxidation and Removal of Mercury." A copy of the '517 patent is attached as Exhibit C.

ANSWER: MidAmerican admits that the '517 patent is entitled "Sorbents for the Oxidation and Removal of Mercury" and issued on March 24, 2020, and further admits that a copy of the '517 patent is attached to the First Amended Complaint as Exhibit C. MidAmerican denies the remaining allegations in Paragraph 53.

54. On June 2, 2020, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 10,668,430 (the "'430 patent") entitled "Sorbents for the Oxidation and Removal of Mercury." A copy of the '430 patent is attached as Exhibit D.

ANSWER: MidAmerican admits that the '430 patent is entitled "Sorbents for the Oxidation and Removal of Mercury" and issued on June 2, 2020, and further admits that a copy of the '430 patent is attached to the First Amended Complaint as Exhibit D. MidAmerican denies the remaining allegations in Paragraph 54.

55. On February 23, 2021, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 10,926,218 (the "'218 patent") entitled "Sorbents for the Oxidation and Removal of Mercury." A copy of the '218 patent is attached as Exhibit E.

ANSWER: MidAmerican admits that the '218 patent is entitled "Sorbents for the Oxidation and Removal of Mercury" and issued on February 23, 2021, and further admits that a copy of the '218 patent is attached to the First Amended Complaint as Exhibit E. MidAmerican denies the remaining allegations in Paragraph 55.

56. On March 2, 2021, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 10,933,370 (the "'370 patent") entitled "Sorbents for the Oxidation and Removal of Mercury." A copy of the '370 patent is attached as Exhibit F.

ANSWER: MidAmerican admits that the '370 patent is entitled "Sorbents for the Oxidation and Removal of Mercury" and issued on March 2, 2021, and further admits that a copy of the '370 patent is attached to the First Amended Complaint as Exhibit F. MidAmerican denies the remaining allegations in Paragraph 56.

57. ME2C obtained an assignment of the Patents-in-Suit from the Energy & Environmental Research Center at the University of North Dakota ("EERC") including any rights retained by the EERC to receive past damages. Thus, during the time period of alleged infringement, ME2C held all substantial rights in the patents-in-suit.

ANSWER: MidAmerican denies infringement of any valid or enforceable patent and that ME2C is entitled to any past damages. MidAmerican lacks knowledge or information sufficient

to form a belief as to the truth of the remaining allegations in Paragraph 57, and therefore denies the same.

FACTUAL ALLEGATIONS

I. The Federal Government Resolves to Regulate Mercury Emissions from Power Plants

58. In 1990, Congress passed the Clean Air Act Amendments of 1990.

ANSWER: Admitted.

59. That law required the U.S. Environmental Protection Agency ("EPA") to study the impact of various air pollutants, including mercury.

ANSWER: Admitted.

60. To assist in the research, in 1992, the EPA established a National Center for Excellence at the EERC referred to as the Center for Air Toxic Metals ("CATM").

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 60, and therefore denies the same.

61. In 1997 and 1998, the EPA issued two reports to Congress: Mercury Study Report to Congress (issued December 1997) and Study of Hazardous Air Pollutant Emissions from Electric Utility Steam (issued February 1998). As an outcome of these studies, the EPA found a pressing need for regulation of mercury pollution from coal-fired power plants. Unfortunately, it also found that no existing technologies were up to the task of significantly reducing the mercury pollution from those plants.

ANSWER: MidAmerican admits that the EPA issued "Mercury Study Report to Congress" in December 1997, and " Study of Hazardous Air Pollutant Emissions from Electric Utility Steam" in February 1998. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 61, and therefore denies the same.

62. In the wake of these reports, various governmental and industry organizations injected millions of dollars into basic scientific research and experimental studies in the search for new mercury capture technologies.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 62, and therefore denies the same.

II. The Inventors of the Patents-in-Suit Develop Mercury Capture Solutions

63. Researchers at the EERC were instrumental in developing new techniques for studying this problem and ultimately solving it.

ANSWER: MidAmerican denies any implication that Plaintiff's patents cover any "new techniques" to address mercury capture. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 63, and therefore denies the same.

64. In 2002, the EPA surveyed the state of research in this field and produced a follow-up report: Control of Mercury Emissions from Coal-Fired Electric Utility Boilers: Interim Report. This report identified some promising areas of research, and it noted that some technologies were available for reducing mercury emissions. However, the EPA recognized that there was no universal solution to this problem and that more work remained to be done.

ANSWER: MidAmerican admits that the EPA issued "Control of Mercury Emissions from Coal-Fired Electric Utility Boilers: Interim Report" in 2002. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 64, and therefore denies the same.

65. During this time, the inventors of the patents-in-suit were researching the issue of mercury capture at the EERC. Through their work, they uncovered some of the complex chemistry that occurs in a coal-fired boiler.

ANSWER: MidAmerican denies any implication that the patents-in-suit are patentable or relate to new discoveries, as opposed to previously known techniques to capture mercury. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 65, and therefore denies the same.

66. They further discovered a number of methods for improving mercury capture. In particular, they found that applying a halogen additive such as bromine and bromide compounds

onto coal or into a combustion chamber, when combined with sorbent injection, could dramatically reduce the mercury content of coal-fired power plant emissions.

ANSWER: MidAmerican admits that halogens, such as bromine and bromide compounds, combined with activated carbon injection, can reduce the mercury content of coal-fired power plant emissions. MidAmerican denies that the inventors "discovered" this process. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of any remaining allegations in Paragraph 66, and therefore denies the same.

67. By 2004, the inventors filed a provisional application that would lead to the patents in suit. This application, and the subsequently issued patents, cover some of their discoveries and various applications of their discoveries. In particular, the inventors discovered, and ultimately proved, the benefits of combining halogen treatments (*e.g.*, bromine containing materials) in-flight with backend sorbents (*e.g.*, activated carbon).

ANSWER: MidAmerican admits that a provisional application was filed in 2004, and that provisional application is in the prosecution history of the patents-in-suit. MidAmerican denies that the applied-for patents related to any new discovery and denies the patentability of the processes described in the patents-in-suit. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of any remaining allegations in Paragraph 67, and therefore denies the same.

68. In 2011, the EPA finalized the first national standards to reduce mercury and other toxic air pollution from coal-fired plants (the Mercury and Air Toxics Standards or "MATS"). Most coal-fired power plants were required to comply with this rule by 2016.

ANSWER: Admitted.

III. Congress Creates the Section 45 Refined Coal Tax Credit

69. While the EPA was working on addressing the issue of mercury emissions, Congress also took action. In 2004, Congress passed the American Jobs Act, which created a new tax credit related to the production of refined coal (referred to as "Section 45 tax credits").

ANSWER: MidAmerican admits that the American Jobs Act was passed in 2004, and that it provided a tax credit structure regarding the production of refined coal that is referred to as

"Section 45 tax credits." MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of any remaining allegations in Paragraph 69, and therefore denies the same.

70. Under this law, a refined coal producer can receive an inflation-adjusted tax credit for each ton ($/ton) of refined coal sold to a power plant that results in a 40% reduction in mercury emissions and a 20% reduction in NOx emissions.

ANSWER: MidAmerican admits that the American Jobs Act outlined a process by which refined coal producers could receive an inflation-adjusted tax credit for each ton of refined coal sold if that coal resulted in a 40% reduction of mercury or sulfur dioxide emissions and a 20% reduction in nitrogen oxide emissions. MidAmerican denies the remaining allegations of Paragraph 70.

71. Because of this highly lucrative law, companies jumped at the chance to collect the tax credits. Indeed, the refined coal tax credit program resulted in companies receiving hundreds of millions of dollars in tax credits each year.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 71, and therefore denies the same.

72. The Section 45 tax credit program expired on December 31, 2021, and was not renewed or extended.

ANSWER: Admitted.

IV. ME2C Attempts to Compete in the Market for Mercury Capture Technologies

73. ME2C is the commercial extension of the patented technology.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 73, and therefore denies the same.

74. ME2C develops, markets, and sells products and services that practice the patented technology.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 74, and therefore denies the same.

75. ME2C's product development efforts have been led by named inventor and Chief Technology Officer John Pavlish. ME2C has developed both sorbent enhancement additives and activated carbon sorbents for practicing the technology described in the patents-in-suit and for practicing other patented methods owned by ME2C.

ANSWER: MidAmerican denies that ME2C or John Pavlish "developed" the technology described in the patents-in-suit, or that the patents-in-suit described patentable technology. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of any remaining allegations in Paragraph 75, and therefore denies the same.

76. ME2C has also publicized its patent portfolio and explained the scope of the patented technology through its website, its interactions with customers and potential customers, and through presentations at industry events such as the MEGA Symposium, the Energy, Utility & Environment Conference, Lignite Energy Conference, and the Air Quality Conference.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 76, and therefore denies the same.

77. ME2C has attempted to compete in the market for mercury capture technologies. In particular it attempted to negotiate supply contracts with coal-fired power plants in anticipation of MATS regulations that became effective in 2015 and 2016, and also periodically afterwards as plants re-evaluate their MATS compliance strategies.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 77, and therefore denies the same.

78. However, ME2C was at an unfair disadvantage with respect to the refined coal entities that encouraged power plants to use ME2C's patented technology instead of developing new technologies for refined coal. As proven to the jury in the Delaware case discussed below, refined coal providers have induced power plant operators to infringe the patents-in-suit by offering the technology at no or artificially low costs to the plant.

ANSWER: MidAmerican denies any implication that the Delaware case somehow shows MidAmerican infringed the patents-in-suit or that the Delaware case shows the patents-in-suit are valid or enforceable. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of any remaining allegations in Paragraph 78, and therefore denies the same.

79. In addition, even after the expiration of the refined coal tax credits, power plants connected to a refined coal facility—which were provided to the plants for free or low cost—can now purchase various materials from different suppliers at low prices and employ them in a manner that infringes ME2C's patents.

ANSWER: MidAmerican admits that it is able to purchase mercury-regulating materials from suppliers. MidAmerican denies infringement of any ME2C patent. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 79 and therefore denies the same.

80. Despite these difficulties, ME2C has sold its products and services to various power plants throughout the country.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 80, and therefore denies the same.

V. ME2C Receives Jury Verdict in its Favor on Refined Coal Producers' Infringement of the Patents-In-Suit

81. In July 2019, ME2C filed a complaint for patent infringement in the United States District Court for the District of Delaware against various entities involved in producing refined coal and coal-fired power plant operators that used ME2C's patented technology, alleging infringement of multiple patents, including four of the Patents-in-Suit (the "Delaware Case").

ANSWER: MidAmerican admits that ME2C appears to have filed a complaint for patent infringement in the United States District Court for the District of Delaware in July 2019. MidAmerican denies that the July 2019 complaint alleged infringement "of multiple patents, including four of the Patents-in-Suit." MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 81, and therefore denies the same.

82. In relevant part, ME2C alleged that the coal-fired power plants at issue directly infringed the asserted patents by (1) burning coal with added halide (*e.g.*, calcium bromide), (2) injecting activated carbon into the flue gas downstream of the power plants' boilers, and (3) using electrostatic precipitators ("ESPs") or baghouses to capture particulate matter, including activated carbon bound to pollutants like mercury in the flue or exhaust.

ANSWER: Denied.

83. ME2C also alleged that the refined coal entities indirectly infringed the asserted patents by making and selling refined coal, and by inducing power plants that purchased that refined coal to practice ME2C's patented methods without permission in the manner described in the previous paragraph.

ANSWER: Denied.

84. Before trial, all of the accused power plant operators and most of the accused refined coal entities, including refined coal suppliers for most of the Accused Coal Plants,[9] settled with ME2C and were voluntarily dismissed from the case. The remaining defendants were a group of affiliated refined coal entities, referred to herein as "CERT."[10]

ANSWER: MidAmerican admits that some entities appear to have settled before trial in the Delaware Case. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 84, and therefore denies the same.

85. On March 1, 2024, following a five-day trial, the jury found CERT liable for contributory and induced infringement of the '517 and '114 Patents, and found that CERT's infringement was willful. Implicit in the jury's finding (and, in fact, required by the jury instructions and controlling law) was a finding that the power plants to which CERT provided refined coal directly infringed the '517 and '114 patents.

ANSWER: MidAmerican denies any alleged infringement of the '517 and '114 patents. MidAmerican further denies that the jury's findings in the Delaware Case somehow support that MidAmerican's power plants infringe the '517 and/or '114 patents (or that ME2C has provided any basis for such an assertion such that MidAmerican could properly respond). MidAmerican

[9] This includes the Walter Scott Jr., Energy Center, the George Neal Energy Center, and the Louisa Energy Center.

[10] The CERT entities include CERT Operations II LLC, CERT Operations IV LLC, CERT Operations V LLC, CERT Operations RCB LLC, Senescence Energy Products LLC, Bascobert (A) Holdings LLC, Buffington Partners LLC, Larkwood Energy LLC, Rutledge Products LLC, Cottbus Associates LLC, Springhill Resources LLC, and Marquis Industrial Company LLC.

lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 85, and therefore denies the same.

VI. Defendants' Accused Power Plants and Acts of Infringement

86. The Walter Scott Jr., Energy Center ("Walter Scott") is a coal-fired power plant in Council Bluffs, Iowa.

ANSWER: Admitted.

87. Defendant MidAmerican owns a majority stake in and operates Units 3 and 4 of Walter Scott.

ANSWER: Admitted.

88. Defendant MidAmerican is a wholly-owned subsidiary of BHE.

ANSWER: MidAmerican admits that MidAmerican Energy Holdings Company owns 100% of the stock of MidAmerican Energy Company, that MidAmerican Funding, LLC owns 100% of the stock of MidAmerican Energy Holdings Company, and that Berkshire Hathaway Energy Company owns 100% of the stock in MidAmerican Funding, LLC.

89. On information and belief, MidAmerican owns and operates Walter Scott for the benefit of BHE. Profits made by MidAmerican in connection with Walter Scott are paid to BHE.

ANSWER: MidAmerican admits that it owns and operates Walter Scott. MidAmerican denies the remaining allegations in Paragraph 89.

90. During operation, Walter Scott burns coal and added Br2, HBr, and/or a bromide compound in the combustion chamber.

ANSWER: MidAmerican admits that the Walter Scott plants burn coal in a combustion chamber during operation. MidAmerican denies the remaining allegations in Paragraph 90.

91. During operation, Walter Scott injects activated carbon sorbent downstream of the combustion chamber.

ANSWER: Admitted.

92. During operation, Walter Scott employs a baghouse and/or electrostatic precipitator to collect mercury with bromine and activated carbon.

ANSWER: MidAmerican admits that the Walter Scott plants employ a baghouse and/or electrostatic precipitator to collect mercury with activated carbon. MidAmerican denies the remaining allegations in Paragraph 92.

93. The Louisa Energy Center ("Louisa") is a coal-fired power plant in Muscatine, Iowa.

ANSWER: Admitted.

94. Defendant MidAmerican owns a majority stake of and operates Louisa.

ANSWER: Admitted.

95. Defendant IPL owns a minority share of Louisa.

ANSWER: Admitted.

96. On information and belief, MidAmerican owns and operates Louisa for the benefit of BHE. Profits made by MidAmerican in connection with Louisa are paid to BHE.

ANSWER: Denied.

97. On information and belief, IPL owns its share of Louisa for the benefit of Alliant. Profits made by IPL in connection with Louisa are paid to Alliant.

ANSWER: MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 97. On these bases, MidAmerican denies the allegations in Paragraph 97.

98. During operation, Louisa burns coal and added Br2, HBr, and/or a bromide compound in the combustion chamber.

ANSWER: MidAmerican admits that Louisa burns coal in a combustion chamber during operation. MidAmerican denies the remaining allegations in Paragraph 98.

99. During operation, Louisa injects activated carbon sorbent downstream of the combustion chamber.

ANSWER: Admitted.

100. During operation, Louisa employs a baghouse and/or electrostatic precipitator to collect mercury with bromine and activated carbon.

ANSWER: MidAmerican admits that the Louisa plant "employs a baghouse and/or electrostatic precipitator to collect mercury" with activated carbon. MidAmerican denies the remaining allegations in Paragraph 100.

101. The George Neal Energy Center ("George Neal") refers to a pair of coal-fired power plant units (units 3 and 4) in Sergeant Bluff, Iowa ("George Neal North"), and Salix, Iowa ("George Neal South").

ANSWER: Admitted.

102. Defendant MidAmerican owns a majority stake of and operates Units 3 and 4 of George Neal.

ANSWER: Admitted.

103. Defendant IPL owns a minority share of Units 3 and 4 of George Neal.

ANSWER: Admitted.

104. On information and belief, MidAmerican owns and operates George Neal for the benefit of BHE. Profits made by MidAmerican in connection with George Neal are paid to BHE.

ANSWER: Denied.

105. On information and belief, IPL owns its share of George Neal for the benefit of Alliant. Profits made by IPL in connection with George Neal are paid to Alliant.

ANSWER: MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 105. On these bases, MidAmerican denies the allegations in Paragraph 105.

106. During operation, Units 3 and 4 of George Neal burns coal and added Br2, HBr, and/or a bromide compound in the combustion chamber.

ANSWER: MidAmerican admits that Units 3 and 4 of George Neal burn coal in a combustion chamber during operation. MidAmerican denies the remaining allegations in Paragraph 106.

107. During operation, Units 3 and 4 of George Neal inject activated carbon sorbent downstream of the combustion chamber.

ANSWER: Admitted.

108. During operation, Units 3 and 4 of George Neal employ baghouses and/or electrostatic precipitators to collect mercury with bromine and activated carbon.

ANSWER: MidAmerican admits that Units 3 and 4 of George Neal "employ baghouses and/or electrostatic precipitators to collect mercury with" activated carbon. MidAmerican denies the remaining allegations in Paragraph 108.

109. The Ottumwa Generating Station ("Ottumwa") is a coal-fired power plant in Ottumwa, Iowa.

ANSWER: Admitted.

110. Defendant MidAmerican owns a majority stake of and operates Ottumwa.

ANSWER: MidAmerican admits it owns a majority stake of Ottumwa. MidAmerican denies the remaining allegations in Paragraph 110.

111. Defendant IPL owns a minority share of Ottumwa.

ANSWER: Admitted.

112. On information and belief, IPL owns and operates Ottumwa for the benefit of BHE. Profits made by MidAmerican in connection with Ottumwa are paid to BHE.

ANSWER: MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as

to the truth of the allegations in Paragraph 112. On these bases, MidAmerican denies the allegations in Paragraph 112.

113. On information and belief, IPL owns its share of Ottumwa for the benefit of Alliant. Profits made by IPL in connection with Ottumwa are paid to Alliant.

ANSWER: MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 113. On these bases, MidAmerican denies the allegations in Paragraph 113.

114. During operation, Ottumwa has burned coal and added Br2, HBr, and/or a bromide compound in the combustion chamber.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 114, and therefore denies the same.

115. During operation, Ottumwa injects activated carbon sorbent downstream of the combustion chamber.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 115, and therefore denies the same.

116. During operation, Ottumwa employs a baghouse and/or electrostatic precipitator to collect mercury with bromine and activated carbon.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 116, and therefore denies the same.

117. The Prairie Creek Generating Station ("Prairie Creek") is a coal-fired power plant in Cedar Rapids, Iowa.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 117, and therefore denies the same.

118. Defendant IPL owns a majority share of Prairie Creek.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 118, and therefore denies the same.

119. On information and belief, IPL owns its share of Prairie Creek for the benefit of Alliant. Profits made by IPL in connection with Ottumwa are paid to Alliant.

ANSWER: MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 119. On these bases, MidAmerican denies the allegations in Paragraph 119.

120. During operation, Prairie Creek burns coal and added Br2, HBr, and/or a bromide compound in the combustion chamber.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 120, and therefore denies the same.

121. During operation, Prairie Creek injects activated carbon sorbent downstream of the combustion chamber.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 121, and therefore denies the same.

122. During operation, Prairie Creek employs a baghouse and/or electrostatic precipitator to collect mercury with bromine and activated carbon.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 12, and therefore denies the same.

123. The Wyodak Power Plant ("Wyodak") is a coal-fired power plant in Gillette, Wyoming.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 123, and therefore denies the same.

124. Defendant PacifiCorp owns a majority stake of and operates Wyodak.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 124, and therefore denies the same.

125. On information and belief, PacifiCorp owns and operates Wyodak for the benefit of BHE. Profits made by PacifiCorp in connection with Wyodak are paid to BHE.

ANSWER: MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 125. On these bases, MidAmerican denies the allegations in Paragraph 125.

126. During operation, Wyodak burns coal and added Br2, HBr, and/or a bromide compound in the combustion chamber.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 126, and therefore denies the same

127. During operation, Wyodak injects activated carbon sorbent downstream of the combustion chamber.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 127, and therefore denies the same.

128. During operation, Wyodak employs a baghouse and/or electrostatic precipitator to collect mercury with bromine and activated carbon.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 128, and therefore denies the same.

129. The Jim Bridger Power Plant ("Jim Bridger") is a coal-fired power plant in Rock Springs, Wyoming.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 129, and therefore denies the same.

130. Defendant PacifiCorp owns a majority stake of and operates Jim Bridger.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 130, and therefore denies the same.

131. On information and belief, PacifiCorp owns and operates Jim Bridger for the benefit of BHE. Profits made by PacifiCorp in connection with Jim Bridger are paid to BHE.

ANSWER: MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 131. On these bases, MidAmerican denies the allegations in Paragraph 131.

132. During operation, Jim Bridger burns coal and added Br2, HBr, and/or a bromide compound in the combustion chamber.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 132, and therefore denies the same.

133. During operation, Jim Bridger injects activated carbon sorbent downstream of the combustion chamber.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 133, and therefore denies the same.

134. During operation, Jim Bridger employs a baghouse and/or electrostatic precipitator to collect mercury with bromine and activated carbon.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 134, and therefore denies the same.

135. The Dave Johnston Power Plant ("Dave Johnston") is a coal-fired power plant in Glenrock, Wyoming.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 135, and therefore denies the same.

136. Defendant PacifiCorp owns a majority stake of and operates Dave Johnston.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 136, and therefore denies the same.

137. On information and belief, PacifiCorp owns and operates Dave Johnston for the benefit of BHE. Profits made by PacifiCorp in connection with Dave Johnston are paid to BHE.

ANSWER: MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 137. On these bases, MidAmerican denies the allegations in Paragraph 137.

138. During operation, Dave Johnston burns coal and added Br2, HBr, and/or a bromide compound in the combustion chamber.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 138, and therefore denies the same.

139. During operation, Dave Johnston injects activated carbon sorbent downstream of the combustion chamber.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 139, and therefore denies the same.

140. During operation, Dave Johnston employs a baghouse and/or electrostatic precipitator to collect mercury with bromine and activated carbon.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 140, and therefore denies the same.

141. The Columbia Energy Center ("Columbia") is a coal-fired power plant near Portage, Wisconsin.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 141, and therefore denies the same.

142. Defendant WPL owns a majority stake of and operates Columbia.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 142, and therefore denies the same.

143. On information and belief, WPL owns and operates Columbia for the benefit of Alliant. Profits made by WPL in connection with Columbia are paid to Alliant.

ANSWER: MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 143. On these bases, MidAmerican denies the allegations in Paragraph 143.

144. During operation, Columbia burns coal and added Br2, HBr, and/or a bromide compound in the combustion chamber.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 144, and therefore denies the same.

145. During operation, Columbia injects activated carbon sorbent downstream of the combustion chamber.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 145, and therefore denies the same.

146. During operation, Columbia employs a baghouse and/or electrostatic precipitator to collect mercury with bromine and activated carbon.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 146, and therefore denies the same.

147. The Edgewater Generating Station ("Edgewater") is a coal-fired power plant in Sheboygan, Wisconsin.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 147, and therefore denies the same.

148. Defendant WPL owns a majority stake of and operates Edgewater.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 148, and therefore denies the same.

149. On information and belief, WPL owns and operates Edgewater for the benefit of Alliant. Profits made by WPL in connection with Edgewater are paid to Alliant.

ANSWER: MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 149. On these bases, MidAmerican denies the allegations in Paragraph 149.

150. During operation, Edgewater burns coal and added Br2, HBr, and/or a bromide compound in the combustion chamber.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 150, and therefore denies the same.

151. During operation, Edgewater injects activated carbon sorbent downstream of the combustion chamber.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 151, and therefore denies the same.

152. During operation, Edgewater employs a baghouse and/or electrostatic precipitator to collect mercury with bromine and activated carbon.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 153, and therefore denies the same.

153. The "Accused Coal Plants" include at least Walter Scott, George Neal, Louisa, Ottumwa, Prairie Creek, Wyodak, Jim Bridger, Dave Johnston, Columbia, Edgewater, and any other coal-fired power plants owned or operated, at least in part, by a Defendant that combusts coal in a combustion chamber with bromine, bromide, iodine, and/or iodide that has been added to the coal and/or that has been provided to the combustion chamber, and where they inject a sorbent material comprising activated carbon downstream of the combustion chamber and collect mercury bound to activated carbon in a particulate collection device (e.g., baghouse or ESP).

ANSWER: Denied as to Walter Scott, George Neal, and Louisa. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 153, and therefore denies the same.

154. In doing so, the Defendants, by operating and controlling the Accused Coal Plants, perform the methods claimed by the Patents-in-Suit, and thus directly infringe the Patents-in-Suit at the Accused Coal Plants.

ANSWER: Denied as to MidAmerican. For the other Defendants, MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 154, and therefore denies the same.

155. As the parent and controller of PacifiCorp and MidAmerican, BHE also induces PacifiCorp and MidAmerican to perform the steps of the patented methods.

ANSWER: MidAmerican denies that it infringes or performs the steps of the alleged patented methods. MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 155. On these bases, MidAmerican denies the allegations in Paragraph 155.

156. On information and belief, BHE does so by exercising control over PacifiCorp and MidAmerican, providing technical, administrative, logistical and/or financial services to PacifiCorp and MidAmerican.

ANSWER: MidAmerican denies infringement, and further denies BHE exercises control over MidAmerican as alleged. MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 156. On these bases, MidAmerican denies the allegations in Paragraph 156.

157. PacifiCorp and MidAmerican are both wholly owned subsidiaries of BHE.

ANSWER: MidAmerican admits that MidAmerican Energy Holdings Company owns 100% of the stock of MidAmerican Energy Company, that MidAmerican Funding, LLC owns 100% of the stock of MidAmerican Energy Holdings Company, and that Berkshire Hathaway Energy Company owns 100% of the stock in MidAmerican Funding, LLC. MidAmerican believes that the corporate structure of PacifiCorp is accurately portrayed in Paragraph 157. MidAmerican further understands that the claims this allegation relates to have been dismissed (*see* ECF 146).

158. PacifiCorp and MidAmerican share directors and/or managers, which are themselves officers and/or directors of BHE.

ANSWER: MidAmerican admits that it shares some directors and/or managers that have also acted as directors and/or managers at BHE. MidAmerican further understands that the claims this allegation relates to have been dismissed (*see* ECF 146). MidAmerican denies the remaining allegations in Paragraph 158.

159. As stated in BHE's Form 10-K for 2023:

> BHE indirectly owns all of the common stock of PacifiCorp BHE is also the sole member of MidAmerican Funding and, accordingly, indirectly owns all of MidAmerican Energy's common stock. As a result, BHE has control over all decisions requiring shareholder approval, including the election of directors. In circumstances involving a conflict of interest between BHE and the creditors of the Subsidiary Registrants [including MidAmerican and PacifiCorp], BHE could exercise its control in a manner that would benefit BHE to the detriment of the Subsidiary Registrants' creditors.[11]

ANSWER: MidAmerican admits the cited document contains the above quotation as modified by Plaintiff. MidAmerican further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 159 and therefore denies the same.

160. PacifiCorp, MidAmerican, BHE, and other of BHE's subsidiaries are parties to an intercompany administrative services agreement and a mutual assistance agreement. Amounts charged to PacifiCorp and MidAmerican under these agreements have totaled in the hundreds of millions of dollars per year. This includes costs paid by one party for use of the others' resources

[11] BHE's Form 10-K for 2023 at 76, https://www.sec.gov/Archives/edgar/data/1081316/000108131624000003/bhe-20231231.htm.

(e.g., PacifiCorp for use of BHE and/or MidAmerican's resources) including: services by executive, management, professional, technical and clerical employees; financial services, payroll processing services, employee benefits participation, supply chain and purchase order processing services, tax and accounting services, contract negotiation and administration services, risk management services, environmental services and engineering and technical services; the use of office facilities, including but not limited to office space, conference rooms, furniture, equipment, machinery, supplies, computers and computer software, insurance policies and other personal property; the use of automobiles, airplanes, other vehicles and equipment. On information and belief, this provides BHE, MidAmerican, and PacifiCorp with equal rights of control over these shared employees and resources.

ANSWER: The allegations in Paragraph 162 state legal conclusions to which no answer is necessary. To the extent an answer is required, MidAmerican admits it is party to an intercompany administrative services agreement and a mutual assistance agreement, as is common among related entities. The agreements speak for themselves, and therefore MidAmerican denies any remaining allegations regarding the agreements. MidAmerican further denies BHE or PacifiCorp have an "equal right of control" over any MidAmerican employees or resources. MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 160. On these bases, MidAmerican denies the remaining allegations in Paragraph 160.

161. Furthermore, BHE publicly touts its control over its subsidiaries, including its plans to retire coal plants owned by PacifiCorp and MidAmerican by 2049.[12]

ANSWER: MidAmerican understands that claims against BHE have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of

[12] Berkshire Hathaway Energy, 2022 Fixed-Income Investor Conference Presentation, https://www.brkenergy.com/content/published/api/v1.1/assets/CONT5DA865379DCC4636AA0D1C00FA771EC2/native?cb=_cache_37c9&download=true&channelToken=43656b04884643bc9fe334ad550d375f.

the remaining allegations in Paragraph 161. On these bases, MidAmerican denies the allegations in Paragraph 180.

162. In light of the above, MidAmerican and PacifiCorp are agents of BHE.

ANSWER: The allegations in Paragraph 162 state legal conclusions to which no answer is necessary. To the extent an answer is required, MidAmerican denies the allegations as to MidAmerican. MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegation in Paragraph 162. On these bases, MidAmerican denies the remaining allegation in Paragraph 162.

163. Also in light of the above, because of its complete domination and control over its subsidiaries, BHE is the alter ego of MidAmerican and PacifiCorp.

ANSWER: The allegations in Paragraph 163 state legal conclusions to which no answer is necessary. To the extent an answer is required, MidAmerican denies the allegations as to MidAmerican. MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegation in Paragraph 163. On these bases, MidAmerican denies the remaining allegation in Paragraph 163.

164. As the parent and controller of IPL and WPL, Alliant also induces IPL and WPL to perform the steps of the patented methods.

ANSWER: MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 164. On these bases, MidAmerican denies the allegations in Paragraph 164.

165. On information and belief, Alliant does so by exercising control IPL and WPL, providing technical, administrative, logistical and/or financial services to IPL and WPL, and/or

negotiating standard form or bulk agreements for products and services related to mercury control.

ANSWER: MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 165. On these bases, MidAmerican denies the allegations in Paragraph 165.

166. On information and belief, the engineers, sales staff, and other employees that work on behalf of IPL and WPL at or on projects in connection with the Accused Coal Plants are Alliant and/or AECS employees or hold themselves out as Alliant employees.

ANSWER: MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 166. On these bases, MidAmerican denies the allegations in Paragraph 166.

167. IPL and WPL are both wholly owned subsidiaries of Alliant.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 167, and therefore denies the same.

168. IPL, WPL, and Alliant share the same directors and officers. For example, Lisa M. Barton serves as Chief Executive Officer of each IPL, WPL, and Alliant; Robert J. Durian serves as Executive Vice President and Chief Financial Officer of each IPL, WPL, and Alliant; and Benjamin M. Bilitz serves as Chief Accounting Officer and Controller of each IPL, WPL, and Alliant. These and other common officers and/or employees are responsible for the infringing acts at the coal plants owned and/or operated by IPL and WPL.

ANSWER: MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 168. On these bases, MidAmerican denies the allegations in Paragraph 168.

169. On information and belief, Alliant exercises control over IPL and WPL regarding the infringing conduct at issue in this case. For example, Alliant employees Michael Li, Jeff

Hanson, and Jeff Jaeckels have investigated and advised regarding the use of additives and sorbents used in the infringing acts performed at power plants owned or operated by IPL and WPL. They have also interacted with state regulators regarding environmental regulations related to the patented methods for power plants owned or operated by IPL and WPL. In addition, Alliant managers operate as plant managers responsible for operating the IPL and WPL power plants accused of infringement in this case.

ANSWER: MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 169. On these bases, MidAmerican denies the allegations in Paragraph 169.

170. Alliant touts its control over power plants operated by IPL and WPL. For example, Alliant describes IPL's Ottumwa power plant accused of infringement in this case as the "'shining star' of Alliant's generating fleet."[13]

ANSWER: MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 170. On these bases, MidAmerican denies the allegations in Paragraph 170.

171. In light of the above, IPL and WPL are agents of Alliant.

ANSWER: The allegations in Paragraph 171 state legal conclusions to which no answer is necessary. To the extent an answer is required, MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 171. On these bases, MidAmerican denies the allegations in Paragraph 171.

[13] Cindy Toopes, *Ottumwa Generating Station a 'shining star' in Alliant's fleet*, OTTUMWA COURIER (Aug. 4, 2012), https://www.ottumwacourier.com/news/local_news/ottumwa-generating-station-a-shining-star-in-alliant-s-fleet/article_59da4c54-27b5-5088-8cfb-3cfa1a76c3dd.html.

172. In addition, IPL and WPL rely on employees, facilities, and services from AECS to perform acts of infringement. In providing resources and services to IPL and WPL, AECS acts as the agent of IPL and WPL.

ANSWER: MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 172. On these bases, MidAmerican denies the allegations in Paragraph 172.

173. Pursuant to service agreements, IPL and WPL receive various administrative and general services from an affiliate, AECS. These services are billed to IPL and WPL at cost based on expenses incurred by AECS for the benefit of IPL and WPL, respectively. These costs consisted primarily of employee compensation and benefits, fees associated with various professional services, depreciation and amortization of property, plant and equipment, and a return on net assets. On information and belief, this provides Alliant, AECS, IPL, and WPL with equal rights of control over these shared employees and resources.

ANSWER: MidAmerican understands that the claims this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 173. On these bases, MidAmerican denies the allegations in Paragraph 173.

174. IPL and WPL are members of MISO, a FERC-approved Regional Transmission Organization, which is responsible for monitoring and ensuring equal access to the transmission system in their footprint. IPL and WPL participate in the wholesale energy and ancillary services markets operated by MISO. As agent for IPL and WPL, AECS enters into energy, capacity, ancillary services, and transmission sale and purchase transactions within MISO. AECS also acts as agent on behalf of IPL and WPL pursuant to the service agreements.

ANSWER: MidAmerican understands that the claims this allegation are relevant to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 174. On these bases, MidAmerican denies the allegations in Paragraph 174.

175. Also in light of the above, because of its complete domination and control over its subsidiaries, Alliant is the alter ego of IPL and WPL.

ANSWER: The allegations in Paragraph 175 state legal conclusions to which no answer is necessary. To the extent an answer is required, MidAmerican understands that the claims this allegation are relevant to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 175. On these bases, MidAmerican denies the allegations in Paragraph 175.

176. Defendants BHE and Mid-American are jointly and severally liable for the acts of infringement committed with respect to coal-fired power plants owned or operated by Mid-American.

ANSWER: The allegations in Paragraph 176 state a legal conclusion to which no answer is necessary. To the extent an answer is required, MidAmerican denies infringement, and further denies it or BHE are jointly and severally liable for alleged infringement at MidAmerican coal-fired power plants. MidAmerican understands that claims against BHE have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 176. On these bases, MidAmerican denies the remaining allegations in Paragraph 176.

177. Defendants BHE and PacifiCorp are jointly and severally liable for the acts of infringement committed with respect to coal-fired power plants owned or operated by PacifiCorp.

ANSWER: The allegations in Paragraph 177 state a legal conclusion to which no answer is necessary. To the extent an answer is required, MidAmerican understands that the claims this allegation are relevant to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 177. On these bases, MidAmerican denies the allegations in Paragraph 177.

178. Defendants Alliant, AECS, and IPL are jointly and severally liable for the acts of infringement committed with respect to coal-fired power plants owned or operated by IPL.

ANSWER: The allegations in Paragraph 178 state a legal conclusion to which no answer is necessary. To the extent an answer is required, MidAmerican understands that the claims this allegation are relevant to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 178. On these bases, MidAmerican denies the allegations in Paragraph 178.

179. Defendants Alliant, AECS, and WPL are jointly and severally liable for the acts of infringement committed with respect to coal-fired power plants owned or operated by WPL.

ANSWER: The allegations in Paragraph 179 state a legal conclusion to which no answer is necessary. To the extent an answer is required, MidAmerican understands that the claims this allegation are relevant to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 179. On these bases, MidAmerican denies the allegations in Paragraph 179.

180. Defendants BHE, Mid-American, Alliant, AECS, and IPL are jointly and severally liable for the acts of infringement committed with respect to coal-fired power plants jointly owned or operated by Mid-American and IPL.

ANSWER: The allegations in Paragraph 180 state a legal conclusion to which no answer is necessary. To the extent an answer is required, MidAmerican denies any infringement, and further denies joint and several liability for any plants jointly owned or operated by MidAmerican. MidAmerican understands that claims against BHE and Alliant have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 180. On these bases, MidAmerican denies the allegations in Paragraph 180.

181. Defendants MidAmerican and BHE directly infringe by performing the methods claimed in the patents-in-suit at least at Walter Scott, Louisa, George Neal, and Ottumwa.

ANSWER: Denied as to MidAmerican. MidAmerican understands that claims against BHE have been dismissed (*see* ECF 146) and further that BHE does not operate any of MidAmerican's power plants, and therefore denies the remaining allegations in Paragraph 181.

182. Defendants IPL and Alliant directly infringe by performing the methods claimed in the patents-in-suit at least at Louisa, George Neal, and Ottumwa.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 182, and therefore denies the same.

183. In addition or in the alternative, Defendants BHE, IPL, and Alliant directly infringe by virtue of their direct or indirect ownership of Louisa, George Neal, and (in BHE's case only) Walter Scott, and by delegating performance of the methods claimed in each of the patents-in-suit at Louisa, George Neal, and (in BHE's case only) Walter Scott to their operating agent MidAmerican.

ANSWER: MidAmerican denies that it infringes any claim of the patents-in-suit. MidAmerican understands that claims against BHE and Alliant have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 183. On these bases, MidAmerican denies the allegations in Paragraph 183.

184. In addition or in the alternative, Defendants BHE, IPL, and Alliant induce infringement by causing, encouraging, assisting, or otherwise inducing MidAmerican to perform the patented methods claimed in each of the patents-in-suit at least at Louisa, George Neal, and (in BHE's case only) Walter Scott.

ANSWER: MidAmerican denies that it infringes any claim of the patents-in-suit. MidAmerican understands that claims against BHE and Alliant have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 184. On these bases, MidAmerican denies the allegations in Paragraph 184.

185. On information and belief, they do so by enlisting MidAmerican as operating agent and by directing MidAmerican and paying MidAmerican to perform the patented methods to

ensure that Louisa, George Neal, and (in BHE's case only) Walter Scott remain in compliance with applicable mercury regulations, and thus remain operational.

ANSWER: MidAmerican admits that it is compliant with mercury regulation and further admits that its plants are operational. MidAmerican denies that it infringes any claim of the patents-in-suit, and further denies any remaining allegations as to MidAmerican in Paragraph 185. MidAmerican understands that claims against BHE and Alliant have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 185. On these bases, MidAmerican denies the remaining allegations in Paragraph 185.

186. In addition or in the alternative, Defendants BHE, MidAmerican, and Alliant induce infringement by causing, encouraging, assisting, or otherwise inducing IPL to perform the patented methods claimed in each of the patents-in-suit at least at Ottumwa.

ANSWER: MidAmerican denies that it infringes or induces infringement of any claim of the patents-in-suit, and further denies any remaining allegations as to MidAmerican in Paragraph 186. MidAmerican understands that claims against BHE and Alliant have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 186. On these bases, MidAmerican denies the allegations in Paragraph 186.

187. On information and belief, they do so by enlisting IPL as operating agent and by directing IPL and paying IPL to perform the patented methods to ensure that Ottumwa remains in compliance with applicable mercury regulations, and thus remains operational.

ANSWER: Denied as to MidAmerican. MidAmerican understands that claims against BHE and Alliant have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 187. On these bases, MidAmerican denies the allegations in Paragraph 187.

188. In addition or in the alternative, Defendants Alliant induces infringement by causing, encouraging, assisting, or otherwise inducing IPL to perform the patented methods claimed in each of the patents-in-suit at least at Prairie Creek.

ANSWER: MidAmerican understands that the claims this allegation are relevant to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 188. On these bases, MidAmerican denies the allegations in Paragraph 188.

189. On information and belief, Alliant does so by enlisting IPL as operating agent and by directing IPL and paying IPL to perform the patented methods to ensure that Prairie Creek remains in compliance with applicable mercury regulations, and thus remains operational.

ANSWER: MidAmerican understands that the claims this allegation are relevant to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 189. On these bases, MidAmerican denies the allegations in Paragraph 189.

190. Defendants PacifiCorp and BHE directly infringe by performing the methods claimed in each of the patents-in-suit at least at Wyodak, Jim Bridger, and Dave Johnston.

ANSWER: MidAmerican understands that the claims this allegation are relevant to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 190. On these bases, MidAmerican denies the allegations in Paragraph 190.

191. In addition or in the alternative, Defendant BHE directly infringes by virtue of its direct or indirect ownership of Wyodak, Jim Bridger, and Dave Johnston, and by delegating performance of the methods claimed in each of the patents-in-suit at Wyodak, Jim Bridger, and Dave Johnston to its operating agent PacifiCorp.

ANSWER: MidAmerican understands that the claims this allegation are relevant to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a

belief as to the truth of the remaining allegations in Paragraph 191. On these bases, MidAmerican denies the allegations in Paragraph 191.

192. In addition or in the alternative, Defendant BHE induces infringement by causing, encouraging, assisting, or otherwise inducing PacifiCorp to perform the patented methods claimed in each of the patents-in-suit at least at Wyodak, Jim Bridger, and Dave Johnston.

ANSWER: MidAmerican understands that the claims this allegation are relevant to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 192. On these bases, MidAmerican denies the allegations in Paragraph 192.

193. On information and belief, BHE does so by enlisting PacifiCorp as operating agent and by directing PacifiCorp and paying PacifiCorp to perform the patented methods to ensure that Wyodak, Jim Bridger, and Dave Johnston remain in compliance with applicable mercury regulations, and thus remain operational.

ANSWER: MidAmerican understands that the claims this allegation are relevant to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 193. On these bases, MidAmerican denies the allegations in Paragraph 193.

194. Defendants WPL, Alliant, and AECS directly infringe by performing the methods claimed the patents-in-suit at least at Columbia and Edgewater.

ANSWER: MidAmerican understands that the claims this allegation are relevant to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 194. On these bases, MidAmerican denies the allegations in Paragraph 194.

195. In addition or in the alternative, Defendant Alliant directly infringes by virtue of its direct or indirect ownership of Columbia and Edgewater, and by delegating performance of the methods claimed in each of the patents-in-suit at Columbia and Edgewater to its operating agent WPL.

ANSWER: MidAmerican understands that the claims this allegation are relevant to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 195. On these bases, MidAmerican denies the allegations in Paragraph 195.

196. In addition or in the alternative, Defendant Alliant induces infringement by causing, encouraging, assisting, or otherwise inducing WPL to perform the patented methods claimed in each of the patents-in-suit at least at Columbia and Edgewater.

ANSWER: MidAmerican understands that the claims this allegation are relevant to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 196. On these bases, MidAmerican denies the allegations in Paragraph 196.

197. On information and belief, Alliant does so by enlisting WPL as operating agent and by directing WPL and paying WPL to perform the patented methods to ensure that Columbia and Edgewater remain in compliance with applicable mercury regulations, and thus remain operational.

ANSWER: MidAmerican understands that the claims this allegation are relevant to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 197. On these bases, MidAmerican denies the allegations in Paragraph 197.

198. In addition or in the alternative, Defendant AECS induces infringement by causing, encouraging, assisting, or otherwise inducing IPL and WPL to perform the patented methods claimed in each of the patents-in-suit at least at Ottumwa, Prairie Creek, Columbia, and Edgewater.

ANSWER: MidAmerican understands that the claims this allegation are relevant to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 198. On these bases, MidAmerican denies the allegations in Paragraph 198.

199. On information and belief, AECS does so by acting as the agent of WPL and IPL and providing facilities, resources, employees, and know-how to perform the patented methods and ensure that at least Ottumwa, Prairie Creek, Columbia, and Edgewater remain in compliance with applicable mercury regulations, and thus remain operational.

ANSWER: MidAmerican understands that the claims this allegation are relevant to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 199. On these bases, MidAmerican denies the allegations in Paragraph 199.

200. In addition or in the alternative, Defendants BHE, MidAmerican, and PacifiCorp are liable for joint enterprise infringement. These Defendants have (1) an agreement, express or implied, to work together to operate coal-fired power plants; (2) a common purpose, i.e., operation of coal-fired power plants, to be carried out by various officers and employees that work for and on behalf of these Defendants; (3) a community of pecuniary interest in that purpose, i.e., profits from the operation of coal-fired power plants and sale of electricity which is paid to these Defendants from customers or as dividends to BHE; and (4) an equal right to a voice in the direction of the enterprise, which gives an equal right of control, as evidenced based on the shared officers and employees of these Defendants, and common effort to operate the power plants in the BHE portfolio.

ANSWER: The allegations in Paragraph 200 state legal conclusions to which no answer is necessary. To the extent an answer is required, MidAmerican denies these allegations. MidAmerican further understands that the claims this allegation are relevant to have been dismissed (*see* ECF 146).

201. BHE, MidAmerican, and PacifiCorp operate together to support this enterprise.

ANSWER: Denied. MidAmerican further understands that the claims this allegation are relevant to have been dismissed (*see* ECF 146).

202. They rely on combined size and market share to negotiate favorable terms with suppliers, service companies, and others related to that operation of accused coal-fired power plants.

ANSWER: Denied. MidAmerican further understands that the claims this allegation are relevant to have been dismissed (*see* ECF 146).

203. Based on the standards of the New York Stock Exchange LLC, on which the common stock of PacifiCorp's and MidAmerican's ultimate parent company, Berkshire Hathaway, is listed, none of MidAmerican's or PacifiCorp's directors are considered independent.

ANSWER: Denied. MidAmerican further understands that the claims this allegation are relevant to have been dismissed (*see* ECF 146).

204. In addition BHE, MidAmerican, and PacifiCorp also sign power purchase agreements ("PPAs") for the sale of power from the accused power plants. While only one of these entities may sign a PPA for a particular power plant, on information and belief, the PPA identifies the other entities (i.e., BHE and its subsidiaries) as having oversight or other rights under the PPA.

ANSWER: The allegations in Paragraph 204 state legal conclusion to which no answer is necessary. To the extent an answer is required, MidAmerican admits that it performs swap transactions to provide power to a joint owner of Walter Scott Energy Center, but denies all remaining allegations in Paragraph 204. MidAmerican further understands that the claims this allegation are relevant to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 204. On these bases, MidAmerican denies the remaining allegations in Paragraph 204.

205. On information and belief, the operations of BHE, MidAmerican, and PacifiCorp are so intertwined that they are jointly and severally liable with respect to the tax burden on their operations. Accordingly, BHE, MidAmerican, and PacifiCorp have entered into a tax-sharing agreement.

ANSWER: The allegations in Paragraph 178 state a legal conclusion to which no answer is necessary. To the extent an answer is required, MidAmerican denies these allegations. MidAmerican further understands that the claims this allegation are relevant to have been dismissed (*see* ECF 146).

206. In addition or in the alternative, Defendants Alliant, AECS, IPL, and WPL are liable for joint enterprise infringement. These Defendants have (1) an agreement, express or implied, to work together to operate coal-fired power plants; (2) a common purpose, i.e., operation of coal- fired power plants, to be carried out be various officers and employees that work for and

on behalf of these Defendants; (3) a community of pecuniary interest in that purpose, i.e., profits from the operation of coal-fired power plants and sale of electricity which is paid to these Defendants from customers, as dividends to Alliant, or as reimbursement for services provided by AECS; and (4) an equal right to a voice in the direction of the enterprise, which gives an equal right of control, as evidenced based on the shared officers and employees of these Defendants, and common effort to operate the power plants in the Alliant portfolio.

ANSWER: The allegations in Paragraph 206 state legal conclusions to which no answer is necessary. To the extent an answer is required, MidAmerican understands that the claims this allegation are relevant to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 206. On these bases, MidAmerican denies the allegations in Paragraph 206.

207. In addition, IPL operates in Iowa under the name "Alliant Energy."

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 207, and therefore denies the same.

208. On information and belief, the operations of Alliant, AECS, IPL, and WPL are so intertwined that they are jointly and severally liable with respect to the tax burden on their operations. Accordingly, Alliant, AECS, IPL, and WPL have entered into a tax-sharing agreement.

ANSWER: The allegations in Paragraph 208 state a legal conclusion to which no answer is necessary. To the extent an answer is required, MidAmerican understands that the claims this allegation are relevant to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 208. On these bases, MidAmerican denies the allegations in Paragraph 208.

209. In addition or in the alternative, Defendants BHE, MidAmerican, Alliant, AECS, and IPL are liable for joint enterprise infringement at least with respect to the Louisa, George Neal North, George Neal South, and Ottumwa power plants. These Defendants have (1) an agreement, express or implied, to work together to operate these commonly owned coal-fired power plants; (2) a common purpose, *i.e.*, operation of coal-fired power plants, to be carried out by various officers and employees that work for and on behalf of these Defendants; (3) a community of pecuniary interest in that purpose, *i.e.*, profits from the operation of co-owned coal-fired power plants and sale of electricity; and (4) an equal right to a voice in the direction of the enterprise,

which gives an equal right of control, as evidenced based on the common ownership of these power plants.

ANSWER: The allegations in Paragraph 209 state a legal conclusion to which no answer is necessary. To the extent an answer is required, MidAmerican denies these allegations. MidAmerican further understands that the claims this allegation are relevant to have been dismissed (*see* ECF 146).

210. The percentage of Defendants' energy supplied by energy source varies from year to year and is subject to numerous operational and economic factors such as planned and unplanned outages, fuel commodity prices, fuel transportation costs, weather, environmental considerations, transmission constraints, and wholesale market prices of electricity. Defendants evaluate these factors continuously in order to facilitate economic dispatch of its generating facilities. When factors for one energy source are less favorable, Defendants place more reliance on other energy sources. For example, Defendants can generate more electricity using low-cost wind-powered generating facilities when factors associated with these facilities are favorable.

ANSWER: MidAmerican admits it supplies energy from various sources, and that numerous operational, economic, weather, and reliability factors are considered in relation thereto. MidAmerican denies the remaining allegations regarding MidAmerican in Paragraph 210. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations regarding other Defendants in Paragraph 210, and therefore denies the same.

211. In addition, Defendants purchase and sell electricity and ancillary services related to generation and load in wholesale markets. They may purchase electricity in the wholesale markets when it is more economical than generating electricity from its own facilities and may sell surplus electricity in the wholesale markets when it can do so economically. Defendants also enter into financial swap contracts and forward electricity sales and purchases for physical delivery at fixed prices to reduce exposure to electricity price volatility.

ANSWER: MidAmerican admits it purchases and sells electricity in wholesale markets. MidAmerican denies the remaining allegations regarding MidAmerican. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations regarding other Defendants in Paragraph 211, and therefore denies the same.

212. This conduct has a direct impact on the amount of Defendants infringement of the patents-in-suit because it can result in increased or decreased generation at the accused power plants, and thus increased or decreased use of the patents-in-suit. For example, Alliant, IPL, and AECS may negotiate terms in MISO that must be coordinated with BHE and MidAmerican, or vice versa, as they may result in increased or decreased load from infringing power plants.

ANSWER: MidAmerican denies infringement, denies joint and several liability with any Defendant. MidAmerican understands that the claims this allegation are relevant to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 212. On these bases, MidAmerican denies the allegations in Paragraph 212.

213. Questions of fact common to all Defendants will arise in this action, including at least facts related to infringement by performing the same infringing methods of the patents at locations where Defendants are jointly and severally liable, facts related to the supply of the same bromine and/or iodine based additives and activated carbon sorbents to multiple power plants at issue in this case, facts related to control of related corporate entities, facts related to ownership and/or operation of jointly owned power plants, and facts related to infringement and validity of the patents.

ANSWER: Denied as to MidAmerican. MidAmerican understands that the claims this allegation are relevant to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 213. On these bases, MidAmerican denies the allegations in Paragraph 213.

214. Representatives from ME2C have contacted representatives from Defendants and attempted to negotiate a commercial agreement with respect to Defendants' practicing ME2C's patented processes.

ANSWER: MidAmerican admits ME2C contacted MidAmerican regarding a license. MidAmerican denies that it practices the asserted patents or that those patents are valid or enforceable. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 214, and therefore denies the same.

215. Representatives from ME2C contacted representatives from Defendant Alliant on October 28, 2021, and February 5, 2021, and attempted to negotiate an agreement with respect

to Alliant's practicing ME2C's patented processes, including Alliant's practicing of the patents-in- suit. ME2C specifically identified several of the patents-in-suit and explained that they covered the use of bromides and activated carbon. At that time, Alliant was unwilling to enter into an agreement with ME2C which would include permission to use ME2C's patented technology.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 215, and therefore denies the same.

216. Representatives from ME2C again contacted representatives from Defendant Alliant on January 16, 2024, and attempted to negotiate an agreement. At that time, Alliant was unwilling to enter into an agreement with ME2C, thus, leaving ME2C no choice but to file this lawsuit.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 216, and therefore denies the same.

217. Representatives from ME2C contacted representatives from Defendant MidAmerican on October 28, 2021, and attempted to negotiate an agreement with respect to MidAmerican's practicing ME2C's patented processes, including its practicing of the patents-in- suit. ME2C specifically identified several of the patents-in-suit and explained that they covered the use of bromides and activated carbon. At that time, MidAmerican was unwilling to enter into an agreement with ME2C which would include permission to use ME2C's patented technology.

ANSWER: MidAmerican conducted a reasonable investigation as to the truth of the allegations in Paragraph 217 and was unable to find any evidence that ME2C contacted MidAmerican on October 28, 2021, as alleged. On that basis, MidAmerican denies the allegations in Paragraph 217.

218. Representatives from ME2C contacted representatives from Defendant MidAmerican on January 16, 2024, and attempted to negotiate an agreement with respect to MidAmerican's practicing ME2C's patented processes, including MidAmerican's practicing of the patents-in-suit. At that time, MidAmerican was unwilling to enter into an agreement with ME2C which would include permission to use ME2C's patented technology, thus, leaving ME2C no choice but to file this lawsuit.

ANSWER: MidAmerican admits ME2C contacted MidAmerican regarding licensing, and that MidAmerican did not agree to enter into an agreement with ME2C. MidAmerican denies that

it practices ME2C's patented processes, and further denies that ME2C ever supported its contention that, for example, substantiated why it believed MidAmerican practices its patent. MidAmerican denies any remaining allegations in Paragraph 218.

219. Representatives from ME2C contacted representatives from Defendant PacifiCorp in September 2018 and attempted to negotiate an agreement with respect to PacifiCorp's practicing of ME2C's patented processes. During the course of those negotiations, PacifiCorp also involved counsel for BHE. At that time, PacifiCorp was unwilling to enter into an agreement with ME2C which would include permission to use ME2C's patented technology.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 219, and therefore denies the same.

220. Representatives from ME2C again contacted representatives from Defendant PacifiCorp and BHE in February 2022 and attempted to negotiate an agreement with respect to PacifiCorp's practicing of ME2C's patented processes. ME2C provided information regarding its patents-in-suit, its ability to supply bromine additives and activated carbon, ME2C's lawsuit against infringing power plants, and the fact that other power plant operators, unlike PacifiCorp, had agreed to mutually acceptable license and supply terms for use of ME2C's technology. ME2C specifically identified several of the patents-in-suit and explained that they covered the use of bromides and activated carbon. At that time, PacifiCorp was unwilling to enter into an agreement with ME2C which would include permission to use ME2C's patented technology.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 220, and therefore denies the same.

221. In addition, Defendants MidAmerican and Alliant were subpoenaed in connection with the Delaware Case on August 11, 2021, and a corporate representative of MidAmerican was deposed in the Delaware Case on June 28, 2022.

ANSWER: MidAmerican admits it was subpoenaed and deposed in the Delaware Case. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations as to Alliant in Paragraph 221, and therefore denies the same.

222. Defendants BHE, PacifiCorp, and MidAmerican are represented by counsel that were involved in the Delaware Case.

ANSWER: Denied as to MidAmerican. Fredrikson & Byron, P.A. did not appear in the Delaware case. MidAmerican understands that claims against BHE have been dismissed (*see*

ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 222. On these bases, MidAmerican denies the allegations in Paragraph 222.

223. In addition, PacifiCorp is or was at least a partial co-owner of a power plant with one of the Defendants in the Delaware Case. On information and belief, PacifiCorp learned of the patents-in-suit and ME2C's infringement explanations in connection with ME2C's settlement and dismissal of that Defendant in the Delaware Case in January 2021.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 223, and therefore denies the same.

224. In addition, at least as of September 23, 2024, Angela Arrington, a representative for Alliant, AECS, IPL, and WPL submitted a declaration indicating that these entities each had knowledge of ME2C's allegations in its original complaint.

ANSWER: MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations in Paragraph 224, and therefore denies the same.

225. In addition, ME2C is one of a small number of companies that provides bromine-containing additives and activated carbon sorbents for mercury control at coal-fired power plants. It is reasonable to infer that Defendants have done at least some due diligence on potential suppliers. During that process, it is likely that they would have discovered the patents-in-suit from the U.S. Patent Office, Google Patents, ME2C publications and product literature, and/or ME2C's website.

ANSWER: Denied.

226. It is also reasonable to infer that Defendants would have reviewed the prosecution history for the ME2C patents known to Defendants and would be generally aware of other patents in the same family.

ANSWER: Denied.

227. On July 17, 2024, ME2C filed its original complaint in this case describing the patents-in-suit and ME2C's contention that Defendants' use of bromine additives and activated carbon at their coal-fired power plants caused infringement of ME2C's patents.

ANSWER: MidAmerican admits that the original complaint was filed on July 17, 2024. MidAmerican denies infringement of any ME2C patent and denies that it uses bromine additives

and activated carbon at its coal-fired power plants. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 227, and therefore denies the same.

228. After ME2C filed its original complaint, it asked all Defendants whether they would be willing to voluntarily stop using bromine additives with activated carbon at their coal-fired power plants. It also reminded all Defendants that, in ME2C's Delaware case, this conduct was already found to cause direct infringement at several of the power plants accused in this case. Nonetheless, All Defendants refused to stop using bromine additives with activated carbon.

ANSWER: MidAmerican admits that after ME2C filed its original complaint, ME2C requested that MidAmerican halt its power-producing operations. MidAmerican denies that it " us[es] bromine additives with activate carbon" and further denies infringement. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 228, and therefore denies the same.

229. On information and belief, Defendants have continued their acts of infringement during the pendency of this lawsuit.

ANSWER: Denied as to MidAmerican. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 229, and therefore denies the same.

230. Accordingly, Defendants have acted, and are continuing to act, to intentionally cause infringement, and/or with willful blindness as to their acts of infringement.

ANSWER: The allegations in Paragraph 230 state legal conclusions to which no answer is necessary. To the extent an answer is required, denied as to MidAmerican. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 230, and therefore denies the same.

231. Defendants are each aware of the Patents-in-Suit and knew or showed willful blindness that that their actions would cause infringement.

ANSWER: MidAmerican admits it is aware of the Patents-in-Suit. MidAmerican denies the remaining allegations in Paragraph 231 regarding MidAmerican. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 231, and therefore denies the same.

232. Defendants' infringement has occurred with knowledge of the Patents-in-Suit and has been willful and deliberate since at least that time.

ANSWER: Denied as to MidAmerican. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 232, and therefore denies the same.

233. Defendants may not avail themselves of 35 U.S.C. § 287 as a defense because ME2C is under no obligation to mark performance of the patented methods.

ANSWER: The allegations in Paragraph 233 state legal conclusions to which no answer is necessary. To the extent an answer is required, MidAmerican admits that process patents are not subject to the marking provisions of 35 U.S.C. § 287.

234. Defendants' acts of infringement have been willful as of the date they became aware of the patented technology and the patents-in-suit, and in any event no later than the filing of this Complaint and/or the date this Complaint was served upon each Defendant.

ANSWER: Denied as to MidAmerican. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 234, and therefore denies the same.

COUNT ONE: INFRINGEMENT OF THE '114 PATENT

235. ME2C incorporates by reference the preceding paragraphs as if fully set forth herein.

ANSWER: MidAmerican incorporates by reference its Answers to the preceding paragraphs as if fully set forth herein.

236. U.S. Patent No. 10,343,114 (the "'114 patent"), entitled "Sorbents for the Oxidation and Removal of Mercury", was issued on July 9, 2019, naming Edwin S. Olson, Michael J. Holmes and John H. Pavlish as the inventors. Exhibit A ('114 Patent).

ANSWER: MidAmerican admits that the '114 patent is entitled "Sorbents for the Oxidation and Removal of Mercury," that it lists an issuance date of July 9, 2019, that it lists as inventors Olson, Holmes, and Pavlish, and that it is attached to the First Amended Complaint as Exhibit A. MidAmerican denies the remaining allegations in paragraph 236.

237. ME2C owns all rights, title, and interest in the '114 Patent, and holds all substantial rights pertinent to this suit, including the right to sue and recover for all past, current, and future infringement.

ANSWER: MidAmerican denies that the '114 patent is a valid or enforceable patent. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 237, and therefore denies the same.

238. The '114 patent is valid and enforceable and directed to patentable subject matter.

ANSWER: Denied.

239. Defendants infringe at least one of claims 1-30 of the '114 patent.

ANSWER: Denied as to MidAmerican. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 239, and therefore denies the same.

240. ME2C provides the following explanation of infringement with regard to an exemplary claim.

ANSWER: To the extent Paragraph 240 contains an allegation to which a response is required, MidAmerican denies that infringement is set out below, and further denies infringement.

241. Claim 25 of the '114 patent recites: "A method of separating mercury from a mercury-containing gas."

ANSWER: MidAmerican admits that Claim 25 of the '114 patent contains the quoted language.

242. The Defendants, in operating and controlling the Accused Coal Plants, perform this method in order to comply with federal and/or state mercury regulations.

ANSWER: MidAmerican admits that its coal plants remove mercury from mercury-containing gas. MidAmerican denies that doing so would infringe any ME2C patent-in-suit. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 242, and therefore denies the same.

243. Claim 25 of the '114 patent recites: "combusting coal in a combustion chamber to provide the mercury-containing gas, wherein the coal comprises added Br2, HBr, a bromide compound, or a combination thereof, added to the coal upstream of the combustion chamber, or the combustion chamber comprises added Br2, HBr, a bromide compound, or a combination thereof, or a combination thereof."

ANSWER: MidAmerican admits that Claim 25 of the '114 patent contains the quoted language.

244. The Defendants, in operating and controlling the Accused Coal Plants, perform this step by burning coal with an added Br2, HBr, a bromide compound, or a combination thereof and/or by adding Br2, HBr, a bromide compound, or a combination thereof to the combustion chamber.

ANSWER: MidAmerican denies the allegations in Paragraph 244 as to MidAmerican. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 244, and therefore denies the same.

245. Claim 25 of the '114 patent recites: "injecting a sorbent material comprising activated carbon into the mercury containing gas downstream of the combustion chamber."

ANSWER: MidAmerican admits that Claim 25 of the '114 patent contains the quoted language.

246. The Defendants, in operating and controlling the Accused Coal Plants, perform this step by injecting activated carbon sorbent downstream of the combustion chamber.

ANSWER: MidAmerican admits that it utilizes powder activated carbon downstream of the combustion chamber in its coal power plants. MidAmerican denies that the same would constitute infringement of any ME2C patent-in-suit. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 246, and therefore denies the same.

247. Claim 25 of the '114 patent recites: "contacting mercury in the mercury-containing gas with the sorbent, to form a mercury/sorbent composition."

ANSWER: MidAmerican admits that Claim 25 of the '114 patent contains the quoted language.

248. The Defendants, in operating and controlling the Accused Coal Plants, perform this step because mercury contained in the gas exiting the combustion chamber contacts the sorbent as all of this material is contained in the same gas.

ANSWER: MidAmerican admits that its coal power plants remove mercury (contained in the gas exiting the combustion chamber) via contacting the gas with powder activated carbon. MidAmerican denies that the same would constitute infringement of any ME2C patent-in-suit. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 248, and therefore denies the same.

249. Claim 25 of the '114 patent recites: "separating the mercury/sorbent composition from the mercury-containing gas, to form a cleaned gas."

ANSWER: MidAmerican admits that Claim 25 of the '114 patent contains the quoted language.

250. The Defendants, in operating and controlling the Accused Coal Plants, perform this step using equipment, such as baghouses or electrostatic precipitators, to collect the mercury captured by the sorbent in order to comply with mercury regulations.

ANSWER: MidAmerican admits that its coal power plants use equipment such as baghouses or electrostatic precipitators to collect the mercury captured by the powder activated

carbon, which helps MidAmerican comply with mercury regulations. MidAmerican denies that the same would constitute infringement of any ME2C patent-in-suit. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 250, and therefore denies the same.

251. Defendants have and continue to directly infringe, literally and/or under the doctrine of equivalents, the '114 patent under 35 U.S.C. § 271(a).

ANSWER: Denied as to MidAmerican. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 251, and therefore denies the same.

252. In addition, Defendants BHE, Alliant, and AECS induce their respective subsidiary Defendants to infringe under 35 U.S.C. § 271(b). BHE, Alliant, and AECS are each aware of the '114 patent and knew or showed willful blindness that that their actions would cause infringement. Specifically, they aid or encourage their subsidiaries to infringe by, on information and belief, taking part in the supply contract process for activated carbon and bromine-containing additives at coal-fired power plants that directly infringe and signing, and/or aiding or encouraging their subsidiaries to sign, contracts with suppliers that provide the activated carbon and bromine- containing additives that lead to infringement.

ANSWER: Denied as to MidAmerican. MidAmerican understands that the claims that this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 252. On these bases, MidAmerican denies the allegations in Paragraph 252.

253. Defendants' acts of infringement have caused damage to ME2C. ME2C is entitled to recover from Defendants the damages sustained by ME2C as a result of Defendants' wrongful acts in an amount subject to proof at trial.

ANSWER: Denied as to MidAmerican. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 253, and therefore denies the same.

254. In addition, the infringing acts and practices of Defendants have caused, are causing, and, unless such acts and practices are enjoined by the Court, will continue to cause immediate and

irreparable harm to ME2C for which there is no adequate remedy at law, and for which ME2C is entitled to injunctive relief under 35 U.S.C. § 283.

ANSWER: Denied as to MidAmerican, and denied that ME2C is entitled to injunctive relief for the reasons stated in MidAmerican's opposition to ME2C's motion for preliminary injunction, including (among other reasons) that (1) ME2C's patents are about to expire; (2) ME2C has a significant history of licensing its patents, indicating that money damages would sufficiently compensate ME2C in the unlikely event any defendant is found to infringe a valid and enforceable patent; (3) the plethora of non-infringing alternatives available, even assuming ME2C's patents are valid and enforceable (they are not). MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 254, and therefore denies the same.

COUNT TWO: INFRINGEMENT OF THE '517 PATENT

255. ME2C incorporates by reference the preceding paragraphs as if fully set forth herein.

ANSWER: MidAmerican incorporates by reference its Answers to the preceding paragraphs as if fully set forth herein.

256. U.S. Patent No. 10,596,517(the "'517 patent"), entitled "Sorbents for the Oxidation and Removal of Mercury", was issued on March 24, 2020, naming Edwin S. Olson, Michael J. Holmes and John H. Pavlish as the inventors. Exhibit C ('517 Patent).

ANSWER: MidAmerican admits that the '517 patent is entitled "Sorbents for the Oxidation and Removal of Mercury," that it lists an issuance date of March 24, 2020, that it lists as inventors Olson, Holmes, and Pavlish, and that it is attached to the First Amended Complaint as Exhibit C. MidAmerican denies the remaining allegations in paragraph 256.

257. ME2C owns by assignment all rights, title, and interest in the '517 Patent, and holds all substantial rights pertinent to this suit, including the right to sue and recover for all past, current, and future infringement.

ANSWER: MidAmerican denies that the '517 patent is a valid or enforceable patent. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 257, and therefore denies the same.

258. The '517 Patent is valid and enforceable and directed to patentable subject matter.

ANSWER: Denied.

259. Defendants infringe at least one of claims 1-30 of the '517 patent.

ANSWER: Denied as to MidAmerican. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 259, and therefore denies the same.

260. ME2C provides the following explanation of infringement with regard to an exemplary claim.

ANSWER: To the extent Paragraph 260 contains an allegation to which a response is required, MidAmerican denies that infringement is set out below, and further denies infringement.

261. Claim 1 of the '517 patent recites: "A method for reducing mercury in a mercury-containing gas."

ANSWER: MidAmerican admits that Claim 1 of the '517 patent contains the quoted language.

262. The Defendants, in operating and controlling the Accused Coal Plants, perform this method in order to comply with federal and/or state mercury regulations.

ANSWER: MidAmerican admits that its coal plants reduce mercury in a mercury-containing gas. MidAmerican denies that doing so would infringe any ME2C patent-in-suit. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 262, and therefore denies the same.

263. Claim 1 of the '517 patent recites: "combusting coal in a combustion chamber, the coal comprising an additive comprising Br2, HBr, a bromide compound, or a combination thereof, to form the mercury-containing gas."

ANSWER: MidAmerican admits that Claim 1 of the '517 patent contains the quoted language.

264. The Defendants, in operating and controlling the Accused Coal Plants, perform this step because they combust coal with an additive comprising Br2, HBr, a bromide compound, or a combination thereof to form mercury-containing gas.

ANSWER: MidAmerican denies the allegations in Paragraph 264 as to MidAmerican. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 264, and therefore denies the same.

265. Claim 1 of the '517 patent recites: "collecting mercury in the mercury-containing gas with a sorbent added to the mercury-containing gas, the sorbent comprising activated carbon."

ANSWER: MidAmerican admits that Claim 1 of the '517 patent contains the quoted language.

266. The Defendants, in operating and controlling the Accused Coal Plants, perform this step by adding sorbent containing activated carbon to the gas that exits the combustion chamber. The mercury in the gas is then collected by equipment, such as baghouses or electrostatic precipitators.

ANSWER: MidAmerican admits that it utilizes powder activated carbon downstream of the combustion chamber in its coal power plants, that its coal power plants remove mercury (contained in the gas exiting the combustion chamber) via contacting the gas with powder activated carbon, and that its coal power plants use equipment such as baghouses or electrostatic precipitators to collect the mercury captured by the powder activated carbon. MidAmerican denies that the same would constitute infringement of any ME2C patent-in-suit. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 266, and therefore denies the same.

267. Defendants have and continue to directly infringe, literally and/or under the doctrine of equivalents, the '517 patent under 35 U.S.C. § 271(a).

ANSWER: Denied as to MidAmerican. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 267, and therefore denies the same.

268. In addition, Defendants BHE, Alliant, and AECS induce their respective subsidiary Defendants to infringe under 35 U.S.C. § 271(b). BHE, Alliant, and AECS are each aware of the '517 patent and knew or showed willful blindness that that their actions would cause infringement. Specifically, they aid or encourage their subsidiaries to infringe by, on information and belief, taking part in the supply contract process for activated carbon and bromine-containing additives at coal-fired power plants that directly infringe and signing, and/or aiding or encouraging their subsidiaries to sign, contracts with suppliers that provide the activated carbon and bromine- containing additives that lead to infringement.

ANSWER: Denied as to MidAmerican. MidAmerican understands that the claims that this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 268. On these bases, MidAmerican denies the allegations in Paragraph 268.

269. Defendants' acts of infringement have caused damage to ME2C. ME2C is entitled to recover from Defendants the damages sustained by ME2C as a result of Defendants' wrongful acts in an amount subject to proof at trial.

ANSWER: Denied as to MidAmerican. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 269, and therefore denies the same.

270. In addition, the infringing acts and practices of Defendants have caused, are causing, and, unless such acts and practices are enjoined by the Court, will continue to cause immediate and irreparable harm to ME2C for which there is no adequate remedy at law, and for which ME2C is entitled to injunctive relief under 35 U.S.C. § 283.

ANSWER: Denied as to MidAmerican, and denied that ME2C is entitled to injunctive relief for the reasons stated in MidAmerican's opposition to ME2C's motion for preliminary injunction, including (among other reasons) that (1) ME2C's patents are about to expire; (2) ME2C has a significant history of licensing its patents, indicating that money damages would sufficiently

compensate ME2C in the unlikely event any defendant is found to infringe a valid and enforceable patent; (3) the plethora of non-infringing alternatives available, even assuming ME2C's patents are valid and enforceable (they are not). MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 270, and therefore denies the same.

COUNT THREE: INFRINGEMENT OF THE '225 PATENT

271. ME2C incorporates by reference the preceding paragraphs as if fully set forth herein.

ANSWER: MidAmerican incorporates by reference its Answers to the preceding paragraphs as if fully set forth herein.

272. U.S. Patent No. 10,589,225 (the "'225 patent"), entitled "Sorbents for the Oxidation and Removal of Mercury", was issued on March 17, 2020, naming Edwin S. Olson, Michael J. Holmes and John H. Pavlish as the inventors. Exhibit B ('225 Patent).

ANSWER: MidAmerican admits that the '225 patent is entitled "Sorbents for the Oxidation and Removal of Mercury," that it lists an issuance date of March 17, 2020, that it lists as inventors Olson, Holmes, and Pavlish, and that it is attached to the First Amended Complaint as Exhibit B. MidAmerican denies the remaining allegations in paragraph 272.

273. ME2C owns by assignment all rights, title, and interest in the '225 Patent, and holds all substantial rights pertinent to this suit, including the right to sue and recover for all past, current, and future infringement.

ANSWER: MidAmerican denies that the '225 patent is a valid or enforceable patent. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 273, and therefore denies the same.

274. The '225 Patent is valid and enforceable and directed to patentable subject matter.

ANSWER: Denied.

275. Defendants infringe at least one of claims 1-29 of the '225 patent.

ANSWER: Denied as to MidAmerican. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 275, and therefore denies the same.

276. ME2C provides the following explanation of infringement with regard to an exemplary claim.

ANSWER: To the extent Paragraph 276 contains an allegation to which a response is required, MidAmerican denies that infringement is set out below, and further denies infringement.

277. Claim 1 of the ’225 patent recites: “A method for treating a mercury-containing gas.”

ANSWER: MidAmerican admits that Claim 1 of the ’225 patent contains the quoted language.

278. The Defendants, in operating and controlling the Accused Coal Plants, perform this method in order to comply with federal and/or state mercury regulations.

ANSWER: MidAmerican admits that its coal plants treat a mercury-containing gas. MidAmerican denies any implication that doing so would infringe any ME2C patent-in-suit. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 278, and therefore denies the same.

279. Claim 1 of the ’225 patent recites: “combusting a mixture comprising coal, pyrolysis char, and an additive comprising HBr, a bromide compound, or a combination thereof, to form the mercury-containing, gas.”

ANSWER: MidAmerican admits that Claim 1 of the ’225 patent contains the quoted language.

280. The Defendants, in operating and controlling the Accused Coal Plants, perform this step because they combust coal, pyrolysis char, and an additive comprising HBr, a bromide compound, or a combination thereof.

ANSWER: MidAmerican denies the allegations in Paragraph 280 as to MidAmerican. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 280, and therefore denies the same.

281. Claim 1 of the '225 patent recites: "adding a particulate sorbent material comprising activated carbon into the mercury-containing gas."

ANSWER: MidAmerican admits that Claim 1 of the '225 patent contains the quoted language.

282. The Defendants, in operating and controlling the Accused Coal Plants, perform this step by adding sorbent containing activated carbon to the gas that exits the combustion chamber.

ANSWER: MidAmerican admits that it utilizes powder activated carbon downstream of the combustion chamber in its coal power plants. MidAmerican denies that the same would constitute infringement of any ME2C patent-in-suit. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 282, and therefore denies the same.

283. Defendants have and continue to directly infringe, literally and/or under the doctrine of equivalents, the '225 patent under 35 U.S.C. § 271(a).

ANSWER: Denied as to MidAmerican. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 283, and therefore denies the same.

284. In addition, Defendants BHE, Alliant, and AECS induce their respective subsidiary Defendants to infringe under 35 U.S.C. § 271(b). BHE, Alliant, and AECS are each aware of the '225 patent and knew or showed willful blindness that that their actions would cause infringement. Specifically, they aid or encourage their subsidiaries to infringe by, on information and belief, taking part in the supply contract process for activated carbon and bromine-containing additives at coal-fired power plants that directly infringe and signing, and/or aiding or encouraging their subsidiaries to sign, contracts with suppliers that provide the activated carbon and bromine-containing additives that lead to infringement.

ANSWER: Denied as to MidAmerican. MidAmerican understands that the claims that this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 284. On these bases, MidAmerican denies the allegations in Paragraph 284.

285. Defendants' acts of infringement have caused damage to ME2C. ME2C is entitled to recover from Defendants the damages sustained by ME2C as a result of Defendants' wrongful acts in an amount subject to proof at trial.

ANSWER: Denied as to MidAmerican. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 285, and therefore denies the same.

286. In addition, the infringing acts and practices of Defendants have caused, are causing, and, unless such acts and practices are enjoined by the Court, will continue to cause immediate and irreparable harm to ME2C for which there is no adequate remedy at law, and for which ME2C is entitled to injunctive relief under 35 U.S.C. § 283.

ANSWER: Denied as to MidAmerican, and denied that ME2C is entitled to injunctive relief for the reasons stated in MidAmerican's opposition to ME2C's motion for preliminary injunction, including (among other reasons) that (1) ME2C's patents are about to expire; (2) ME2C has a significant history of licensing its patents, indicating that money damages would sufficiently compensate ME2C in the unlikely event any defendant is found to infringe a valid and enforceable patent; (3) the plethora of non-infringing alternatives available, even assuming ME2C's patents are valid and enforceable (they are not). MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 286, and therefore denies the same.

COUNT FOUR: INFRINGEMENT OF THE '430 PATENT

287. ME2C incorporates by reference the preceding paragraphs as if fully set forth herein.

ANSWER: MidAmerican incorporates by reference its Answers to the preceding paragraphs as if fully set forth herein.

288. U.S. Patent No. 10,668,430 (the "'430 patent"), entitled "Sorbents for the Oxidation and Removal of Mercury", was issued on March 24, 2020, naming Edwin S. Olson, Michael J. Holmes and John H. Pavlish as the inventors. Exhibit D ('430 Patent).

ANSWER: MidAmerican admits that the '430 patent is entitled "Sorbents for the Oxidation and Removal of Mercury," that it lists an issuance date of March 24, 2020, that it lists as inventors Olson, Holmes, and Pavlish, and that it is attached to the First Amended Complaint as Exhibit D. MidAmerican denies the remaining allegations in paragraph 288.

289. ME2C owns by assignment all rights, title, and interest in the '430 Patent, and holds all substantial rights pertinent to this suit, including the right to sue and recover for all past, current, and future infringement.

ANSWER: MidAmerican denies that the '430 patent is a valid or enforceable patent. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 289, and therefore denies the same.

290. The '430 Patent is valid and enforceable and directed to patentable subject matter.

ANSWER: Denied.

291. Defendants infringe at least one of claims 1-29 of the '430 patent.

ANSWER: Denied as to MidAmerican. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 291, and therefore denies the same.

292. ME2C provides the following explanation of infringement with regard to an exemplary claim.

ANSWER: To the extent Paragraph 292 contains an allegation to which a response is required, MidAmerican denies that infringement is set out below, and further denies infringement.

293. Claim 1 of the ’430 patent recites: “A method of separating mercury from a mercury-containing gas.”

ANSWER: MidAmerican admits that Claim 1 of the ’430 patent contains the quoted language.

294. The Defendants, in operating and controlling the Accused Coal Plants, perform this method in order to comply with federal and/or state mercury regulations.

ANSWER: MidAmerican admits that its coal plants separate mercury from a mercury-containing gas. MidAmerican denies that doing so would infringe any ME2C patent-in-suit. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 294, and therefore denies the same.

295. Claim 1 of the ’430 patent recites: “combusting coal in a combustion chamber, to provide the mercury-containing gas, wherein the coal comprises an additive comprising Br2, HBr, a bromide compound, or a combination thereof, wherein the additive is added to the coal before the coal enters the combustion chamber, or the combustion chamber comprises an additive comprising Br2, HBr, a bromide compound, or a combination thereof or a combination thereof.”

ANSWER: MidAmerican admits that Claim 1 of the ’430 patent contains the quoted language.

296. The Defendants, in operating and controlling the Accused Coal Plants, perform this step because they combust coal with an additive comprising Br2, HBr, a bromide compound, or a combination thereof to form mercury-containing gas.

ANSWER: MidAmerican denies the allegations in Paragraph 296 as to MidAmerican. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 296, and therefore denies the same.

297. Claim 1 of the ’430 patent recites: “injecting a sorbent comprising activated carbon into the mercury-containing gas downstream of the combustion chamber.”

ANSWER: MidAmerican admits that Claim 1 of the ’430 patent contains the quoted language.

298. The Defendants, in operating and controlling the Accused Coal Plants, perform this step by injecting sorbent containing activated carbon downstream of the combustion chamber.

ANSWER: MidAmerican admits that it utilizes powder activated carbon downstream of the combustion chamber in its coal power plants. MidAmerican denies that the same would constitute infringement of any ME2C patent-in-suit. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 298, and therefore denies the same.

299. Claim 1 of the '430 patent recites: "contacting mercury in the mercury-containing gas with the sorbent."

ANSWER: MidAmerican admits that Claim 1 of the '430 patent contains the quoted language.

300. The Defendants, in operating and controlling the Accused Coal Plants, perform this step because mercury contained in the gas exiting the combustion chamber contacts the sorbent as all of this material is contained in the same gas.

ANSWER: MidAmerican admits that its coal power plants remove mercury (contained in the gas exiting the combustion chamber) via contacting the gas with powder activated carbon. MidAmerican denies that the same would constitute infringement of any ME2C patent-in-suit. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 300, and therefore denies the same.

301. Claim 1 of the '430 patent recites: "separating the sorbent contacted with the mercury from the mercury-containing gas."

ANSWER: MidAmerican admits that Claim 1 of the '430 patent contains the quoted language.

302. The Defendants, in operating and controlling the Accused Coal Plants, perform this step using equipment such as baghouses or electrostatic precipitators to collect the mercury captured by the sorbent in order to comply with mercury regulations.

ANSWER: MidAmerican admits that its coal power plants use equipment such as baghouses or electrostatic precipitators to collect the mercury captured by the powder activated carbon, which helps MidAmerican comply with mercury regulations. MidAmerican denies that the same would constitute infringement of any ME2C patent-in-suit. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 302, and therefore denies the same.

303. Defendants have and continue to directly infringe, literally and/or under the doctrine of equivalents, the '430 patent under 35 U.S.C. § 271(a).

ANSWER: Denied as to MidAmerican. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 303, and therefore denies the same.

304. In addition, Defendants BHE, Alliant, and AECS induce their respective subsidiary Defendants to infringe under 35 U.S.C. § 271(b). BHE, Alliant, and AECS are each aware of the '430 patent and knew or showed willful blindness that that their actions would cause infringement. Specifically, they aid or encourage their subsidiaries to infringe by, on information and belief, taking part in the supply contract process for activated carbon and bromine-containing additives at coal-fired power plants that directly infringe and signing, and/or aiding or encouraging their subsidiaries to sign, contracts with suppliers that provide the activated carbon and bromine- containing additives that lead to infringement.

ANSWER: Denied as to MidAmerican. MidAmerican understands that the claims that this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 304. On these bases, MidAmerican denies the allegations in Paragraph 304.

305. Defendants' acts of infringement have caused damage to ME2C. ME2C is entitled to recover from Defendants the damages sustained by ME2C as a result of Defendants' wrongful acts in an amount subject to proof at trial.

ANSWER: Denied as to MidAmerican. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 305, and therefore denies the same.

306. In addition, the infringing acts and practices of Defendants have caused, are causing, and, unless such acts and practices are enjoined by the Court, will continue to cause immediate and irreparable harm to ME2C for which there is no adequate remedy at law, and for which ME2C is entitled to injunctive relief under 35 U.S.C. § 283.

ANSWER: Denied as to MidAmerican, and denied that ME2C is entitled to injunctive relief for the reasons stated in MidAmerican's opposition to ME2C's motion for preliminary injunction, including (among other reasons) that (1) ME2C's patents are about to expire; (2) ME2C has a significant history of licensing its patents, indicating that money damages would sufficiently compensate ME2C in the unlikely event any defendant is found to infringe a valid and enforceable patent; (3) the plethora of non-infringing alternatives available, even assuming ME2C's patents are valid and enforceable (they are not). MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 306, and therefore denies the same.

COUNT FIVE: INFRINGEMENT OF THE '218 PATENT

307. ME2C incorporates by reference the preceding paragraphs as if fully set forth herein.

ANSWER: MidAmerican incorporates by reference its Answers to the preceding paragraphs as if fully set forth herein.

308. U.S. Patent No. 10,926,218 (the "'218 patent"), entitled "Sorbents for the Oxidation and Removal of Mercury", was issued on February 23, 2021, naming Edwin S. Olson, Michael J. Holmes and John H. Pavlish as the inventors. Exhibit E ('218 Patent).

ANSWER: MidAmerican admits that the '218 patent is entitled "Sorbents for the Oxidation and Removal of Mercury," that it lists an issuance date of February 23, 2021, that it lists

as inventors Olson, Holmes, and Pavlish, and that it is attached to the First Amended Complaint as Exhibit E. MidAmerican denies the remaining allegations in paragraph 308.

309. ME2C owns by assignment all rights, title, and interest in the '218 Patent, and holds all substantial rights pertinent to this suit, including the right to sue and recover for all past, current, and future infringement.

ANSWER: MidAmerican denies that the '218 patent is a valid or enforceable patent. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 309, and therefore denies the same.

310. The '218 Patent is valid and enforceable and directed to patentable subject matter.

ANSWER: Denied.

311. Defendants BHE, MidAmerican, and PacifiCorp infringe at least one of claims 1-26 of the '218 patent.

ANSWER: Denied as to MidAmerican. MidAmerican understands that claims against BHE have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations regarding other Defendants in Paragraph 311. On these bases, MidAmerican denies the remaining allegations in Paragraph 311.

312. Permitting documents for at least the George Neal North, Louisa, George Neal South, and Jim Bridger power plants reference possible use of iodine additives. On information and belief, these power plants rely primarily on bromine additives, but they would have engaged in at least some infringing use of iodine additives (*e.g.*, at least in connection with testing these additives for permitting purposes).

ANSWER: MidAmerican admits that George Neal North, Louisa, and George Neal South may (but are not required to) use iodine additives. MidAmerican denies these plants rely on bromine or iodine additives either in connection with testing or for any other reason. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations regarding other Defendants in Paragraph 312, and therefore denies the same.

313. ME2C provides the following explanation of infringement with regard to an exemplary claim.

ANSWER: To the extent Paragraph 313 contains an allegation to which a response is required, MidAmerican denies that infringement is set out below, and further denies infringement.

314. Claim 1 of the '218 patent recites: "A method of separating mercury from a mercury-containing gas, the method comprising."

ANSWER: MidAmerican admits that Claim 1 of the '218 patent contains the quoted language.

315. Defendants BHE, MidAmerican, and PacifiCorp perform, at least at the George Neal North, Louisa, George Neal South, and Jim Bridger Plants, this method in order to comply with federal and/or state mercury regulations.

ANSWER: MidAmerican admits that its coal plants separate mercury from a mercury-containing gas. MidAmerican denies that doing so would infringe any ME2C patent-in-suit. MidAmerican understands that claims against BHE have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations regarding other Defendants in Paragraph 315. On these bases, MidAmerican denies the remaining allegations in Paragraph 315.

316. Claim 1 of the '218 patent recites: "combusting coal in a combustion chamber, to provide the mercury-containing gas, wherein the coal comprises added HI, an iodide salt, or a combination thereof, added to the coal before the coal enters the combustion chamber, or the combustion chamber comprises added HI, an iodide salt, or a combination thereof, or a combination thereof."

ANSWER: MidAmerican admits that Claim 1 of the '218 patent contains the quoted language.

317. Defendants BHE, MidAmerican, and PacifiCorp perform, at least at the George Neal North, Louisa, George Neal South, and Jim Bridger Plants, this step because they combust coal with an additive comprising HI, an iodide salt, or a combination thereof.

ANSWER: MidAmerican denies that George Neal North, George Neal South, or Louisa combust coal with an additive comprising HI, an iodide salt, or a combination thereof. MidAmerican understands that claims against BHE have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations regarding other Defendants in Paragraph 317. On these bases, MidAmerican denies the remaining allegations in Paragraph 317.

318. Claim 1 of the '218 patent recites: "injecting a sorbent comprising activated carbon into the mercury-containing gas downstream of the combustion chamber, wherein a weight ratio of the HI, iodide salt, or the combination thereof added to the coal, added to the combustion chamber, or a combination thereof, to an amount of the sorbent injected into the mercury-containing gas is from about 1:100 to about 30:100."

ANSWER: MidAmerican admits that Claim 1 of the '218 patent contains the quoted language.

319. Defendants BHE, MidAmerican, and PacifiCorp perform, at least at the George Neal North, Louisa, George Neal South, and Jim Bridger Plants, this step because they add a particulate sorbent material comprising activated carbon to the mercury-containing flue gas, and the weight ratio of the additive comprising HI, iodide salt, or the combination thereof to the amount of sorbent is from about 1:100 to about 30:100.

ANSWER: MidAmerican admits that George Neal North, George Neal South, and Louisa utilize powder activated carbon downstream of the combustion chamber in its coal power plants. MidAmerican denies that the same would constitute infringement of any ME2C patent-in-suit. MidAmerican denies that it utilizes an additive comprising HI, iodide salt, or the combination thereof as stated in response to Paragraph 317, and therefore denies the remaining allegations regarding MidAmerican. MidAmerican understands that claims against BHE have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations regarding other Defendants in Paragraph 319. On these bases, MidAmerican denies the remaining allegations in Paragraph 319.

320. Claim 1 of the ’218 patent recites: “contacting mercury in the mercury-containing gas with the sorbent.”

ANSWER: MidAmerican admits that Claim 1 of the ’218 patent contains the quoted language.

321. Defendants BHE, MidAmerican, and PacifiCorp perform, at least at the George Neal North, Louisa, George Neal South, and Jim Bridger Plants, this step because mercury contained in the gas exiting the combustion chamber contacts the sorbent as all of this material is contained in the same gas.

ANSWER: MidAmerican admits that George Neal North, Louisa, and George Neal South, remove mercury (contained in the gas exiting the combustion chamber) via contacting the gas with powder activated carbon. MidAmerican denies that the same would constitute infringement of any ME2C patent-in-suit. MidAmerican understands that claims against BHE have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations regarding other Defendants in Paragraph 321. On these bases, MidAmerican denies the remaining allegations in Paragraph 321.

322. Claim 1 of the ’218 patent recites: “separating the sorbent contacted with the mercury from the mercury-containing gas.”

ANSWER: MidAmerican admits that Claim 1 of the ’218 patent contains the quoted language.

323. Defendants BHE, MidAmerican, and PacifiCorp perform, at least at the George Neal North, Louisa, George Neal South, and Jim Bridger Plants, this step using equipment such as baghouses or electrostatic precipitators to collect the mercury captured by the sorbent in order to comply with mercury regulations.

ANSWER: MidAmerican admits that George Neal North, Louisa, and George Neal South, use equipment such as baghouses or electrostatic precipitators to collect the mercury captured by the powder activated carbon, which helps MidAmerican comply with mercury regulations. MidAmerican denies that the same would constitute infringement of any ME2C

patent-in-suit. MidAmerican understands that claims against BHE have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations regarding other Defendants in Paragraph 323. On these bases, MidAmerican denies the remaining allegations in Paragraph 323.

324. BHE, MidAmerican, and PacifiCorp have and continue to directly infringe, literally and/or under the doctrine of equivalents, the '218 patent under 35 U.S.C. § 271(a).

ANSWER: Denied as to MidAmerican. MidAmerican understands that claims against BHE have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations regarding other Defendants in Paragraph 324. On these bases, MidAmerican denies the allegations in Paragraph 324.

325. In addition, Defendant BHE induces MidAmerican and PacifiCorp to infringe under 35 U.S.C. § 271(b). BHE is aware of the '218 patent and knew or showed willful blindness that that its actions would cause infringement. Specifically, BHE aids or encourages MidAmerican and PacifiCorp to infringe by, on information and belief, taking part in the supply contract process for activated carbon and bromine-containing additives at coal-fired power plants that directly infringe and signing, and/or aiding or encouraging MidAmerican and PacifiCorp to sign, contracts with suppliers that provide the activated carbon and bromine-containing additives that lead to infringement.

ANSWER: Denied as to MidAmerican. MidAmerican understands that claims against BHE have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations regarding other Defendants in Paragraph 325. On these bases, MidAmerican denies the allegations in Paragraph 325.

326. Defendants BHE's, MidAmerican's, and PacifiCorp's acts of infringement have caused damage to ME2C. ME2C is entitled to recover from these Defendants the damages sustained by ME2C as a result of their wrongful acts in an amount subject to proof at trial.

ANSWER: Denied as to MidAmerican. MidAmerican understands that claims against BHE have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient

to form a belief as to the truth of the allegations regarding other Defendants in Paragraph 326. On these bases, MidAmerican denies the allegations in Paragraph 326.

327. In addition, the infringing acts and practices of Defendants BHE, MidAmerican, and PacifiCorp have caused, are causing, and, unless such acts and practices are enjoined by the Court, will continue to cause immediate and irreparable harm to ME2C for which there is no adequate remedy at law, and for which ME2C is entitled to injunctive relief under 35 U.S.C. § 283.

ANSWER: Denied as to MidAmerican, and denied that ME2C is entitled to injunctive relief for the reasons stated in MidAmerican's opposition to ME2C's motion for preliminary injunction, including (among other reasons) that (1) ME2C's patents are about to expire; (2) ME2C has a significant history of licensing its patents, indicating that money damages would sufficiently compensate ME2C in the unlikely event any defendant is found to infringe a valid and enforceable patent; (3) the plethora of non-infringing alternatives available, even assuming ME2C's patents are valid and enforceable (they are not). MidAmerican understands that claims against BHE have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the allegations regarding other Defendants in Paragraph 327. On these bases, MidAmerican denies the remaining allegations in Paragraph 327.

COUNT SIX: INFRINGEMENT OF THE '370 PATENT

328. ME2C incorporates by reference the preceding paragraphs as if fully set forth herein.

ANSWER: MidAmerican incorporates by reference its Answers to the preceding paragraphs as if fully set forth herein.

329. U.S. Patent No. 10,933,370 (the "'370 patent"), entitled "Sorbents for the Oxidation and Removal of Mercury", was issued on March 3, 2021, naming Edwin S. Olson, Michael J. Holmes and John H. Pavlish as the inventors. Exhibit F ('370 Patent).

ANSWER: MidAmerican admits that the '370 patent is entitled "Sorbents for the Oxidation and Removal of Mercury," that it lists an issuance date of March 3, 2021, that it lists as

inventors Olson, Holmes, and Pavlish, and that it is attached to the First Amended Complaint as Exhibit F. MidAmerican denies the remaining allegations in paragraph 329.

330. ME2C owns by assignment all rights, title, and interest in the '370 Patent, and holds all substantial rights pertinent to this suit, including the right to sue and recover for all past, current, and future infringement.

ANSWER: MidAmerican denies that the '370 patent is a valid or enforceable patent. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 330, and therefore denies the same.

331. The '370 Patent is valid and enforceable and directed to patentable subject matter.

ANSWER: Denied.

332. Defendants infringe at least one of claims 1-29 of the '370 patent.

ANSWER: Denied as to MidAmerican. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 332, and therefore denies the same.

333. ME2C provides the following explanation of infringement with regard to an exemplary claim.

ANSWER: To the extent Paragraph 333 contains an allegation to which a response is required, MidAmerican denies that infringement is set out below, and further denies infringement.

334. Claim 1 of the '370 patent recites: "A method for separating mercury from a mercury-containing gas, the method comprising."

ANSWER: MidAmerican admits that Claim 1 of the '370 patent contains the quoted language.

335. The Defendants, in operating and controlling the Accused Coal Plants, perform this method in order to comply with federal and/or state mercury regulations.

ANSWER: MidAmerican admits that its coal plants separate mercury from a mercury-containing gas. MidAmerican denies any implication that doing so would infringe any ME2C

patent-in-suit. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 335, and therefore denies the same.

336. Claim 1 of the '370 patent recites: "combusting a mixture of coal and an additive in a combustion chamber, to form the mercury-containing gas, wherein the additive is chosen from halides, halogens, salts thereof, and combinations thereof."

ANSWER: MidAmerican admits that Claim 1 of the '370 patent contains the quoted language.

337. The Defendants, in operating and controlling the Accused Coal Plants, perform this step because they combust coal with an additive comprising halides, halogens, salts thereof, or combinations thereof.

ANSWER: MidAmerican denies the allegations in Paragraph 337 as to MidAmerican. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 337, and therefore denies the same.

338. Claim 1 of the '370 patent recites: "adding a particulate sorbent material comprising activated carbon into the mercury-containing gas, wherein a weight ratio of the additive added to the coal, added to the combustion chamber, or a combination thereof, to an amount of the sorbent material added to the mercury-containing gas is from about 1:100 to about 30:100."

ANSWER: MidAmerican admits that Claim 1 of the '370 patent contains the quoted language.

339. The Defendants, in operating and controlling the Accused Coal Plants, perform this step because they add a particulate sorbent material comprising activated carbon to the mercury-containing flue gas, and the weight ratio of the additive comprising halides, halogens, salts thereof, or combinations thereof to the amount of sorbent is from about 1:100 to about 30:100.

ANSWER: MidAmerican admits that it utilizes powder activated carbon downstream of the combustion chamber in its coal power plants. MidAmerican denies that the same would constitute infringement of any ME2C patent-in-suit. MidAmerican denies that it utilizes added halides or halogens as stated in response to Paragraph 337, and therefore denies the remaining allegations regarding MidAmerican. MidAmerican lacks knowledge or information sufficient to

form a belief as to the truth of the allegations as to other Defendants in Paragraph 339, and therefore denies the same.

340. Claim 1 of the '370 patent recites: "contacting mercury in the mercury-containing gas with the sorbent material, to form a mercury-sorbent."

ANSWER: MidAmerican admits that Claim 1 of the '370 patent contains the quoted language.

341. The Defendants, in operating and controlling the Accused Coal Plants, perform this step because mercury contained in the gas exiting the combustion chamber contacts the sorbent as all of this material is contained in the same gas.

ANSWER: MidAmerican admits that its coal power plants remove mercury (contained in the gas exiting the combustion chamber) via contacting the gas with powder activated carbon. MidAmerican denies that the same would constitute infringement of any ME2C patent-in-suit. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 341, and therefore denies the same.

342. Claim 1 of the '370 patent recites: "separating the mercury-sorbent from the mercury-containing gas."

ANSWER: MidAmerican admits that Claim 1 of the '370 patent contains the quoted language.

343. The Defendants, in operating and controlling the Accused Coal Plants, perform this step using equipment such as baghouses or electrostatic precipitators to collect the mercury captured by the sorbent in order to comply with mercury regulations.

ANSWER: MidAmerican admits that its coal power plants use equipment such as baghouses or electrostatic precipitators to collect the mercury captured by the powder activated carbon, which helps MidAmerican comply with mercury regulations. MidAmerican denies that the same would constitute infringement of any ME2C patent-in-suit. MidAmerican lacks

knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 343, and therefore denies the same.

344. Defendants have and continue to directly infringe, literally and/or under the doctrine of equivalents, the '370 patent under 35 U.S.C. § 271(a).

ANSWER: Denied as to MidAmerican. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 344, and therefore denies the same.

345. In addition, Defendants BHE, Alliant, and AECS induce their respective subsidiary Defendants to infringe under 35 U.S.C. § 271(b). BHE, Alliant, and AECS are each aware of the '370 patent, but nonetheless aid or encourage their subsidiaries to infringe by, on information and belief, taking part in the supply contract process for activated carbon and bromine-containing additives at coal-fired power plants that directly infringe and signing, and/or aiding or encouraging their subsidiaries to sign, contracts with suppliers that provide the activated carbon and bromine-containing additives that lead to infringement.

ANSWER: Denied as to MidAmerican. MidAmerican understands that the claims that this allegation relates to have been dismissed (*see* ECF 146) and further lacks knowledge or information sufficient to form a belief as to the truth of the remaining allegations in Paragraph 345. On these bases, MidAmerican denies the allegations in Paragraph 345.

346. Defendants' acts of infringement have caused damage to ME2C. ME2C is entitled to recover from Defendants the damages sustained by ME2C as a result of Defendants' wrongful acts in an amount subject to proof at trial.

ANSWER: Denied as to MidAmerican. MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 346, and therefore denies the same.

347. In addition, the infringing acts and practices of Defendants have caused, are causing, and, unless such acts and practices are enjoined by the Court, will continue to cause immediate and irreparable harm to ME2C for which there is no adequate remedy at law, and for which ME2C is entitled to injunctive relief under 35 U.S.C. § 283.

ANSWER: Denied as to MidAmerican, and denied that ME2C is entitled to injunctive relief for the reasons stated in MidAmerican's opposition to ME2C's motion for preliminary injunction, including (among other reasons) that (1) ME2C's patents are about to expire; (2) ME2C has a significant history of licensing its patents, indicating that money damages would sufficiently compensate ME2C in the unlikely event any defendant is found to infringe a valid and enforceable patent; (3) the plethora of non-infringing alternatives available, even assuming ME2C's patents are valid and enforceable (they are not). MidAmerican lacks knowledge or information sufficient to form a belief as to the truth of the allegations as to other Defendants in Paragraph 347, and therefore denies the same.

JURY DEMAND

MidAmerican hereby demands a trial by jury on all issues so triable.

PRAYER FOR RELIEF

ME2C's Prayer for Relief sets forth its requested relief and does not require a response. However, to the extent that the Prayer for Relief may be construed to contain allegations of fact, MidAmerican denies them. MidAmerican further denies that ME2C is entitled to any of the relief sought in its First Amended Complaint.

AFFIRMATIVE DEFENSES

Pursuant to Federal Rule of Civil Procedure 8(c), and without assuming any burden of proof that would otherwise lie with ME2C, MidAmerican asserts the following defenses:

FIRST DEFENSE

MidAmerican has not infringed and is not infringing, directly or indirectly, any valid and enforceable claim of any of the patents asserted in this action. MidAmerican incorporates herein by reference MidAmerican's Second through Seventh Counterclaims as if fully set forth herein.

SECOND DEFENSE

All claims in the patents-in-suit are invalid for failure to satisfy one or more conditions of patentability set forth in Title 35 of the United States Code, including, but not limited to, §§ 102, 103, and/or 112, and any other judicially created requirements for patentability and enforceability of patents and defenses recognized in 35 U.S.C. § 282.

THIRD DEFENSE

The First Amended Complaint fails to state a claim for willful patent infringement. MidAmerican has not and does not willfully infringe any valid and enforceable claim of any of the patents asserted in this action.

FOURTH DEFENSE

None of MidAmerican's actions or lack of actions support any determination that this is an exceptional case under 35 U.S.C. § 285.

FIFTH DEFENSE

ME2C's claims as to MidAmerican are barred by a covenant not to sue. ME2C entered into a license and covenant not to sue that retroactively and prospectively authorized MidAmerican to practice the asserted claims of the patents-in-suit by covenanting not to sue MidAmerican for any alleged infringement of any claim of any patent-in-suit.

SIXTH DEFENSE

ME2C's claims for relief are barred, in whole or in part, under the doctrines of waiver, equitable estoppel, acquiescence, and/or other equitable principles, including to the extent that ME2C licensed, waived, released, entered covenants not to sue, or otherwise extinguished claims of infringement for certain alleged infringers.

SEVENTH DEFENSE

ME2C's claims for relief are barred, in whole or in part, under the doctrine of patent exhaustion and/or other equitable principles, including to the extent that ME2C licensed, waived, released, entered covenants not to sue, or otherwise extinguished claims of infringement for certain alleged infringers.

EIGHTH DEFENSE

For the reasons discussed below, Plaintiff's claims for relief are barred, in whole or in part, under the doctrine of unclean hands, including to the extent that Plaintiff is asserting claims for infringement based on conduct that it has already licensed, released, waived, and/or covenanted not to sue which extinguished claims of infringement, and including for the reasons set forth in the Counterclaims.

NINTH DEFENSE

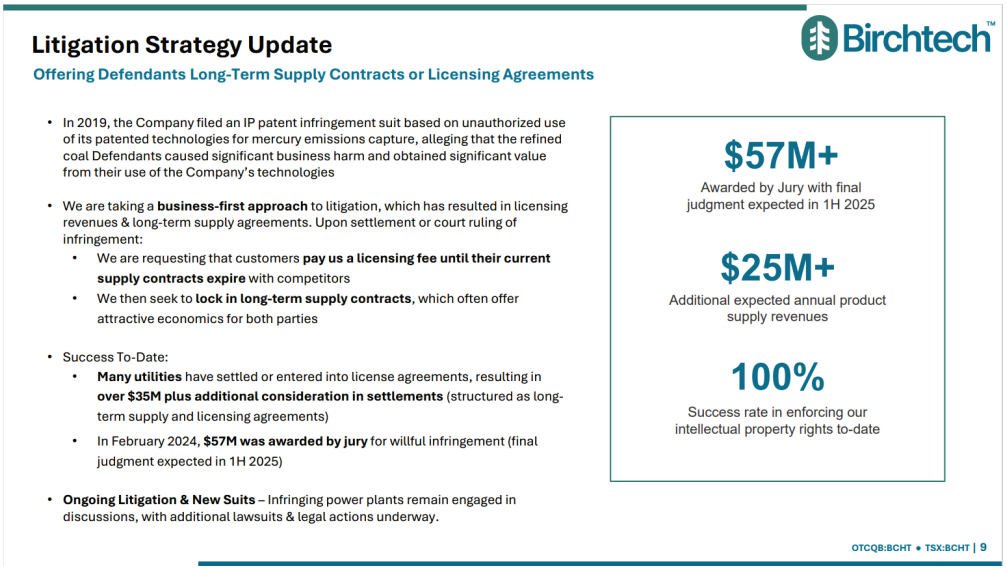
Each claim of the patents-in-suit is unenforceable due to Plaintiff's inequitable conduct, including in the prosecution of the '114 patent, including but not limited to failure to identify a material replacement of figures, failure to submit material prior art, failure to submit Patent Office decisions instituting *inter partes* review of the '114 patent, and submission of false statements to the Patent Office. The doctrine of infectious unenforceability further renders the remaining patents-in-suit unenforceable.

TENTH DEFENSE

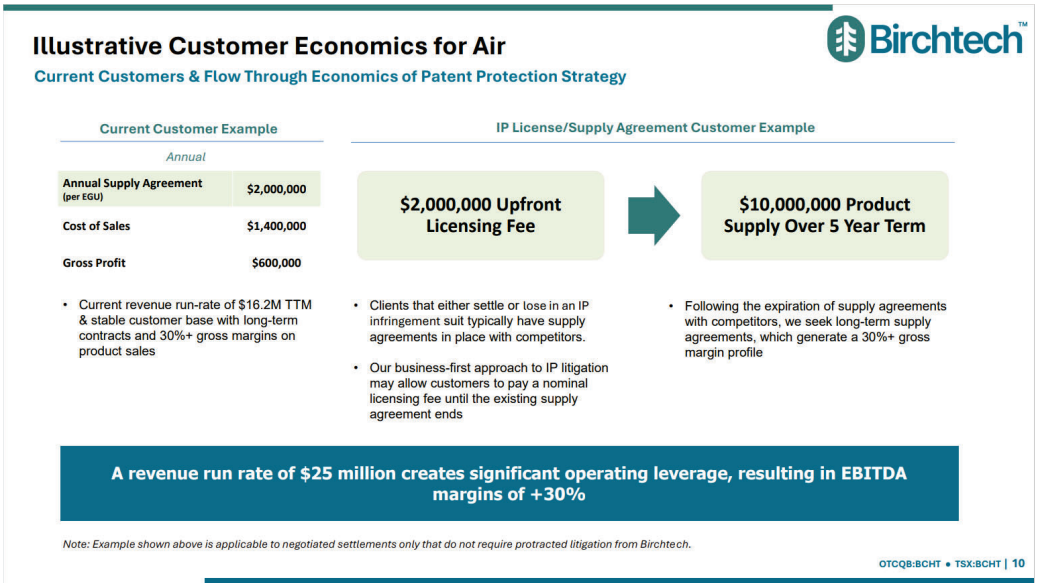
The patents-in-suit are unenforceable due to patent misuse. After obtaining the patents-in-suit, ME2C embarked on an anticompetitive campaign to control the market for certain (unpatented) bromine-containing chemicals and activated carbon, each of which are commodity chemicals used in the coal-fired power plant industry. ME2C used its patents to coerce plants,

operators, and owners to pay royalties to ME2C beyond the life of ME2C's patents and on its unpatented products regardless of whether ME2C's claimed methods were used.

ME2C's patent enforcement strategy disregards the expiration dates of the Patents-in-Suit, and instead seeks *long-term* (i.e., multi-year) supply contracts from accused infringers (https://d1io3yog0oux5.cloudfront.net/_74aacc51e214d2ee38fb8a241074a0ce/birchtech/db/230/2938/pdf/BCHT+February+2025+Investor+Presentation.pdf, Birchtech Investor Presentation, February 2025, at 9-10). As shown below, ME2C's "litigation strategy" includes its strategy to get "licensing fee until [the target entity's] current supply contracts expire with competitors" without regard for when ME2C's Patents-in-Suit expire. Leveraging its Patents-in-Suit, ME2C then "seek[s] to lock in long-term supply contracts" that are predicated on the misuse of its Patents-in-Suit. Indeed, as shown in the slide below, ME2C has successfully executed this strategy predicated on its patent misuse to generate "over $35M plus" in "long-term supply and licensing agreements" even though the Patents-in-Suit all expire within a few months (and a maximum of 13 months from the current period):



REDACTED PUBLIC VERSION



ME2C has offered and/or entered into agreements that would require accused infringers to make payment for conduct after the expiration of the Patents-in-Suit. As referenced in ME2C's investor presentation slide above, ME2C's "business-first approach to IP litigation may allow customers to pay a nominal licensing fee ***until the existing supply agreement ends***" without any regard to when ME2C's patent rights expire. An example of ME2C's patent misuse is evident from the manner in which it attempted to negotiate a patent license with Alliant Energy. On June 18, 2024, counsel for ME2C demanded that Alliant Energy (WPL's and IPL's parent) enter into a license in connection with WPL's Columbia power plant requiring "five (5) consecutive annual payments to ME2C each in the amount of $1,000,000.00, with the first payment due and payable thirty (30) days after the Effective Date, and subsequent payments due on May 1st of each year (with each payment being deemed payment for the calendar year preceding such payment)." The license demand required payments in 2024 (30 days after execution), followed by payments on May 1, 2025, May 1, 2026, May 1, 2027, and May 1, 2028.

Each of the Patents-in-Suit with the exception of the '370 patent expires in August of 2025. The '370 patent expires in April of 2026.[14] By demanding payments on the Patents-in-Suit after their expiration, ME2C has attempted to impermissibly broaden the temporal scope of the patent grant of the Patents-in-Suit in order to obtain a market advantage, with anticompetitive effect.

While ME2C asserts that it has rights to patents *other than the Patents-in-Suit* with later expiration dates, ME2C's demand to Alliant did not specify any patents other than the Patents-in-Suit. Nor did ME2C specify what the expiration dates of those patents are. And, on information and belief, ME2C has never asserted that WPL has infringed or is infringing any patents other than the Patents-in-Suit, much less any later-expiring patents. Thus, to the extent that ME2C is taking the position that its demand to Alliant does not seek payment for post-expiration activities because the license covers unasserted, later-expiring patents, ME2C is improperly trying to force an entity to take a license to its later-expiring patents, without any regard to whether that entity needs a license to any such later-expiring patent, in order for that entity to be able to license the patents that are alleged to be infringed. ME2C thus intends to leverage its patents to obtain payment for: (1) activities occurring after the expiration of the Patents-in-Suit; and (2) activities that are not even arguably covered by its later-expiring patents. ME2C's activities restrain competition in the market for mercury control technologies. ME2C has acknowledged that the "utility industry is a relatively small" market.[15] And ME2C has also admitted that it "is one of a small number of companies that provides bromine-containing additives and activated carbon sorbents for mercury

[14] As discussed in MidAmerican's Thirteenth Counterclaim (incorporated herein by reference), the '370 patent is invalid under the doctrine of obviousness-type double patenting based on at least claims 1 and 4 of the '114 patent. No valid terminal disclaimer was filed during prosecution of the '370 patent to disclaim the term of the '370 patent that extended beyond the term of the '114 patent. The '370 patent thus improperly extends the patent term.

[15] *See* Case 4:24-cv-00243-SHL-WPK, ECF No. 58-1 at 15.

REDACTED PUBLIC VERSION

control at coal-fired power plants."[16] As evidenced by ME2C's own filings, ME2C has market power in the market for mercury control technologies.

ME2C's license demand to Alliant did not merely defer payments for pre-expiration use of patents into the post-expiration period. To the contrary, the license demand expressly stated that each payment would be "deemed payment for the calendar year preceding such payment," i.e., 2023, 2024, 2025, 2026, and 2027. ME2C attempted to impermissibly broaden the temporal scope of the Patents-in-Suit with anticompetitive effect by demanding payment for activities after their expiration.

In addition, ME2C's license demand to Alliant was not tied to any non-patent rights. Rather, the subject heading of the communication was specifically directed to patent licensing: "ME2C/Alliant: Patent Licensing re Columbia Power Station."

Furthermore, Alliant would be required to pay higher license fees if it did not purchase (unpatented) products from ME2C, e.g., "should MPW [sic][17] purchase products or services from ME2C in 2024 in the amount of $1,000,000, the subsequent payment due on May 1, 2025 would be reduced by 20%." ME2C has thus attempted to impermissibly broaden the physical scope of the Patents-in-Suit with anticompetitive effect by seeking payment for products that ME2C knows are not covered by the patents. ME2C's June 18, 2024 email was a demand, not a negotiation: "Note that ME2C is not intending this to lead to extended back and forth on numbers."

Upon information and belief, ME2C has made similar offers to other entities as part of its anticompetitive patent enforcement campaign. WPL's investigation is ongoing, and WPL reserves

[16] *See* Case 4:24-cv-00243-SHL-WPK, ECF No. 59 at para 225.

[17] ME2C's accidental reference to "MPW" gives rise to an inference that ME2C was recycling old language from a license offer to another entity (likely Muscatine Power and Water) in its e-mail to Alliant, further suggesting that ME2C has offered similar licensing terms to other entities.

the right to assert additional bases for patent misuse as discovery progresses in this case. For example, ME2C has not produced all executed license agreements and has not produced any of its license offers to third parties or related correspondence to date.

[redacted][18]

In addition, on February 20, 2025, ME2C announced that it had secured a new agreement with a power utility that had been accused of infringement in the Arizona litigation.[19]

[18] ME2C also sells technology for water treatment, separate and apart from its mercury control technology. *See* https://www.birchtech.com/potable-water-treatment.

[19] ME2C has not yet produced this agreement to the defendants in this litigation.

https://d1io3yog0oux5.cloudfront.net/_74aacc51e214d2ee38fb8a241074a0ce/birchtech/news/2025-02-20_Birchtech_Secures_New_Agreement_with_Power_683.pdf. ME2C's announcement states (emphasis added) that: "We are happy to have reached a positive business outcome with this utility, which has and will continue to benefit from our patented technologies *for a number of years*." *Id.* The patents asserted in the Arizona litigation are the same as the Patents-in-Suit here (the '114 patent, '225 patent, '517 patent, '430 patent, and '370 patent), which expire in 2025 and 2026, at the latest. *See Midwest Energy Emissions Corp. v. Tucson Electric Power Co. et al.*, D. Ariz. Case No. 24-cv-08145, Docket No. 1 (Complaint) ¶¶ 13-17. It is thus reasonable to infer that the executed agreement—which covers "a number of years"—extends beyond the expiration of the patents that are practiced by the accused infringer.

[redacted]

In addition to impermissibly broadening the temporal scope of ME2C's patent rights, ME2C has created anticompetitive effects through its improper licensing practices by tying the license demand to the purchase of ME2C's non-patented products. Indeed, by structuring its licensing demand in a manner where a licensee must purchase ME2C's non-patented products to reduce the overall license payment, the prospective licensee's choice ***not*** to purchase ME2C's products acts, in essence, as a penalty for conduct completely unrelated to ME2C's patent rights.

[20] MidAmerican is not quoting from or attaching the term sheet because ME2C requested this not be shared with other defendants, but did not limit MidAmerican's ability to plead this defense and makes this pleading to preserve its defense.

ME2C has misused its patent rights by executing and attempting to execute settlement and licensing agreements for the Patents-in-Suit with terms that have an anticompetitive effect and unlawfully restrain competition in the relevant market.

ME2C has misused the Patents-in-Suit to obtain market benefit beyond that which resides in the statutory patent right. Upon information and belief, ME2C's misuse of the Patents-in-Suit hinders and/or prevents the entry of competitors in the relevant market, and, therefore, is done in a manner that has anticompetitive effects. The Patents-in-Suit are therefore unenforceable due to ME2C's patent misuse. MidAmerican further incorporates by reference, as if set forth fully herein, patent misuse defenses pled by Defendants PacifiCorp, Interstate Power and Light, and Wisconsin Power and Light that are filed concurrently.

ELEVENTH DEFENSE

MidAmerican is a supplier of electricity to several U.S. government facilities. Any alleged infringement by MidAmerican that results in supply of electricity to U.S. government facilities is in contravention of 28 U.S.C. § 1498 and no remedy can be sought by the Plaintiff for such acts in this action.

RIGHT TO AMEND DEFENSES

MidAmerican reserves the right to assert additional defenses in the event that discovery or other analysis indicates that additional defenses are appropriate.

MIDAMERICAN'S COUNTERCLAIMS

Further responding to the First Amended Complaint, MidAmerican alleges the following counterclaims, without admitting any allegations of the First Amended Complaint not otherwise admitted and without assuming the burden when such burden would otherwise be on ME2C.

PARTIES

1. Defendant MidAmerican Energy Company ("MidAmerican") is an Iowa corporation with a principal place of business at 666 Grand Avenue, Des Moines, Iowa 50309. MidAmerican Energy Company has designated C T Corporation System, 400 E Court Ave, Ste. 100, Des Moines, IA, 50309, as its agent for service of process.

2. Midwest Energy Emissions Corp. ("ME2C") is a Delaware corporation with its principal place of business at 1810 Jester Drive, Corsicana, Texas 75109.

3. ME2C alleges that MidAmerican infringes the U.S. Patent Nos. 10,343,114 (the "'114 patent"), 10,589,225 (the "'225 patent"), 10,596,517 (the "'517 patent"), 10,668,430 (the "'430 patent"), 10,926,218 (the "'218 patent"), and 10,933,370 (the "'370 patent") (collectively, the "Asserted Patents" or "Patents-in-Suit") at certain power plants, such as the George Neal, Walter Scott, and Louisa plants (the Accused Plants).

4. MidAmerican does not infringe any valid or enforceable claim of the Patents-in-Suit and seeks a declaratory judgement to clear itself of the allegations cast by ME2C over MidAmerican and its products and services.

5. MidAmerican seeks a declaratory judgment that it does not infringe any valid or enforceable claim of the Patents-in-Suit.

6. This relief is necessary because ME2C has (a): asserted ownership of the Patents-in-Suit; and (b) accused MidAmerican of infringing the Patents-in-Suit.

7. MidAmerican denies that it infringed any claim of the Patents-in-Suit. Therefore, an actual controversy exists between MidAmerican and ME2C.

8. Each of the six Patents-in-Suit identify John Pavlish, Michael Holmes, and Edwin Olson as inventors (hereinafter "named inventors").

9. Named inventor John Pavlish is currently the Senior Vice President of ME2C.

10. Named inventor John Pavlish is currently the Chief Technology Officer of ME2C.

11. On information and belief, John Pavlish has been the Chief Technology Officer and Senior Vice President of ME2C since November 2014.

12. Named inventor John Pavlish was a Senior Research Advisor and Director of Center for Air Toxic Metals (**"CATM"**) at the Energy & Environmental Research Center (**"EERC"**) at the University of North Dakota.

13. From at least March 2006 through November 2011, John Pavlish was Technical Director for the Center for Air Toxic Metals (**"CATM"**) at the University of North Dakota Energy & Environmental Research Center.[21]

14. Named inventor Michael Holmes has been retained by ME2C to assist with the litigation.

15. In its Initial Disclosures served pursuant to Fed. R. Civ. P. 26(a)(1), Plaintiffs have identified Michael Holmes as an individual likely to have discoverable information and provided "Contact through counsel for ME2C" as contact information.

16. From at least March 2006 through November 2011, Michael Holmes was manager of the "Control Technologies" program area for CATM.[22]

17. Named inventor Edwin Olson has been retained by ME2C to assist with the litigation.

[21] https://web.archive.org/web/20060113103347/http://www.undeerc.org/catm/area3_catm.htm.

[22] https://web.archive.org/web/20060113103347/http://www.undeerc.org/catm/area3_catm.htm; https://web.archive.org/web/20111110031030/http://www.undeerc.org/catm/area3_catm.htm.

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18. In its Initial Disclosures served pursuant to Fed. R. Civ. P. 26(a)(1), Plaintiffs have identified Edwin Olson as an individual likely to have discoverable information and provided "Contact through counsel for ME2C" as contact information.

JURISDICTION AND VENUE

19. This is an action for declaratory judgment of invalidity of the Patents-in-Suit arising under the patent laws of the United States, 35 U.S.C. § 1 et seq., and the Declaratory Judgment Act, 28 U.S.C. §§ 2201-2202.

20. ME2C alleges that MidAmerican infringes the Asserted Patents at certain power plants, such as the George Neal, Walter Scott, and Louisa plants (the Accused Plants).

21. MidAmerican owns and operates the Accused Plants.

22. This Court has subject-matter jurisdiction over MidAmerican's Counterclaims under 28 U.S.C. §§ 1331 and 1338(a).

23. Venue is proper in this judicial district under 28 U.S.C. §§ 1391(b) and 1391(c).

24. ME2C has consented to personal jurisdiction and venue in this District by filing suit against MidAmerican in this Court.

25. Based on ME2C's filing of its First Amended Complaint, an actual, substantial, and continuing justiciable controversy exists between MidAmerican and ME2C regarding the validity of the Asserted Patents.

COUNTERCLAIM 1
BREACH OF SETTLEMENT AGREEMENT AND COVENANT NOT TO SUE

26. MidAmerican fully incorporates the preceding paragraphs as if set forth fully in this section.

27. In July 2019, ME2C filed a complaint for patent infringement in the United States District Court for the District of Delaware.

28. On January 15, 2021, ME2C entered into a confidential settlement agreement resolving the Delaware Case as to certain Defendants. *See* Exhibit 2 (the "Talen Agreement").

29. The Talen Agreement was entered into between ME2C and Brandon Shores LLC, Talen Generation LLC, Talen Montana, LLC, and H.A. Wagner LLC.

30. The Talen Agreement included a [redacted] regarding the '114 patent, the '225 patent, the '517 patent, the '430 patent, the '218 patent, and the '370 patent. [redacted]

31. [redacted]

[redacted]

32. [redacted]

[redacted]

[redacted]

33. [redacted]

[redacted]

34. [redacted]

[redacted]

[redacted]

35. [redacted]

[redacted]

36. [redacted]



37.

38.

39.

40.

41.

42. [redacted]

43. [redacted]

44. [redacted]

45. [redacted]

46. [redacted]

47. [redacted]

48. PacifiCorp was a co-owner of the Colstrip Plant since before the Talen License Agreement was executed. *See* Exhibit 3[23] (identifying Colstrip plant); *see also* Exhibit 4;[24] Exhibit 5.[25]

49. PacifiCorp remains a co-owner of the Colstrip power plant today. *See* Exhibit 3 (identifying Colstrip plant); *see also* Exhibit 4; Exhibit 5.

50. [redacted]

[23] https://www.pacificorp.com/energy/thermal.html.

[24] https://www.colstripfacts.com/faqs.

[25] https://www.talenenergy.com/plant/colstrip-steam-electric-station/.

51. MidAmerican is an affiliate of PacifiCorp under the plain meaning of the term and is including within the definition provided in [redacted] of the Talen Agreement. *See* [redacted]; Case No. 4:24-cv-00243-SHL-WPK, ECF 40 (Defendant Berkshire Hathaway Energy Company's Disclosure of Corporate Interests; Case No. 4:24-cv-00243-SHL-WPK, ECF 92-2 (Form 10-K).

52. As an affiliate of PacifiCorp, and BHE, MidAmerican [redacted]

53. MidAmerican is one of the entities that ME2C [redacted]

54. [redacted]

55. [redacted]

56. [redacted]

57. By filing the instant suit against MidAmerican, ME2C breached and/or violated its [redacted] found in the Talen Agreement. *See* [redacted]

58. By maintaining the instant suit against MidAmerican, ME2C is continuing to breach and/or violate its [redacted]. *See* [redacted]

59. By filing the instant suit against MidAmerican and seeking past damages, ME2C breached and/or violated the [redacted] it granted to the [redacted] from the Talen Agreement. *See* [redacted]

60. By maintaining the instant suit against MidAmerican and seeking past damages, ME2C is continuing to breach and/or violate the [redacted] it granted to [redacted] of the Talen Agreement. *See* [redacted]

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61. By filing the instant suit against MidAmerican and seeking losses, damages, attorneys' fees, court costs, or any other form of claim or compensation for known and unknown acts, ME2C breached and/or violated the [redacted] it granted to [redacted] of the Talen Agreement. *See* [redacted]

62. By maintaining the instant suit against MidAmerican and seeking losses, damages, attorneys' fees, court costs, or any other form of claim or compensation for known and unknown acts, ME2C is continuing to breach and/or violate the [redacted] it granted to [redacted] of the Talen Agreement. *See* [redacted]

63. By filing and maintaining the instant suit against MidAmerican, ME2C has caused harm and damage to MidAmerican.

64. As a result of ME2C's breach and violation of the Talen Agreement, MidAmerican is entitled to damages and an injunction against ME2C.

COUNTERCLAIM 2
DECLARATORY JUDGMENT OF NON-INFRINGEMENT OF U.S. PATENT NO. 10,343,114

65. MidAmerican fully incorporates the preceding paragraphs as if set forth fully in this section.

66. ME2C has asserted that it is the owner of the '114 patent.

67. ME2C has alleged that certain activities and services of MidAmerican at the Accused Plants infringe at least one claim of the '114 patent.

68. As a result of the acts described in the preceding paragraphs, there exists a controversy of sufficient immediacy and reality regarding whether MidAmerican infringes any claim of the '114 patent.

69. 35 U.S.C. 271(a) states that "(a) Except as otherwise provided in this title, whoever without authority makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent therefor, infringes the patent."

70. MidAmerican has not infringed, directly or indirectly, literally or under the doctrine of equivalents, willfully or otherwise, any valid or enforceable claim of the '114 patent by or through making, using, offering for sale, selling within the United States and/or its importing products and/or services.

71. MidAmerican does not infringe any claim of the '114 patent at least because ME2C granted authority to MidAmerican to make, use, offer to sell or sell the alleged invention in the '114 patent when it granted MidAmerican a [redacted]. MidAmerican fully incorporates the paragraphs set for regarding Counterclaim 1.

72. ME2C had a duty to not identify [redacted], which includes MidAmerican, for any purpose as infringing in whole or in party any claim of any patent-in-Suit.

73. Per the terms of the Talen Agreement, MidAmerican has authority to make, use, sell or offer to sell the alleged invention in [redacted] which specifically includes the '114 patent. *See* [redacted]

74. In addition, exemplary claim 1 of the '114 patent states:

> 1. A method of separating mercury from a mercury-containing gas, the method comprising:
>
> combusting coal in a combustion chamber, to provide the mercury-containing gas, wherein the mercury-containing gas comprises a halogen or halide promoter comprising HBr, Br^-, or a combination thereof, wherein

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> the coal comprises added Br_2, HBr, Br^-, or a combination thereof, added to the coal upstream of the combustion chamber, or
>
> the combustion chamber comprises added Br_2, HBr, Br^-, or a combination thereof, or
>
> a combination thereof;
>
> injecting a sorbent material comprising activated carbon into the mercury-containing gas downstream of the combustion chamber;
>
> contacting mercury in the mercury-containing gas with the sorbent, to form a mercury/sorbent composition;
>
> separating the mercury/sorbent composition from the mercury-containing gas, to form a cleaned gas;
>
> monitoring the mercury content of the cleaned gas; and
>
> controlling, in response to the monitored mercury content of the cleaned gas, an injection rate of injecting the sorbent into the mercury-containing gas, the sorbent composition, or a combination thereof, so that the mercury content of the cleaned gas is maintained at or below a desired level.

75. For the reasons stated in MidAmerican's Answer, *see* ¶¶ 244, 246, 248, 250–51, MidAmerican does not infringe claim 1 of the '114 patent.

76. Moreover, MidAmerican has not infringed, directly or indirectly, literally or under the doctrine of equivalents, willfully or otherwise, any valid or enforceable claim of the '114 patent by or through making, using, offering for sale, selling within the United States and/or its importing products and/or services at least because it does not perform "combusting coal in a combustion chamber, to provide the mercury-containing gas, wherein the mercury-containing gas comprises a halogen or halide promoter comprising HBr, Br−, or a combination thereof, wherein the coal comprises added Br2, HBr, Br−, or a combination thereof, added to the coal upstream of the combustion chamber," or "separating the mercury/sorbent composition from the mercury-containing gas, to form a cleaned gas," or "monitoring the mercury content of the cleaned gas; and

controlling, in response to the monitored mercury content of the cleaned gas, an injection rate of injecting the sorbent into the mercury-containing gas, the sorbent composition, or a combination thereof, so that the mercury content of the cleaned gas is maintained at or below a desired level."

77. There is an actual, substantial, continuing, and justiciable controversy between MidAmerican and ME2C regarding whether MidAmerican infringes, directly or indirectly, literally or under the doctrine of equivalents, willfully or otherwise, any valid or enforceable claim of the '114 patent.

78. Accordingly, MidAmerican is entitled to a declaratory judgment that MidAmerican does not infringe, directly or indirectly, literally or under the doctrine of equivalents, willfully or otherwise, any valid or enforceable claim of the '114 patent.

COUNTERCLAIM 3
DECLARATORY JUDGMENT OF NON-INFRINGEMENT OF U.S. PATENT NO. 10,596,517

79. MidAmerican fully incorporates the preceding paragraphs as if set forth fully in this section.

80. ME2C has asserted that it is the owner of the '517 patent.

81. ME2C has alleged that certain activities and services of MidAmerican at the Accused Plants infringe at least one claim of the '517 patent.

82. As a result of the acts described in the preceding paragraphs, there exists a controversy of sufficient immediacy and reality regarding whether MidAmerican infringes any claim of the '517 patent.

83. 35 U.S.C. 271(a) states that "(a) Except as otherwise provided in this title, whoever without authority makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent therefor, infringes the patent."

84. MidAmerican has not infringed, directly or indirectly, literally or under the doctrine of equivalents, willfully or otherwise, any valid or enforceable claim of the '517 patent by or through making, using, offering for sale, selling within the United States and/or its importing products and/or services.

85. MidAmerican does not infringe any claim of the '517 patent at least because ME2C granted authority to MidAmerican to make, use, offer to sell or sell the alleged invention in the '517 patent when it granted MidAmerican a [redacted] MidAmerican fully incorporates the paragraphs set for regarding Counterclaim 1.

86. ME2C had a duty to not identify [redacted], which includes MidAmerican, for any purpose as infringing in whole or in party any claim of any patent-in-suit.

87. Per the terms of the Talen Agreement, MidAmerican has authority to make, use, sell or offer to sell the alleged invention in [redacted] which specifically includes the '517 patent. *See* Talen Agreement at [redacted].

88. In addition, exemplary claim 1 of the '517 patent states:

> 1. A method for reducing mercury in a mercury-containing gas, the method comprising:
>
> combusting coal in a combustion chamber, the coal comprising an additive comprising Br_2, HBr, a bromide compound, or a combination thereof, to form the mercury-containing gas; and
>
> collecting mercury in the mercury-containing gas with a sorbent added to the mercury-containing gas, the sorbent comprising activated carbon.

89. For the reasons stated in MidAmerican's Answer, *see* ¶¶ 262, 264, 266, MidAmerican does not infringe claim 1 of the '517 patent.

90. Moreover, MidAmerican has not infringed, directly or indirectly, literally or under the doctrine of equivalents, willfully or otherwise, any valid or enforceable claim of the '517 patent

by or through making, using, offering for sale, selling within the United States and/or its importing products and/or services at least because it does not perform "combusting coal in a combustion chamber, the coal comprising an additive comprising Br2, HBr, a bromide compound, or a combination thereof, to form the mercury-containing gas," or "collecting mercury in the mercury-containing gas with a sorbent added to the mercury-containing gas, the sorbent comprising activated carbon."

91. There is an actual, substantial, continuing, and justiciable controversy between MidAmerican and ME2C regarding whether MidAmerican infringes, directly or indirectly, literally or under the doctrine of equivalents, willfully or otherwise, any valid or enforceable claim of the '517 patent.

92. Accordingly, MidAmerican is entitled to a declaratory judgment that MidAmerican does not infringe, directly or indirectly, literally or under the doctrine of equivalents, willfully or otherwise, any valid or enforceable claim of the '517 patent.

COUNTERCLAIM 4
DECLARATORY JUDGMENT OF NON-INFRINGEMENT OF U.S. PATENT NO. 10,589,225

93. MidAmerican fully incorporates the preceding paragraphs as if set forth fully in this section.

94. ME2C has asserted that it is the owner of the '225 patent.

95. ME2C has alleged that certain activities and services of MidAmerican at the Accused Plants infringe at least one claim of the '225 patent.

96. As a result of the acts described in the preceding paragraphs, there exists a controversy of sufficient immediacy and reality regarding whether MidAmerican infringes any claim of the '225 patent.

97. 35 U.S.C. 271(a) states that "(a) Except as otherwise provided in this title, whoever without authority makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent therefor, infringes the patent."

98. MidAmerican has not infringed, directly or indirectly, literally or under the doctrine of equivalents, willfully or otherwise, any valid or enforceable claim of the '225 patent by or through making, using, offering for sale, selling within the United States and/or its importing products and/or services.

99. MidAmerican does not infringe any claim of the '225 patent at least because ME2C granted authority to MidAmerican to make, use, offer to sell or sell the alleged invention in the '225 patent when it granted MidAmerican a [redacted]. MidAmerican fully incorporates the paragraphs set for regarding Counterclaim 1.

100. ME2C had a duty to not identify [redacted], which includes MidAmerican, for any purpose as infringing in whole or in party any claim of any patent-in-suit.

101. Per the terms of the Talen Agreement, MidAmerican has authority to make, use, sell or offer to sell the alleged invention in [redacted] which specifically includes the '225 patent. *See* Talen Agreement at [redacted]

102. In addition, exemplary claim 1 of the '225 patent states:

> 1. A method for treating a mercury-containing gas, the method comprising:
>
> combusting a mixture comprising coal, pyrolysis char, and an additive comprising HBr, a bromide compound, or a combination thereof, to form the mercury-containing, gas; and
>
> adding a particulate sorbent material comprising activated carbon into the mercury-containing gas.

103. For the reasons stated in MidAmerican's Answer, *see* ¶¶ 278, 280, 282, MidAmerican does not infringe claim 1 of the '225 patent.

104. Moreover, MidAmerican has not infringed, directly or indirectly, literally or under the doctrine of equivalents, willfully or otherwise, any valid or enforceable claim of the '225 patent by or through making, using, offering for sale, selling within the United States and/or its importing products and/or services at least because it does not perform "combusting a mixture comprising coal, pyrolysis char, and an additive comprising HBr, a bromide compound, or a combination thereof, to form the mercury-containing, gas" or "adding a particulate sorbent material comprising activated carbon into the mercury-containing gas."

105. There is an actual, substantial, continuing, and justiciable controversy between MidAmerican and ME2C regarding whether MidAmerican infringes, directly or indirectly, literally or under the doctrine of equivalents, willfully or otherwise, any valid or enforceable claim of the '225 patent.

106. Accordingly, MidAmerican is entitled to a declaratory judgment that MidAmerican does not infringe, directly or indirectly, literally or under the doctrine of equivalents, willfully or otherwise, any valid or enforceable claim of the '225 patent.

COUNTERCLAIM 5
DECLARATORY JUDGMENT OF NON-INFRINGEMENT OF U.S. PATENT NO. 10,668,430

107. MidAmerican fully incorporates the preceding paragraphs as if set forth fully in this section.

108. ME2C has asserted that it is the owner of the '430 patent.

109. ME2C has alleged that certain activities and services of MidAmerican at the Accused Plants infringe at least one claim of the '430 patent.

110. As a result of the acts described in the preceding paragraphs, there exists a controversy of sufficient immediacy and reality regarding whether MidAmerican infringes any claim of the ’430 patent.

111. 35 U.S.C. 271(a) states that “(a) Except as otherwise provided in this title, whoever without authority makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent therefor, infringes the patent.”

112. MidAmerican has not infringed, directly or indirectly, literally or under the doctrine of equivalents, willfully or otherwise, any valid or enforceable claim of the ’430 patent by or through making, using, offering for sale, selling within the United States and/or its importing products and/or services.

113. MidAmerican does not infringe any claim of the ’430 patent at least because ME2C granted authority to MidAmerican to make, use, offer to sell or sell the alleged invention in the ’430 patent when it granted MidAmerican a [redacted]. MidAmerican fully incorporates the paragraphs set for regarding Counterclaim 1.

114. ME2C had a duty to not identify [redacted], which includes MidAmerican, for any purpose as infringing in whole or in party any claim of any patent-in-suit.

115. Per the terms of the Talen Agreement, MidAmerican has authority to make, use, sell or offer to sell the alleged invention in [redacted] which specifically includes the ’430 patent. *See* Talen Agreement at [redacted]

116. In addition, exemplary Claim 1 of the ’430 patent states:

> 1. A method of separating mercury from a mercury-containing gas, the method comprising:

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> combusting coal in a combustion chamber, to provide the mercury-containing gas, wherein
>
> > the coal comprises an additive comprising Br_2, HBr, a bromide compound, or a combination thereof, wherein the additive is added to the coal before the coal enters the combustion chamber, or
> >
> > the combustion chamber comprises an additive comprising Br_2, HBr, a bromide compound, or a combination thereof or
> >
> > a combination thereof;
>
> injecting a sorbent comprising activated carbon into the mercury-containing gas downstream of the combustion chamber;
>
> contacting mercury in the mercury-containing gas with the sorbent; and
>
> separating the sorbent contacted with the mercury from the mercury-containing gas.

117. For the reasons stated in MidAmerican's Answer, *see* ¶¶ 294, 296, 298, 300, 302, MidAmerican does not infringe claim 1 of the '430 patent.

118. Moreover, MidAmerican has not infringed, directly or indirectly, literally or under the doctrine of equivalents, willfully or otherwise, any valid or enforceable claim of the '430 patent by or through making, using, offering for sale, selling within the United States and/or its importing products and/or services at least because it does not perform "combusting coal in a combustion chamber, to provide the mercury-containing gas, wherein the coal comprises an additive comprising Br2, HBr, a bromide compound, or a combination thereof, wherein the additive is added to the coal before the coal enters the combustion chamber" or "injecting a sorbent comprising activated carbon into the mercury-containing gas downstream of the combustion chamber."

119. There is an actual, substantial, continuing, and justiciable controversy between MidAmerican and ME2C regarding whether MidAmerican infringes, directly or indirectly,

literally or under the doctrine of equivalents, willfully or otherwise, any valid or enforceable claim of the ’430 patent.

120. Accordingly, MidAmerican is entitled to a declaratory judgment that MidAmerican does not infringe, directly or indirectly, literally or under the doctrine of equivalents, willfully or otherwise, any valid or enforceable claim of the ’430 patent.

COUNTERCLAIM 6
DECLARATORY JUDGMENT OF NON-INFRINGEMENT OF U.S. PATENT NO. 10,926,218

121. MidAmerican fully incorporates the preceding paragraphs as if set forth fully in this section.

122. ME2C has asserted that it is the owner of the ’218 patent.

123. ME2C has alleged that certain activities and services of MidAmerican at the Accused Plants infringe at least one claim of the ’218 patent.

124. As a result of the acts described in the preceding paragraphs, there exists a controversy of sufficient immediacy and reality regarding whether MidAmerican infringes any claim of the ’218 patent.

125. 35 U.S.C. 271(a) states that “(a) Except as otherwise provided in this title, whoever without authority makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent therefor, infringes the patent.”

126. MidAmerican has not infringed, directly or indirectly, literally or under the doctrine of equivalents, willfully or otherwise, any valid or enforceable claim of the ’218 patent by or through making, using, offering for sale, selling within the United States and/or its importing products and/or services.

127. MidAmerican does not infringe any claim of the '218 patent at least because ME2C granted authority to MidAmerican to make, use, offer to sell or sell the alleged invention in the '218 patent when it granted MidAmerican a [redacted]. MidAmerican fully incorporates the paragraphs set for regarding Counterclaim 1.

128. ME2C had a duty to not identify [redacted], which includes MidAmerican, for any purpose as infringing in whole or in party any claim of any patent-in-suit.

129. Per the terms of the Talen Agreement, MidAmerican has authority to make, use, sell or offer to sell the alleged invention in [redacted] which specifically includes the '218 patent. *See* Talen Agreement at [redacted]

130. In addition, exemplary claim 1 of the '218 patent states:

> 1. A method of separating mercury from a mercury-containing gas, the method comprising:
>
> combusting coal in a combustion chamber, to provide the mercury-containing gas, wherein
>
> the coal comprises added HI, an iodide salt, or a combination thereof, added to the coal before the coal enters the combustion chamber, or
>
> the combustion chamber comprises added HI, an iodide salt, or a combination thereof, or
>
> a combination thereof;
>
> injecting a sorbent comprising activated carbon into the mercury-containing gas downstream of the combustion chamber, wherein a weight ratio of the HI, iodide salt, or the combination thereof added to the coal, added to the combustion chamber, or a combination thereof, to an amount of the sorbent injected into the mercury-containing gas is from about 1:100 to about 30:100;
>
> contacting mercury in the mercury-containing gas with the sorbent; and
>
> separating the sorbent contacted with the mercury from the mercury-containing gas.

131. For the reasons stated in MidAmerican's Answer, *see* ¶¶ 312, 315, 317, 319, 321, 323, MidAmerican does not infringe claim 1 of the '218 patent.

132. Moreover, MidAmerican has not infringed, directly or indirectly, literally or under the doctrine of equivalents, willfully or otherwise, any valid or enforceable claim of the '218 patent by or through making, using, offering for sale, selling within the United States and/or its importing products and/or services at least because it does not perform "combusting coal in a combustion chamber, to provide the mercury-containing gas, wherein the coal comprises added HI, an iodide salt, or a combination thereof, added to the coal before the coal enters the combustion chamber" or "injecting a sorbent comprising activated carbon into the mercury-containing gas downstream of the combustion chamber, wherein a weight ratio of the HI, iodide salt, or the combination thereof added to the coal, added to the combustion chamber, or a combination thereof, to an amount of the sorbent injected into the mercury-containing gas is from about 1:100 to about 30:100."

133. There is an actual, substantial, continuing, and justiciable controversy between MidAmerican and ME2C regarding whether MidAmerican infringes, directly or indirectly, literally or under the doctrine of equivalents, willfully or otherwise, any valid or enforceable claim of the '218 patent.

134. Accordingly, MidAmerican is entitled to a declaratory judgment that MidAmerican does not infringe, directly or indirectly, literally or under the doctrine of equivalents, willfully or otherwise, any valid or enforceable claim of the '218 patent.

COUNTERCLAIM 7
DECLARATORY JUDGMENT OF NON-INFRINGEMENT OF U.S. PATENT NO. 10,933,370

135. MidAmerican fully incorporates the preceding paragraphs as if set forth fully in this section.

136. ME2C has asserted that it is the owner of the '370 patent.

137. ME2C has alleged that certain activities and services of MidAmerican at the Accused Plants infringe at least one claim of the ’370 patent.

138. As a result of the acts described in the preceding paragraphs, there exists a controversy of sufficient immediacy and reality regarding whether MidAmerican infringes any claim of the ’370 patent.

139. 35 U.S.C. 271(a) states that “(a) Except as otherwise provided in this title, whoever without authority makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent therefor, infringes the patent.”

140. MidAmerican has not infringed, directly or indirectly, literally or under the doctrine of equivalents, willfully or otherwise, any valid or enforceable claim of the ’370 patent by or through making, using, offering for sale, selling within the United States and/or its importing products and/or services.

141. MidAmerican does not infringe any claim of the ’370 patent at least because ME2C granted authority to MidAmerican to make, use, offer to sell or sell the alleged invention in the ’370 patent when it granted MidAmerican a [redacted]. MidAmerican fully incorporates the paragraphs set for regarding Counterclaim 1.

142. ME2C had a duty to not identify [redacted], which includes MidAmerican, for any purpose as infringing in whole or in party any claim of any patent-in-suit.

143. Per the terms of the Talen Agreement, MidAmerican has authority to make, use, sell or offer to sell the alleged invention in [redacted] which specifically includes the ’370 patent. *See* Talen Agreement at [redacted].

144. In addition, claim 1 of the ’370 patent states:

> 1. A method for separating mercury from a mercury-containing gas, the method comprising:
>
> combusting a mixture of coal and an additive in a combustion chamber, to form the mercury-containing gas, wherein the additive is chosen from halides, halogens, salts thereof, and combinations thereof;
>
> adding a particulate sorbent material comprising activated carbon into the mercury-containing gas, wherein a weight ratio of the additive added to the coal, added to the combustion chamber, or a combination thereof, to an amount of the sorbent material added to the mercury-containing gas is from about 1:100 to about 30:100;
>
> contacting mercury in the mercury-containing gas with the sorbent material, to form a mercury-sorbent; and
>
> separating the mercury-sorbent from the mercury-containing gas.

145. For the reasons stated in MidAmerican's Answer, *see* ¶¶ 335, 337, 339, 341, 343, MidAmerican does not infringe claim 1 of the '370 patent.

146. Moreover, MidAmerican has not infringed, directly or indirectly, literally or under the doctrine of equivalents, willfully or otherwise, any valid or enforceable claim of the '370 patent by or through making, using, offering for sale, selling within the United States and/or its importing products and/or services at least because it does not perform "combusting a mixture of coal and an additive in a combustion chamber, to form the mercury-containing gas, wherein the additive is chosen from halides, halogens, salts thereof, and combinations thereof" or "adding a particulate sorbent material comprising activated carbon into the mercury-containing gas, wherein a weight ratio of the additive added to the coal, added to the combustion chamber, or a combination thereof, to an amount of the sorbent material added to the mercury-containing gas is from about 1:100 to about 30:100."

147. There is an actual, substantial, continuing, and justiciable controversy between MidAmerican and ME2C regarding whether MidAmerican infringes, directly or indirectly,

literally or under the doctrine of equivalents, willfully or otherwise, any valid or enforceable claim of the ’370 patent.

148. Accordingly, MidAmerican is entitled to a declaratory judgment that MidAmerican does not infringe, directly or indirectly, literally or under the doctrine of equivalents, willfully or otherwise, any valid or enforceable claim of the ’370 patent.

COUNTERCLAIM 8
DECLARATORY JUDGMENT OF INVALIDITY OF THE ’114 PATENT

149. MidAmerican fully incorporates the preceding paragraphs as if set forth fully in this section.

150. ME2C has asserted the ’114 patent against MidAmerican.

151. One or more claims of the ’114 patent is invalid for failure to satisfy one or more of the conditions of patentability set forth in Title 35 of the United States Code, including, but not limited to, §§ 102, 103, and/or 112, and/or the impermissible recapture of surrendered subject matter.

152. For example, the ’114 patent is invalid over the following prior art: (1) U.S. Patent Publication No. 2004/0013589 to Vosteen et al. (filed July 24, 2002) (“Vosteen589”); (2) U.S. Patent Pub. No. 2008/0107579 to Downs et al. (published May 8, 2008) (“Downs-Boiler”); (3) U.S. Patent Prov. App. No. 60/555,353 (filed Mar. 22, 2004) (“Downs-Boiler-Provisional”); (4) 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 95th Annual Conference (Balt., Md.: June 23-27, 2002) (“Starns”); (5) Massachusetts Department 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"), https://web.archive.org/web/20030411074158/http:/www.state.ma.us/dep/bwp/daqc/files/mercfeas.pdf; (5) 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, Ariz.: Jan. 25, 2005) ("Sjostrom"); (6) 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, Ariz.: Jan. 25, 2005) ("Eckberg"); (7) U.S. Patent Pub. No. 2006/0048646 to Olson et al. (published Mar. 9, 2006) ("Olson-646"); (8) U.S. Patent No. 6,953,494 to Nelson (filed May 6, 2003) ("Nelson"); and (9) U.S. Patent No. 7,514,052 to Lissianski et al. (filed Apr. 7, 2009) ("Lissianski") (collectively, the "'114 IPR References").

153. As further discussed in IPR2025-00274, these references invalidate the '114 patent because they disclose a method of separating mercury from a mercury-containing gas.

154. The '114 IPR References further disclose combusting coal in a combustion chamber, to provide the mercury-containing gas, wherein the mercury-containing gas comprises a halogen or halide promoter comprising HBr, Br-, or a combination thereof, wherein the coal comprises added Br2, HBr, Br-, or a combination thereof, added to the coal upstream of the combustion chamber, or the combustion chamber comprises added Br2, HBr, Br-, or a combination thereof, or a combination thereof.

155. The '114 IPR References further disclose injecting a sorbent material comprising activated carbon into the mercury-containing gas downstream of the combustion chamber; contacting mercury in the mercury-containing gas with the sorbent, to form a mercury/sorbent composition,

156. The ’114 IPR References further disclose injecting a sorbent material comprising activated carbon into the mercury-containing gas downstream of the combustion chamber; contacting mercury in the mercury-containing gas with the sorbent, to form a mercury/sorbent composition.

157. The ’114 IPR References further disclose separating the mercury/sorbent composition from the mercury-containing gas, to form a cleaned gas.

158. The ’114 IPR References further disclose monitoring the mercury content of the cleaned gas.

159. The ’114 IPR References further disclose controlling, in response to the monitored mercury content of the cleaned gas, an injection rate of injecting the sorbent into the mercury-containing gas, the sorbent composition, or a combination thereof, so that the mercury content of the cleaned gas is maintained at or below a desired level.

160. Thus, the ’114 IPR References disclose at least every element of claim 1 of the ’114 patent.

161. Further, the claims of the ’114 patent are invalid at least for the reasons additionally set forth in in the petitions filed in PTAB Case Nos. IPR2020-00832, IPR2020-00834, IPR2020-00926, IPR2020-00928, IPR2020-01294, IPR2020-01295, IPR2020-1296, IPR2020-1297, IPR2025-00274, IPR2025-00278, IPR2025-00280, IPR2025-00281, IPR2025-00422, IPR2025-00423, IPR2025-00424, and IPR2025-00425.

162. The named inventors of the Asserted Patents were not the first to invent reacting activated-carbon sorbents with halogens for purposes of mercury removal.

163. The named inventors of the Asserted Patents were not the first to invent reacting activated-carbon sorbents with bromine-containing chemicals for purposes of mercury removal.

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164. The named inventors told the United States Department of Energy in December 2005, but not the USPTO:

> It has been known since 1934, when the first patent for mercury sorption was granted, that adding molecular halogens such as chlorine (Cl_2), bromine (Br_2), or iodine (I_2) to carbons results in effective sorbents for Hg^0 capture in air (15). The first application used iodine as the halogen, but later applications used chlorine (16) and bromine (17) or a mixed halogen compound (18).[26]

165. MidAmerican's investigation is ongoing, and thus MidAmerican expressly reserve the right to assert further and additional grounds for invalidity of the '114 patent according to the appropriate schedule determined by the Court.

166. MidAmerican is entitled to a declaratory judgment of invalidity of the '114 patent.

COUNTERCLAIM 9
DECLARATORY JUDGMENT OF INVALIDITY OF THE '225 PATENT

167. MidAmerican fully incorporates the preceding paragraphs as if set forth fully in this section.

168. ME2C has asserted the '225 patent against MidAmerican.

169. One or more claims of the '225 patent is invalid for failure to satisfy one or more of the conditions of patentability set forth in Title 35 of the United States Code, including, but not limited to, §§ 102, 103, and/or 112, and/or the impermissible recapture of surrendered subject matter.

170. For example, the '225 patent is invalid over the '114 IPR References.

171. While these references are discussed in IPR2025-00274 regarding the '114 patent, these references invalidate the '225 patent for similar reasons.

[26] https://web.archive.org/web/20071110210254/http://www.undeerc.org/catm/pdf/MJH-CEAQ9-Final-revised.pdf.

REDACTED PUBLIC VERSION

172. Indeed, as ME2C alleges in its First Amended Complaint, claim 1 of the ’225 patent involves: “A method for treating a mercury-containing gas . . . combusting a mixture comprising coal, pyrolysis char, and an additive comprising HBr, a bromide compound, or a combination thereof, to form the mercury-containing, gas . . . [and] adding a particulate sorbent material comprising activated carbon into the mercury-containing gas.” *See* ECF 59 ¶¶ 277, 279, 281.

173. As discussed above relating to the ’114 patent, the ’114 IPR References disclose each of these elements.

174. Thus, the ’114 IPR References disclose at least every element of claim 1 of the ’225 patent.

175. Further, the claims of the ’225 patent are invalid at least for the reasons additionally set forth in the petitions filed in PTAB Case Nos. IPR2020-00832, IPR2020-00834, IPR2020-00926, IPR2020-00928, IPR2020-01294, IPR2020-01295, IPR2020-1296, IPR2020-1297, IPR2025-00274, IPR2025-00278, IPR2025-00280, IPR2025-00281, IPR2025-00422, IPR2025-00423, IPR2025-00424, and IPR2025-00425.

176. MidAmerican’s investigation is ongoing, and thus MidAmerican expressly reserve the right to assert further and additional grounds for invalidity of the ’225 patent according to the appropriate schedule determined by the Court.

177. MidAmerican is entitled to a declaratory judgment of invalidity of the ’225 patent.

COUNTERCLAIM 10
DECLARATORY JUDGMENT OF INVALIDITY OF THE ’517 PATENT

178. MidAmerican fully incorporates the preceding paragraphs as if set forth fully in this section.

179. ME2C has asserted the ’517 patent against MidAmerican.

180. One or more claims of the ’517 patent is invalid for failure to satisfy one or more of the conditions of patentability set forth in Title 35 of the United States Code, including, but not limited to, §§ 102, 103, and/or 112, and/or the impermissible recapture of surrendered subject matter.

181. For example, the ’517 patent is invalid over the ’114 IPR References.

182. While these references are discussed in IPR2025-00274 regarding the ’114 patent, these references invalidate the ’517 patent for similar reasons.

183. Indeed, as ME2C alleges in its First Amended Complaint, claim 1 of the ’517 involves: “A method for treating a mercury-containing gas . . . combusting coal in a combustion chamber, the coal comprising an additive comprising Br2, HBr, a bromide compound, or a combination thereof, to form the mercury-containing gas . . . . [and] combusting coal in a combustion chamber, the coal comprising an additive comprising Br2, HBr, a bromide compound, or a combination thereof, to form the mercury-containing gas.” *See* ECF 59 ¶¶ 261, 263, 265.

184. As discussed above relating to the ’114 patent, the ’114 IPR References disclose each of these elements.

185. Thus, the ’114 IPR References disclose at least every element of claim 1 of the ’517 patent.

186. Further, the claims of the ’517 patent are invalid at least for the reasons additionally set forth in the petitions filed in PTAB Case Nos. IPR2020-00832, IPR2020-00834, IPR2020-00926, IPR2020-00928, IPR2020-01294, IPR2020-01295, IPR2020-1296, IPR2020-1297, IPR2025-00274, IPR2025-00278, IPR2025-00280, IPR2025-00281, IPR2025-00422, IPR2025-00423, IPR2025-00424, and IPR2025-00425.

187. MidAmerican's investigation is ongoing, and thus MidAmerican expressly reserve the right to assert further and additional grounds for invalidity of the '517 patent according to the appropriate schedule determined by the Court.

188. MidAmerican is entitled to a declaratory judgment of invalidity of the '517 patent.

COUNTERCLAIM 11
DECLARATORY JUDGMENT OF INVALIDITY OF THE '430 PATENT

189. MidAmerican fully incorporates the preceding paragraphs as if set forth fully in this section.

190. ME2C has asserted the '430 patent against MidAmerican.

191. One or more claims of the '430 patent is invalid for failure to satisfy one or more of the conditions of patentability set forth in Title 35 of the United States Code, including, but not limited to, §§ 102, 103, and/or 112, and/or the impermissible recapture of surrendered subject matter.

192. For example, the '430 patent is invalid over the '114 IPR References.

193. While these references are discussed in IPR2025-00274 regarding the '114 patent, these references invalidate the '430 patent for similar reasons.

194. Indeed, as ME2C alleges in its First Amended Complaint, claim 1 of the '430 involves: "A method of separating mercury from a mercury-containing gas . . . combusting coal in a combustion chamber, to provide the mercury-containing gas, wherein the coal comprises an additive comprising Br_2, HBr, a bromide compound, or a combination thereof, wherein the additive is added to the coal before the coal enters the combustion chamber, or the combustion chamber comprises an additive comprising Br_2, HBr, a bromide compound, or a combination thereof or a combination thereof . . . injecting a sorbent comprising activated carbon into the mercury-containing gas downstream of the combustion chamber . . . contacting mercury in the mercury-

containing gas with the sorbent . . . separating the sorbent contacted with the mercury from the mercury-containing gas." *See* ECF 59 ¶¶ 293, 295, 297, 299, 301.

195. As discussed above relating to the '114 patent, the '114 IPR References disclose each of these elements.

196. Thus, the '114 IPR References disclose at least every element of claim 1 of the '430 patent.

197. Further, the claims of the '430 patent are invalid at least for the reasons additionally set forth in the petitions filed in PTAB Case Nos. IPR2020-00832, IPR2020-00834, IPR2020-00926, IPR2020-00928, IPR2020-01294, IPR2020-01295, IPR2020-1296, IPR2020-1297, IPR2025-00274, IPR2025-00278, IPR2025-00280, IPR2025-00281, IPR2025-00422, IPR2025-00423, IPR2025-00424, and IPR2025-00425.

198. MidAmerican's investigation is ongoing, and thus MidAmerican expressly reserve the right to assert further and additional grounds for invalidity of the '430 patent according to the appropriate schedule determined by the Court.

199. MidAmerican is entitled to a declaratory judgment of invalidity of the '430 patent.

COUNTERCLAIM 12
DECLARATORY JUDGMENT OF INVALIDITY OF THE '218 PATENT

200. MidAmerican fully incorporates the preceding paragraphs as if set forth fully in this section.

201. ME2C has asserted the '218 patent against MidAmerican.

202. One or more claims of the '218 patent is invalid for failure to satisfy one or more of the conditions of patentability set forth in Title 35 of the United States Code, including, but not limited to, §§ 102, 103, and/or 112, and/or the impermissible recapture of surrendered subject matter.

203. For example, the ’218 patent is invalid over the ’114 IPR References.

204. While these references are discussed in IPR2025-00274 regarding the ’114 patent, these references invalidate the ’218 patent for similar reasons.

205. Indeed, as ME2C alleges in its First Amended Complaint, claim 1 of the ’218 involves: “A method of separating mercury from a mercury-containing gas, the method comprising . . . combusting coal in a combustion chamber, to provide the mercury-containing gas, wherein the coal comprises added HI, an iodide salt, or a combination thereof, added to the coal before the coal enters the combustion chamber, or the combustion chamber comprises added HI, an iodide salt, or a combination thereof, or a combination thereof . . . contacting mercury in the mercury-containing gas with the sorbent . . . separating the sorbent contacted with the mercury from the mercury-containing gas . . . separating the sorbent contacted with the mercury from the mercury-containing gas.” *See* ECF 59 ¶¶ 314, 316, 318, 320, 322.

206. As discussed above relating to the ’218 patent, the ’114 IPR References disclose each of these elements.

207. Thus, the ’114 IPR References disclose at least every element of claim 1 of the ’218 patent.

208. Further, the claims of the ’218 patent are invalid at least for the reasons additionally set forth in the petitions filed in PTAB Case Nos. IPR2020-00832, IPR2020-00834, IPR2020-00926, IPR2020-00928, IPR2020-01294, IPR2020-01295, IPR2020-1296, IPR2020-1297, IPR2025-00274, IPR2025-00278, IPR2025-00280, IPR2025-00281, IPR2025-00422, IPR2025-00423, IPR2025-00424, and IPR2025-00425.

209. MidAmerican's investigation is ongoing, and thus MidAmerican expressly reserve the right to assert further and additional grounds for invalidity of the '430 patent according to the appropriate schedule determined by the Court.

210. MidAmerican is entitled to a declaratory judgment of invalidity of the '218 patent.

COUNTERCLAIM 13
DECLARATORY JUDGMENT OF INVALIDITY OF THE '370 PATENT

211. MidAmerican fully incorporates the preceding paragraphs as if set forth fully in this section.

212. ME2C has asserted the '370 patent against MidAmerican.

213. One or more claims of the '370 patent is invalid for failure to satisfy one or more of the conditions of patentability set forth in Title 35 of the United States Code, including, but not limited to, §§ 102, 103, and/or 112, and/or the impermissible recapture of surrendered subject matter.

214. For example, the '370 patent is invalid over the '114 IPR References.

215. While these references are discussed in IPR2025-00274 regarding the '114 patent, these references invalidate the '370 patent for similar reasons.

216. Indeed, as ME2C alleges in its First Amended Complaint, claim 1 of the '370 involves: "A method of separating mercury from a mercury-containing gas, the method comprising . . . combusting coal in a combustion chamber, to provide the mercury-containing gas, wherein the coal comprises added HI, an iodide salt, or a combination thereof, added to the coal before the coal enters the combustion chamber, or the combustion chamber comprises added HI, an iodide salt, or a combination thereof, or a combination thereof . . . contacting mercury in the mercury-containing gas with the sorbent . . . separating the sorbent contacted with the mercury from the mercury-

containing gas . . . separating the sorbent contacted with the mercury from the mercury-containing gas." *See* ECF 59 ¶¶ 334, 336, 338, 340, 342.

217. As discussed above relating to the '370 patent, the '114 IPR References disclose each of these elements.

218. Thus, the '114 IPR References disclose at least every element of claim 1 of the '370 patent.

219. Further, the claims of the '370 patent are invalid at least for the reasons additionally set forth in the petitions filed in PTAB Case Nos. IPR2020-00832, IPR2020-00834, IPR2020-00926, IPR2020-00928, IPR2020-01294, IPR2020-01295, IPR2020-1296, IPR2020-1297, IPR2025-00274, IPR2025-00278, IPR2025-00280, IPR2025-00281, IPR2025-00422, IPR2025-00423, IPR2025-00424, IPR2025-00425.

220. An actual and justiciable controversy exists between MidAmerican and ME2C regarding the invalidity of the claims of the '370 patent.

221. The named inventors of the Patents-in-Suit were not the first to invent reacting activated-carbon sorbents with halogens for purposes of mercury removal.

222. The named inventors of the Patents-in-Suit were not the first to invent reacting activated-carbon sorbents with bromine-containing chemicals for purposes of mercury removal.

223. The named inventors told the United States Department of Energy in December 2005, but not the USPTO:

> It has been known since 1934, when the first patent for mercury sorption was granted, that adding molecular halogens such as chlorine (Cl_2), bromine (Br_2), or iodine (I_2) to carbons results in effective sorbents for Hg^0 capture in air (15). The first application used iodine as the halogen, but later

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> applications used chlorine (16) and bromine (17) or a mixed halogen compound (18).[27]

224. Moreover, at least claim 1 of the ’370 patent is invalid under the judicially created doctrine of obviousness-type double patenting based on at least claims 1 and 4 of the ’114 patent.

225. Claim 1 of the ’370 patent requires:

> 1. A method for separating mercury from a mercury-containing gas, the method comprising:
>
> combusting a mixture of coal and an additive in a combustion chamber, to form the mercury-containing gas, wherein the additive is chosen from halides, halogens, salts thereof, and combinations thereof;
>
> adding a particulate sorbent material comprising activated carbon into the mercury-containing gas, wherein a weight ratio of the additive added to the coal, added to the combustion chamber, or a combination thereof, to an amount of the sorbent material added to the mercury-containing gas is from about 1:100 to about 30:100;
>
> contacting mercury in the mercury-containing gas with the sorbent material, to form a mercury-sorbent; and
>
> separating the mercury-sorbent from the mercury-containing gas.

226. On information and belief, the ’370 patent and the ’114 patent are commonly owned by the Plaintiff.

227. Claim 1 of the ’370 patent recites an obvious variation of claims 1 and 4 of the ’114 patent.

228. Claims 1 and 4 of the ’114 patent require:

> 1. A method of separating mercury from a mercury-containing gas, the method comprising:
>
> combusting coal in a combustion chamber, to provide the mercury-containing gas, wherein the mercury-containing gas comprises a halogen or halide promoter comprising HBr, Br^-, or a combination thereof, wherein

[27] https://web.archive.org/web/20071110210254/http://www.undeerc.org/catm/pdf/MJH-CEAQ9-Final-revised.pdf.

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the coal comprises added Br_2, HBr, Br^-, or a combination thereof, added to the coal upstream of the combustion chamber, or

the combustion chamber comprises added Br_2, HBr, Br^-, or a combination thereof, or

a combination thereof;

injecting a sorbent material comprising activated carbon into the mercury-containing gas downstream of the combustion chamber;

contacting mercury in the mercury-containing gas with the sorbent, to form a mercury/sorbent composition;

separating the mercury/sorbent composition from the mercury-containing gas, to form a cleaned gas;

monitoring the mercury content of the cleaned gas; and

controlling, in response to the monitored mercury content of the cleaned gas, an injection rate of injecting the sorbent into the mercury-containing gas, the sorbent composition, or a combination thereof, so that the mercury content of the cleaned gas is maintained at or below a desired level.

4. The method of claim 1, wherein the sorbent in the mercury-containing gas comprises about 1 g to about 30 g of the halogen or halide promoter per 100 g of the sorbent material.

229. A comparison of the two sets of claims reveals that claim 1 of the ’370 patent is an obvious variation of claim 4 of the ’114 patent:

Claim 1 of ’370 patent	Claim 4 of ’114 patent (which depends from claim 1 of ’114 patent)
1. ***A method for separating mercury from a mercury-containing gas, the method comprising***:	1. ***A method of separating mercury from a mercury-containing gas, the method comprising***:
combusting a mixture of coal and an additive ***in a combustion chamber***, ***to form the mercury-containing gas***, wherein the additive is chosen from halides, halogens, salts thereof, and combinations thereof;	***combusting coal in a combustion chamber***, ***to provide the mercury-containing gas***, wherein the mercury-containing gas comprises a halogen or halide promoter comprising HBr, Br−, or a combination thereof, wherein the coal comprises added Br2, HBr, Br−, or a combination thereof, added to the coal upstream of the combustion chamber, or

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	the combustion chamber comprises added Br2, HBr, Br−, or a combination thereof, or a combination thereof;
adding a particulate sorbent material comprising activated carbon into the mercury-containing gas, wherein a weight ratio of the additive added to the coal, added to the combustion chamber, or a combination thereof, to an amount of the sorbent material added to the mercury-containing gas is from about 1:100 to about 30:100;	***injecting a sorbent material comprising activated carbon into the mercury-containing gas*** downstream of the combustion chamber; Claim 4 of '370 patent: 4. The method of claim 1, wherein the sorbent in the mercury-containing gas comprises about 1 g to about 30 g of the halogen or halide promoter per 100 g of the sorbent material.
contacting mercury in the mercury-containing gas with the sorbent material, to form a mercury-sorbent; and	***contacting mercury in the mercury-containing gas with the sorbent, to form a mercury/sorbent composition***;
separating the mercury-sorbent from the mercury-containing gas.	***separating the mercury/sorbent composition from the mercury-containing gas, to form a cleaned gas***

230. All elements of claim 1 of the '370 patent are also required by claims 1 and 4 of the '114 patent.

231. ME2C has acknowledged that all elements of claim 1 of the '370 patent are also required by claims 1 and 4 of the '114 patent, as shown in ME2C's infringement contentions served in this litigation:

No.	'370 Claim Element	Accused Conduct
1a	A method for separating mercury from a mercury-containing gas, the method comprising:	See '114 1a
1b	combusting a mixture of coal and an additive in a combustion chamber, to form the mercury-containing gas, wherein the additive is chosen from halides, halogens, salts thereof, and combinations thereof;	See '114 1b, 1c.
1c	adding a particulate sorbent material comprising activated carbon into the mercury-containing gas, wherein a weight ratio of the additive added to the coal, added to the combustion chamber, or a combination thereof, to an amount of the sorbent material added to the mercury-containing gas is from about 1:100 to about 30:100;	See '114 Claim 4.
1d	contacting mercury in the mercury-containing gas with the sorbent material, to form a mercury-sorbent; and	See '114 1e.
1e	separating the mercury-sorbent from the mercury-containing gas.	See '114 1f

232. ME2C made similar admissions with respect to claims 2, 3, 4, 6, 8, and 11 of the '370 patent as shown in the screenshot below:

2	The method of claim 1, further comprising adding the additive to the coal before combusting the coal.	See '114 1c
3	The method of claim 2, wherein the additive mixed with the coal is in a liquid.	See '114 1c

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No.	'370 Claim Element	Accused Conduct
4	The method of claim 3, wherein the liquid is a hydrocarbon, supercritical carbon dioxide, water, salt solution, or a combination thereof.	See '114 1c.
5	The method of claim 1, wherein carbocations in the activated carbon of the mercury-sorbent accept electrons from mercury atoms of the mercury-sorbent.	The activated carbon contains graphene sheets having carbene species edge sites which react with the bromine containing promoter to form a carbocation paired with a halide anion in the promoted halogenated sorbent for oxidation of the mercury. *See* '114 fig. 2; '370 patent, col. 14:45–59.
6	The method of claim 1, wherein the additive is substantially in vapor form in the mercury-containing gas.	See '114 claim 7
8	The method of claim 1, wherein the additive is chosen from Br_2, HBr, sodium bromide, calcium bromide, and a combination thereof.	See '114 1c
10	The method of claim 1, wherein the additive is chosen from I_2, HI, sodium iodide, calcium iodide, potassium iodide, and combinations thereof.	Various of the Accused Coal Plants have used I_2, HI, sodium iodide, calcium iodide, potassium iodide, and/or combinations thereof as additives. See Attachment A; See '218 1c
11	The method of claim 1, wherein the activated carbon is chosen from powdered activated carbon, granular activated carbon, carbon black, carbon fiber, aerogel carbon, pyrolysis char, and combinations thereof.	See '114 claim 12

233. There is not a single element of claim 1 of the '370 patent that is missing from claim 4 of the '114 patent.

234. Claim 1 of the '370 patent is an obvious variation of claim 4 of the '114 patent.

235. The alleged invention in claim 1 of the '370 patent is not patentably distinct from the alleged invention in claim 4 of the '114 patent.

236. Claim 2 of the '370 patent is an obvious variation of claim 4 of the '114 patent.

237. The alleged invention in claim 2 of the '370 patent is not patentably distinct from the alleged invention in claim 4 of the '114 patent.

238. Claim 3 of the '370 patent is an obvious variation of claim 4 of the '114 patent.

239. The alleged invention in claim 3 of the '370 patent is not patentably distinct from the alleged invention in claim 4 of the '114 patent.

240. Claim 4 of the ’370 patent is an obvious variation of claim 4 of the ’114 patent.

241. The alleged invention in claim 4 of the ’370 patent is not patentably distinct from the alleged invention in claim 4 of the ’114 patent.

242. Claim 6 of the ’370 patent is an obvious variation of claim 7 of the ’114 patent.

243. The alleged invention in claim 6 of the ’370 patent is not patentably distinct from the alleged invention in claim 7 of the ’114 patent.

244. Claim 8 of the ’370 patent is an obvious variation of claim 4 of the ’114 patent.

245. The alleged invention in claim 8 of the ’370 patent is not patentably distinct from the alleged invention in claim 4 of the ’114 patent.

246. Claim 11 of the ’370 patent is an obvious variation of claim 12 of the ’114 patent.

247. The alleged invention in claim 11 of the ’370 patent is not patentably distinct from the alleged invention in claim 12 of the ’114 patent.

248. The ’370 patent expires on April 24, 2026.

249. The ’114 patent expires on August 22, 2025.

250. The ’370 patent improperly extends the patent term and is invalid for obviousness-type double patenting.

251. No valid terminal disclaimer was filed during prosecution of the ’370 patent to disclaim the term of the ’370 patent that extended beyond the term of the ’114 patent.

252. MidAmerican’s investigation is ongoing, and thus MidAmerican expressly reserve the right to assert further and additional grounds for invalidity of the ’370 patent according to the appropriate schedule determined by the Court.

253. MidAmerican is entitled to a declaratory judgment of invalidity of the ’370 patent.

COUNTERCLAIM 14
DECLARATORY JUDGMENT OF UNENFORCEABILITY DUE TO INEQUITABLE CONDUCT

254. MidAmerican fully incorporates the preceding paragraphs as if set forth fully in this section.

255. This counterclaim arises under the Patent Laws of the United States, 35 U.S.C. § 1 et seq., and the Declaratory Judgment Act, 28 U.S.C. §§ 2201-2202, and seeks a declaration that the claims of the '225 patent, '370 patent, '430 patent, '517 patent, and '218 patent are unenforceable due to inequitable conduct by the named inventors Edwin S. Olson, Michael J. Holmes, and John H. Pavlish and prosecution counsel Dennis Daley and Nicholas Lanzatella (collectively "Applicants").

256. Each Applicant signed an inventor's declaration pursuant to 37 C.F.R. § 1.63 as part of the filing of the patent applications that issued as the '147 patent, '114 patent, '225 patent, '370 patent, '430 patent, '517 patent, and '218 patent. This declaration included an acknowledgement of the inventor's duty to disclose to the USPTO all information known to the inventors to be material to patentability.

257. There is an actual and justiciable controversy between the parties concerning the enforceability of the claims of the '225 patent, '370 patent, '430 patent, '517 patent, and '218 patent.

Individuals Associated With The Filing And Prosecution Of The '219 Application And The Patents-in-Suit

258. Title 37 of the Code of Federal Regulations ("C.F.R.") § 1.56 imposes a duty of candor and good faith on each individual associated with the filing and prosecution of a patent application before the United States Patent and Trademark Office ("USPTO").

259. The duty of candor and good faith in 37 C.F.R. § 1.56 includes a duty to disclose to the USPTO of all information that is material to the patentability of the application being examined.

260. Failing to disclose material information, making material misrepresentations to the USPTO, or otherwise violating the duty of candor and good faith, with an intent to deceive, constitutes inequitable conduct. Such inequitable conduct renders the affected patents unenforceable.

261. Individuals associated with the filing and prosecution of a patent application include at least: each named inventor of a patent application, each attorney or agent who prepares or prosecutes the patent application; and every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, the applicant, an assignee, or anyone to whom there is an obligation to assign the application. *See* 37 C.F.R. § 1.56.

Named Inventors

262. Submitted to the USPTO with the filing of the '219 Application on April 6, 2009 was a declaration signed by each of Edwin Olson, Michael Holmes, and John Pavlish stating:

> We acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to use to be material to patentability as defined in 37 CFR 1.56, including for continuation-in-part applications, material information which became available between the filing of the prior application and the national or PCT International filing date of the continuation-in-part application.
>
> All statements made herein of our own knowledge are true, all statements made herein ion information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001, and may jeopardize the validity of the application or any patent issuing thereon.

263. A similar declaration was submitted with the applications that matured into each of the Patents-in-Suit. Each named inventor, thus, signed an inventor's declaration pursuant to 37 C.F.R. § 1.63 as part of the filing of the patent applications that issued as the '147 patent, '114 patent, '225 patent, '370 patent, '430 patent, '517 patent, and '218 patent. These declarations included an acknowledgement of the inventor's duty to disclose to the USPTO all information known to the inventors to be material to patentability.

264. Pursuant to at least 37 C.F.R. § 1.56, as a named inventor, Edwin Olson was associated with the filing and prosecution of the Patents-in-Suit, as well as the '219 Application, which matured into the '147 patent.

265. Pursuant to at least 37 C.F.R. § 1.56, as a named inventor, Michael Holmes was associated with the filing and prosecution of the Patents-in-Suit, as well as the '219 Application, which matured into the '147 patent.

266. Pursuant to at least 37 C.F.R. § 1.56, as a named inventor, John Pavlish was associated with the filing and prosecution of the Patents-in-Suit, as well as the '219 Application, which matured into the '147 patent.

267. Pursuant to at least 37 C.F.R. §1.56, Edwin Olson had a duty of candor and good faith in dealing with the USPTO, which included a duty to disclose to the Office all information known to that individual to be material to patentability of the Patents-in-Suit and the '147 patent.

268. Pursuant to at least 37 C.F.R. §1.56, Michael Holmes had a duty of candor and good faith in dealing with the USPTO, which included a duty to disclose to the Office all information known to that individual to be material to patentability of the Patents-in-Suit and the '147 patent.

269. Pursuant to at least 37 C.F.R. §1.56, John Pavlish Holmes had a duty of candor and good faith in dealing with the USPTO, which included a duty to disclose to the Office all

information known to that individual to be material to patentability of the Patents-in-Suit and the '147 patent.

Prosecution Counsel

270. The '219 Application was filed with the USPTO by attorney Dennis R. Daley on April 6, 2009.

271. Mr. Daley was an attorney or agent who prepared or prosecuted the '219 Application.

272. Pursuant to at least 37 C.F.R. § 1.56, Mr. Daley was associated with the filing and prosecution of the '219 Application, which matured into the '147 patent.

273. Pursuant to at least 37 C.F.R. § 1.56, Mr. Daly had a duty of candor and good faith in dealing with the USPTO, which included a duty to disclose to the USPTO all information known to that individual to be material to patentability.

274. On June 1, 2011, Thomas Bechtel submitted to the USPTO a "Revocation and Power of Attorney Certificate Under 37 C.F.R. § 3.73(b)" regarding the '219 Application.

275. In the Power of Attorney Certificate, which had been signed on May 27, 2011 and submitted to the USPTO on June 1, 2011, Thomas Bechtel stated that he was President of the Energy & Environmental Research Center Foundation ("EERC Foundation"), and that the EERC Foundation was at the time "the assignee of the entire right, title and interest in" the '219 Application. In the Power of Attorney Certificate, Mr. Bechtel revoked the power of attorney from Dennis Daley, and appointed attorneys from the law firm of Schwegman, Lundberg & Woessner P.A. ("Schwegman") to continue prosecuting the '219 Application.

276. At least as of June 1, 2011, Geoffrey Cooper and Nicholas Lanzatella were each attorneys at the Schwegman law firm that prosecuted the '219 Application.

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277. Mr. Cooper was an attorney or agent who prepared or prosecuted the ’219 Application.

278. Pursuant to at least 37 C.F.R. § 1.56, Mr. Cooper was associated with the filing and prosecution of the ’219 Application, which matured into the ’147 patent.

279. Pursuant to at least 37 C.F.R. §1.56, Mr. Cooper had a duty of candor and good faith in dealing with the USPTO, which included a duty to disclose to the Office all information known to that individual to be material to patentability of the ’147 patent.

280. Pursuant to at least 37 C.F.R. § 1.56, Mr. Lanzatella was associated with the filing and prosecution of the ’219 Application, which matured into the ’147 patent.

281. Pursuant to at least 37 C.F.R. § 1.56, Mr. Lanzatella was associated with the filing and prosecution of the applications that matured into each of the Patents-in-Suit.

282. Pursuant to at least 37 C.F.R. §1.56, Mr. Lanzatella had a duty of candor and good faith in dealing with the USPTO, which included a duty to disclose to the Office all information known to that individual to be material to patentability of the ’147 patent.

283. Pursuant to at least 37 C.F.R. §1.56, Mr. Lanzatella had a duty of candor and good faith in dealing with the USPTO, which included a duty to disclose to the Office all information known to that individual to be material to patentability of each of the Patents-in-Suit.

Others Substantively Involved

284. Thomas Erickson was the Associate Director for Research at the Energy & Environmental Research Center (EERC) at the University of North Dakota from 1999-2011.

Thomas Erickson was also the Associate Director for Business, Operations and Intellectual Property at EERC from July 2011 – July 2014.[28]

285. Thomas Erickson is currently the Chief Operations Officer and VP for Intellectual Property at the EERC.[29]

286. One of Thomas Erickson's job duties has been to oversee the development and protection of IP and the commercialization of EERC-developed technologies.[30]

287. Pursuant to at least 37 C.F.R. § 1.56, Thomas Erickson was associated with the applicant and assignee of the '219 Application and the Patents-in-Suit.

288. Thomas Erickson submitted a declaration to the USPTO Patent Trial and Appeal Board testifying as to the "logbook entries maintained at the EERC. They document the testing performed at the EERC's Pilot Test Combustor on the dates noted therein." *See, e.g., NRG Energy, Inc. v. Midwest Energy Emissions Corp.*, IPR2020-00926, Ex. 2016 (Sep. 4, 2020).

289. Thomas Erickson purports to have personal knowledge of the facts surrounding conception and reduction to practice of the claims of the Patents-in-Suit.

290. Pursuant to at least 37 C.F.R. § 1.56, Thomas Erickson was substantively involved in the preparation or prosecution of the '219 Application, which matured into the '147 patent.

291. Pursuant to at least 37 C.F.R. § 1.56, Thomas Erickson was substantively involved in the preparation or prosecution of one or more of the applications that matured into one or more of the Patents-in-Suit.

[28] https://www.linkedin.com/in/tom-erickson-bb53b815/.

[29] https://und.edu/directory/thomas.erickson.

[30] https://und.edu/directory/thomas.erickson.

292. Pursuant to at least 37 C.F.R. §1.56, Thomas Erickson had a duty of candor and good faith in dealing with the USPTO, which included a duty to disclose to the Office all information known to that individual to be material to patentability of the '147 patent.

293. Pursuant to at least 37 C.F.R. §1.56, Thomas Erickson had a duty of candor and good faith in dealing with the USPTO, which included a duty to disclose to the Office all information known to that individual to be material to patentability of the Patents-in-Suit.

294. During the prosecution of the patent applications leading up to the '114 patent, '225 patent, '370 patent, '430 patent, '517 patent, and '218 patent, the Applicants knowingly and intentionally withheld critical information from the USPTO, which if disclosed, would have resulted in a rejection of all claims of the '114 patent, '225 patent, '370 patent, '430 patent, '517 patent, and '218 patent. The only reasonable inference for these actions on the part of the inventors was to deceive the USPTO in order to obtain the '114 patent, the '147 patent and the '225 patent, '370 patent, '430 patent, '517 patent, and '218 patent, which claim priority to the '147 patent.

295. The information withheld from the examiners includes the document titled "Mercury Information Clearinghouse" prepared by several authors including the named inventors, dated April 2006 and which contained a report of relevant activities between "October 1, 2003 through March 31, 2006."[31]

296. In addition, the named inventors and attorney Daley withheld critical information apprising the examiners regarding new matter added by them during prosecution of the '147 patent, as explained in detail below.

[31] https://www.osti.gov/biblio/907884.

297. During prosecution of the ’219 Application and during the prosecution of the Patents-in-Suit, named inventor Edwin Olson was aware of prior art not presented to the USPTO that taught removing mercury by: burning coal with added Br_2, HBr, a bromide compound, or a combination thereof; providing Br_2, HBr, a bromide compound, or a combination thereof into the combustion zone with the coal; and the bromine containing promoter is in gaseous form when it comes into contact with activated carbon.

298. During prosecution of the ’219 Application and during the prosecution of the Patents-in-Suit, named inventor John Pavlish was aware of prior art not presented to the USPTO that taught removing mercury by: burning coal with added Br_2, HBr, a bromide compound, or a combination thereof; providing Br_2, HBr, a bromide compound, or a combination thereof into the combustion zone with the coal; and the bromine containing promoter is in gaseous form when it comes into contact with activated carbon.

299. During prosecution of the ’219 Application and during the prosecution of the Patents-in-Suit, named inventor Michael Holmes was aware of prior art not presented to the USPTO that taught removing mercury by: burning coal with added Br_2, HBr, a bromide compound, or a combination thereof; providing Br_2, HBr, a bromide compound, or a combination thereof into the combustion zone with the coal; and the bromine containing promoter is in gaseous form when it comes into contact with activated carbon.

300. During prosecution of the ’219 Application and during the prosecution of the Patents-in-Suit, Thomas Erickson was aware of prior art not presented to the USPTO that taught removing mercury by: burning coal with added Br_2, HBr, a bromide compound, or a combination thereof; providing Br_2, HBr, a bromide compound, or a combination thereof into the combustion

zone with the coal; and the bromine containing promoter is in gaseous form when it comes into contact with activated carbon.

301. During prosecution of the ’219 Application and during the prosecution of the Patents-in-Suit, each of the named inventors (Edwin Olson, Michael Holmes, and John Pavlish) had a duty to disclose to the USPTO prior art that taught removing mercury by burning coal with added Br_2, HBr, a bromide compound, or a combination thereof; providing Br_2, HBr, a bromide compound, or a combination thereof into the combustion zone with the coal; and the bromine containing promoter is in gaseous form when it comes into contact with activated carbon.

During prosecution of the ’219 Application and during the prosecution of the Patents-in-Suit, Thomas Erickson had a duty to disclose to the USPTO prior art that taught removing mercury by burning coal with added Br_2, HBr, a bromide compound, or a combination thereof; providing Br_2, HBr, a bromide compound, or a combination thereof into the combustion zone with the coal; and the bromine containing promoter is in gaseous form when it comes into contact with activated carbon.

Alleged Inventions of the ’147 Patent Compared to Its Children

302. The ’225 patent, ’370 patent, ’430 patent, ’517 patent, and ’218 patent all claim priority to the ’147 patent, which itself attempts to claim priority to a provisional application filed on August 30, 2004.

303. The claims of the ’147 patent all require “promoting at least a portion of a particulate sorbent material comprising activated carbon by chemically reacting the sorbent material with a bromine containing promoter to form a promoted brominated sorbent.” *See* ’147 patent at cl. 1.

304. After the promoted brominated sorbent is formed, the claims of the ’147 patent require “chemically reacting elemental mercury in the mercury containing gas with the promoted brominated sorbent.” *See* ’147 patent at cl. 1.

305. Although Plaintiff disclaimed claims 1-16 and 21-25 of the ’147 patent in a statutory disclaimer filed on December 11, 2019, claims 17-20 of the ’147 patent still remain active and depend from claim 1 of the ’147 patent.

306. None of the claims of the ’147 patent are directed at adding bromine-containing chemicals to the coal or to the combustion chamber. Rather, all claims of the ’147 patent are directed to adding the bromine-containing chemicals and the activated-carbon downstream of the combustion chamber.

307. The claims of the ’225 patent and its children patents, however, are all generally directed at the two-step process of adding some type of bromine compound to the coal followed by adding activated carbon to the mercury-containing gas.

308. Similarly, the claims of the ’370 patent are all generally directed at the two-step process of adding some type of bromine compound to the coal followed by adding activated carbon to the mercury-containing gas.

309. Similarly, the claims of the ’430 patent are all generally directed at the two-step process of adding some type of bromine compound to the coal followed by adding activated carbon to the mercury-containing gas.

310. Similarly, the claims of the ’517 patent are all generally directed at the two-step process of adding some type of bromine compound to the coal followed by adding activated carbon to the mercury-containing gas.

311. The claims of the '218 patent are all generally directed at the two-step process of adding some type of iodine compound to the coal followed by adding activated carbon to the mercury-containing gas.

312. ME2C contends that its "patented technology" is "a two-step process" where "bromine is added to the coal as it is conveyed to the boiler or directly into the boiler (the "Bromine Step")" and "Activated carbon (also referred to as "sorbent") is then added to the exhaust gas (the "Carbon Step")." *See* Case No. 4:24-CV-243, ECF 58-1 at 2-3.

313. Although certain claims of the Patents-in-Suit require "a weight ratio of the additive added to the coal, added to the combustion chamber, or a combination thereof, to an amount of the sorbent material added to the mercury-containing gas is from about 1:100 to about 30:100,"[32] ME2C has acknowledged that this limitation is "entitled to no patentable weight." *NRG v. Midwest Energy Emissions Corp.*, IPR2020-00926, Paper 13 at 34, 35 (Sep. 4, 2020).

314. Each of the following references, known to each of the named inventors, teach removing mercury using the two-step process, by adding bromine-containing chemicals and activated carbon. Specifically, these references teach burning coal with added Br_2, HBr, a bromide compound, or a combination thereof; providing Br_2, HBr, a bromide compound, or a combination thereof into the combustion zone with the coal; and the bromine containing promoter is in gaseous form when it comes into contact with activated carbon.

> S. Sjostrom et al., "Full-Scale Evaluations of Mercury Control for Units Firing Powder River Basin Coals," *Air Quality V: International Conference on Mercury, Trace Elements, SO3, and Particulate Matter*, Paper No. A5B-4 (Sept. 19-21, 2005: Arlington, VA) ("**Sjostrom Air Quality V Article**").
>
> S. Sjostrom et al., "Full-Scale Evaluation of Mercury Control by Injecting Activated Carbon Upstream of a Spray Dryer and Fabric Filter," *Combined*

[32] *See* '218 Patent at claims 1, 25 and 26; *see also* '370 Patent at claims 1 and 17.

Power Plant Air Pollutant Control Mega Symposium, Paper No. 71 (Aug. 30 – Sept. 2, 2004: Washington, D.C.) (**"Sjostrom Mega 2004 Article"**).

Sjostrom, S. "Evaluation of Sorbent Injection for Mercury Control"; *Quarterly Technical Report* (Oct 1 – Dec 31, 2004) for U.S. Department of Energy Cooperative Agreement No. DE-FC26-03NT41986; Report No. 41986R05; Feb 2, 2005 (**"Sjostrom Quarterly Technical Report"**).

Mercury Information Clearinghouse Reports, dated July 2004, October 2004, January 2005, April 2005, July 2005, October 2005 (**"Mercury Information Clearinghouse"**).

315. Each of these references is prior art and was known to the named inventors and Thomas Erickson because, *inter alia*, the references were cited by the named inventors in their publications or the named inventors authored these publications. The disclosure in each of these references was material and non-cumulative because none of the references before the USPTO during prosecution of the Asserted Patents contain the same disclosure that invalidates the claims of the Asserted Patents in the same way.

Sjostrom Air Quality V Article And Sjostrom Mega 2004 Article

316. The Sjostrom Air Quality V Article is not cited on the cover of any of the Patents-in-Suit or the '147 patent.

317. The Sjostrom Air Quality V Article was not disclosed to the USPTO during prosecution of any of the Patents-in-Suit or the '147 patent.

318. The Sjostrom Mega 2004 Article is not cited on the cover of any of the Patents-in-Suit or the '147 patent.

319. The Sjostrom Mega 2004 Article was not disclosed to the USPTO during prosecution of any of the Patents-in-Suit or the '147 patent.

320. Each of the Sjostrom Air Quality V Article and the Sjostrom Mega 2004 Article would have established by themselves, or in combination with other references, a prima facie case of unpatentability of one or more claims of the Patents-in-Suit and the '147 patent.

321. But for the failure to disclose the Sjostrom Air Quality V Article and the Sjostrom Mega 2004 Article, at least claims 18 and 19 of the '147 patent would not have issued.

322. But for the failure to disclose the Sjostrom Air Quality V Article and the Sjostrom Mega 2004 Article, at least claims 1, 23, 24, and 25 of the '114 patent would not have issued.

323. But for the failure to disclose the Sjostrom Air Quality V Article and the Sjostrom Mega 2004 Article, at least claims 1, 14, 16, and 17 of the '225 patent would not have issued.

324. But for the failure to disclose the Sjostrom Air Quality V Article and the Sjostrom Mega 2004 Article, at least claims 1, 29 and 30 of the '517 patent would not have issued.

325. But for the failure to disclose the Sjostrom Air Quality V Article and the Sjostrom Mega 2004 Article, at least claims 1, 28, and 29 of the '430 patent would not have issued.

326. But for the failure to disclose the Sjostrom Air Quality V Article and the Sjostrom Mega 2004 Article, at least claims 1, 25, and 26 of the '218 patent would not have issued.

327. But for the failure to disclose the Sjostrom Air Quality V Article and the Sjostrom Mega 2004 Article, at least claims 1 and 17 of the '370 patent would not have issued.

328. The Sjostrom Air Quality V Article was material to the prosecution of the Patents-in-Suit and the '147 patent.

329. The Sjostrom Mega 2004 Article was material to the prosecution of the Patents-in-Suit and the '147 patent.

330. This information contained within Sjostrom Air Quality V Article and Sjostrom Mega 2004 Article was material and non-cumulative because none of the references before the

USPTO during prosecution of the Asserted Patents contain the same disclosure that invalidates the claims of the Asserted Patents in the same way.

331. Each of the named inventors (Edwin Olson, Michael Holmes, and John Pavlish) and Thomas Erickson withheld the Sjostrom Air Quality V Article and the Sjostrom Mega 2004 Article from disclosure to the USPTO during prosecution of the Patents-in-Suit and the '219 Application, with an intent to deceive to secure issuance of the Patents-in-Suit and the '147 patent.

332. Failure to disclose the Sjostrom Air Quality V Article and the Sjostrom Mega 2004 Article, alone, would have been sufficient to render the Patents-in-Suit and the '147 patent unenforceable and to invoke the doctrine of unclean hands.

333. Put together, the sheer number of references that were intentionally withheld during prosecution of the Patents-in-Suit and '147 patent—and the sheer number of other places in which the named inventors cited to the Sjostrom Air Quality V Article and the Sjostrom Mega 2004 Article (but not to the USPTO)—demonstrate a pattern of intentional misconduct by the named inventors (Edwin Olson, Michael Holmes, and John Pavlish) and Thomas Erickson, and establish that the single most reasonable inference that can be drawn is a specific intent to deceive the USPTO in order to obtain issuance of the Patents-in-Suit and the '147 patent.

The Sjostrom Air Quality V Article Qualifies as Prior Art

334. The EERC made the Final Program Schedule for the Air Quality V Conference available to the public on its website no later than February 23, 2006.[33]

335. Exhibit 6 is a true and correct copy of the Final Program Schedule for the Air Quality V Conference. *See* Exhibit 6.

[33] *See, e.g.*, https://web.archive.org/web/20060223150345/http:/www.undeerc.org/aboutus/pastevents/conferences/aqv/FinalProgram.pdf.

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336. On information and belief, copies of the Air Quality V Conference proceedings were provided to conference attendees between September 19-21, 2005.

337. No later than January 13, 2006, copies of the Air Quality V Conference proceedings were further provided by EERC "in a three-ring binder or on CD-ROM for US$75.000."[34]

338. The Sjostrom Air Quality V Article was publicly accessible by September 21, 2005, when it was presented to conference attendees at the Air Quality V conference in Arlington, Virginia, United States.

339. The Sjostrom Air Quality V Article was publicly accessible no later than January 13, 2006 through members of the interested public being able to order the Sjostrom Air Quality V Article from EERC.

340. The specification of the '147 patent does not provide written-description support for claims 18 and 19.

341. The named inventors knew and are aware of the fact that the specification of the '147 Patent does not provide written-description support for claims 18 and 19.

342. Claims 18 and 19 of the '147 patent are entitled to a priority date no earlier than April 6, 2009, which is the day they were first proposed as claims in the '219 Application.

343. The named inventors knew that claims 18 and 19 would not be entitled to a priority date earlier than April 6, 2009, which is the day they were first proposed as claims in the '219 Application.

344. The Sjostrom Air Quality V Article qualifies as prior art to claims 18 and 19 of the '147 patent pursuant to at least 35 U.S.C. §§ 102(a) and 102(b) (pre-AIA).

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[34] *See, e.g.,* https://web.archive.org/web/20060113105727/http://www.undeerc.org/aboutus/pastevents/conferences/aqV/index.asp.

345. The specification of the ’114 patent does not provide written-description support for claims 1, 23, 24 and 25 of the ’114 patent.

346. Claims 1, 23, 24 and 25 of the ’114 patent are entitled to a priority date no earlier than May 14, 2018, which is the date on which the continuation-in-part application leading to the ’114 patent was filed.

347. The Sjostrom Air Quality V Article qualifies as prior art to claims 1, 23, 24 and 25 of the ’114 patent pursuant to at least 35 U.S.C. §§ 102(a) and 102(b) (pre-AIA).

348. The specification of the ’225 patent does not provide written-description support for claims 1, 14, 16 and 17 of the ’225 patent.

349. Claims 1, 14, 16 and 17 of the ’225 patent are entitled to a priority date no earlier than May 15, 2015, which corresponds to the filing date of the preliminary amendment to the ’225 patent’s application (No. 14/712,558) in which the claims were amended to add disclosure.

350. The Sjostrom Air Quality V Article qualifies as prior art to claims 1, 14, 16 and 17 of the ’225 patent pursuant to at least 35 U.S.C. §§ 102(a) and 102(b) (pre-AIA).

351. The specification of the chain of patents leading up to the ’517 patent does not provide written-description support for claims 1, 29, and 30 of the ’517 patent.

352. Claims 1, 29, and 30 of the ’517 patent are entitled to a priority date no earlier than April 12, 2018, which corresponds to the actual filing date of the parent application (No. 15/951,970) in which the specification was amended to add disclosure.

353. The Sjostrom Air Quality V Article qualifies as prior art to claims 1, 29, and 30 of the ’517 patent pursuant to at least 35 U.S.C. §§ 102(a) and 102(b) (pre-AIA).

354. The specification of the chain of patents leading up to the ’430 patent does not provide written-description support for claims 1, 28, and 29 of the ’430 patent.

355. Claims 1, 28, and 29 of the ’430 patent are entitled to a priority date no earlier than April 12, 2018, which corresponds to the actual filing date of the parent application (No. 15/951,970) in which the specification was amended to add disclosure.

356. The Sjostrom Air Quality V Article qualifies as prior art to claims 1, 28, and 29 of the ’430 patent pursuant to at least 35 U.S.C. §§ 102(a) and 102(b) (pre-AIA).

357. The specification of the chain of patents leading up to the ’218 patent does not provide written-description support for claims 1, 25, and 26 of the ’218 patent.

358. Claims 1, 25, and 26 of the ’218 patent are entitled to a priority date no earlier than April 12, 2018, which corresponds to the actual filing date of the parent application (No. 15/951,970) in which the specification was amended to add disclosure.

359. The Sjostrom Air Quality V Article qualifies as prior art to claims 1, 25, and 26 of the ’218 patent pursuant to at least 35 U.S.C. §§ 102(a) and 102(b) (pre-AIA).

360. The specification of the chain of patents leading up to the ’370 patent does not provide written-description support for claims 1 and 17 of the ’370 patent.

361. Claims 1 and 17 of the ’370 patent are entitled to a priority date no earlier than April 12, 2018, which corresponds to the actual filing date of the parent application (No. 15/951,970) in which the specification was amended to add disclosure.

362. The Sjostrom Air Quality V Article qualifies as prior art to claims 1 and 17 of the ’370 patent pursuant to at least 35 U.S.C. §§ 102(a) and 102(b) (pre-AIA).

The Sjostrom Air Quality V Article Was Material to Patentability

363. Had the USPTO Examiner been provided with the Sjostrom Air Quality V Article, the USPTO Examiner would not have allowed the claims of the ’219 Application. In particular, at least claims 18 and 19 of the ’147 patent would not have issued.

364. Had the USPTO Examiner been provided with the Sjostrom Air Quality V Article, the USPTO Examiner would not have allowed the claims 1, 23, 24, and 25 of the ’114 patent.

365. Had the USPTO Examiner been provided with the Sjostrom Air Quality V Article, the USPTO Examiner would not have allowed the claims 1, 14, 16, and 17 of the ’225 patent.

366. Had the USPTO Examiner been provided with the Sjostrom Air Quality V Article, the USPTO Examiner would not have allowed the claims 1, 29 and 30 of the ’517 patent.

367. Had the USPTO Examiner been provided with the Sjostrom Air Quality V Article, the USPTO Examiner would not have allowed the claims 1, 28, and 29 of the ’430 patent

368. Had the USPTO Examiner been provided with the Sjostrom Air Quality V Article, the USPTO Examiner would not have allowed the claims 1, 25, and 26 of the ’218 patent.

369. Had the USPTO Examiner been provided with the Sjostrom Air Quality V Article, the USPTO Examiner would not have allowed the claims 1 and 17 of the ’370 patent.

370. The Sjostrom Air Quality V Article describes techniques developed by Sharon Sjostrom and others at ADA-ES, Inc. that involved removing mercury by burning coal with added Br_2, HBr, a bromide compound, or a combination thereof, and then contacting a bromine containing promoter in gaseous form when it comes into contact with activated carbon.

371. The Sjostrom Air Quality V Article discloses on page 8 “Activated Carbon Injection” using “DARCO® Hg,” which was manufactured by “NORIT Americas.”

372. The Patents-in-Suit also discloses embodiments using activated carbon, including the “Darco” product manufactured by “NORIT Americas.” *See, e.g.,* ’225 patent at 14:55-61.

373. The exemplary brand of activated carbon used in the Sjostrom Air Quality V Article is identical with that used in embodiments of the Patents-in-Suit.

374. The Sjostrom Air Quality V Article also teaches on page 4 burning coal with an added bromide compound. The Sjostrom Air Quality V Article states:

> This test program was designed to provide a full-scale evaluation of technologies that can overcome the limited mercury removal achievable at sites firing PRB coal. ***Each technology was based on increasing the available chlorine or bromine in the flue gas when necessary and supplementing with activated carbon to achieve high (>80%) mercury removal***. Three technologies were evaluated. These technologies and the effect on mercury removal were:
>
> * * *
>
> 3. Chemical Addition to the Coal with Activated Carbon: KNX, a proprietary halogen-based chemical developed by ALSTOM Power, was found to enhance the performance of a standard activated carbon . . . .

375. The Sjostrom Air Quality V Article further discloses test results, on page 9, showing 94% mercury removal when injecting activated carbon and applying KNX to coal (highlighting added):

"Standard" Activated Carbon with Coal Additives

During testing at Holcomb, Laramie River, and Meramec, DARCO® Hg was injected while treating the coal with KNX to determine whether adding halogen to the coal was an effective method to increase the mercury removal with non-chemically treated activated carbon. The results from these sites are summarized in Table 4. As shown, the KNX was effective at increasing the mercury removal of activated carbon at all sites.

Table 4. Mercury Removal With and Without KNX.

Site	DARCO® Hg Concentration	Hg Removal with KNX	Hg Removal Without KNX
Holcomb	1.1 lb/MMacf	86%	54%
Laramie River	4.5 lb/MMacf	94%	50%
Meramec	5 lb/MMacf	88% *(97% total removal)**	73%

376. The "KNX" chemical additive added to coal, discussed in the Sjostrom Air Quality V Article, included a bromide compound.

377. As discussed below, named inventor John Pavlish attended presentations describing that KNX included a bromide compound.

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378. As discussed below, named inventor Michael Holmes attended presentations describing that KNX included a bromide compound.

379. As discussed below, named inventor Edwin Olson attended presentations describing that KNX included a bromide compound.

380. As discussed below, Thomas Erickson attended presentations describing that KNX included a bromide compound.

381. The Sjostrom Air Quality V Article renders obvious under 35 U.S.C. § 103 at least claims 1, 23, 24, and 25 of the ’114 patent, claims 1, 14, 16, and 17 of the ’225 patent, claims 1, 29 and 30 of the ’517 patent, claims 1, 28, and 29 of the ’430 patent, claims 1, 25, and 26 of the ’218 patent, and claims 1 and 17 of the ’370 patent.

382. The Sjostrom Air Quality V Article was material to the patentability and prosecution of the Patents-in-Suit.

383. The Sjostrom Air Quality V Article was not cumulative of any references that were before the Examiner during the prosecution of the Patents-in-Suit.

384. But for the withholding of the Sjostrom Air Quality V Article from the USPTO Examiner during prosecution of the Patents-in-Suit and the ’219 Application, at least claims 1, 23, 24, and 25 of the ’114 patent, claims 1, 14, 16, and 17 of the ’225 patent, claims 1, 29 and 30 of the ’517 patent, claims 1, 28, and 29 of the ’430 patent, claims 1, 25, and 26 of the ’218 patent, claims 1 and 17 of the ’370 patent, claims 18 and 19 of the ’147 patent would not have been allowed.

385. Although the Sjostrom Air Quality V Article was dated after the filing of Provisional Application No. 60/605,640 (Aug. 30, 2004), the named inventors cited other references dated after Aug. 30, 2004 to the USPTO Examiner during prosecution of the Patents-

in-Suit. For example, the named inventors cited German patent publication no. DE 10 233 173 (dated March 2006) to the USPTO Examiner during prosecution of the '219 Application.

Intent To Deceive By Withholding The Sjostrom Air Quality V Article

386. d The named inventors knew that they were not the first ones to conceive of the idea of adding bromine or a bromide compound to the furnace or to the flue gas to reduce mercury emissions.

387. For example, named inventor Edwin Olson admitted under oath that the inventors at the EERC "were not the first" ones to conceive of the idea of adding bromine or a bromide compound to the furnace or to the flue gas. Exhibit 7 at 145:25-146:4.

388. But instead of admitting they were not the first ones to conceive of this concept, the named inventors hid this critical information form the USPTO, including several material references that disclosed the idea of adding bromine or a bromide compound to the furnace or to the flue gas to reduce mercury emissions.

389. On information and belief, named inventor Edwin Olson was aware of the existence of the Sjostrom Air Quality V Article during prosecution of the Patents-in-Suit.

390. On information and belief, named inventor Michael Holmes was aware of the existence of the Sjostrom Air Quality V Article during prosecution of the Patents-in-Suit.

391. On information and belief, named inventor John Pavlish was aware of the existence of the Sjostrom Air Quality V Article during prosecution of the Patents-in-Suit.

392. On information and belief, Thomas Erickson was aware of the existence of the Sjostrom Air Quality V Article during prosecution of the Patents-in-Suit.

393. On information and belief, named inventor Edwin Olson was aware of the materiality of the Sjostrom Air Quality V Article during prosecution of the Patents-in-Suit.

394. On information and belief, named inventor Michael Holmes was aware of the materiality of the Sjostrom Air Quality V Article during prosecution of the Patents-in-Suit.

395. On information and belief, named inventor John Pavlish was aware of the materiality of the Sjostrom Air Quality V Article during prosecution of the Patents-in-Suit.

396. On information and belief, Thomas Erickson was aware of the materiality of the Sjostrom Air Quality V Article during prosecution of the Patents-in-Suit.

397. The Air Quality V Conference took place September 19–21, 2005 at the Marriott Crystal Gateway in Arlington, Virginia, United States.

398. The Air Quality V Conference was organized and sponsored by EERC. *See* Exhibit 6.

399. EERC is the organization that filed and was the assignee of the ’219 Application.

400. Named inventor Edwin Olson attended the Air Quality V Conference.

401. Named inventor Michael Holmes attended the Air Quality V Conference.

402. Named inventor John Pavlish attended the Air Quality V Conference.

403. Thomas Erickson attended the Air Quality V Conference.

404. Named inventor Edwin Olson submitted research articles for distribution and/or presentation to attendees at the Air Quality V Conference, including a paper presented during Session A5 (A), entitled “Oxidation Kinetics and the Model for Mercury Capture on Carbon in Flue Gas.”

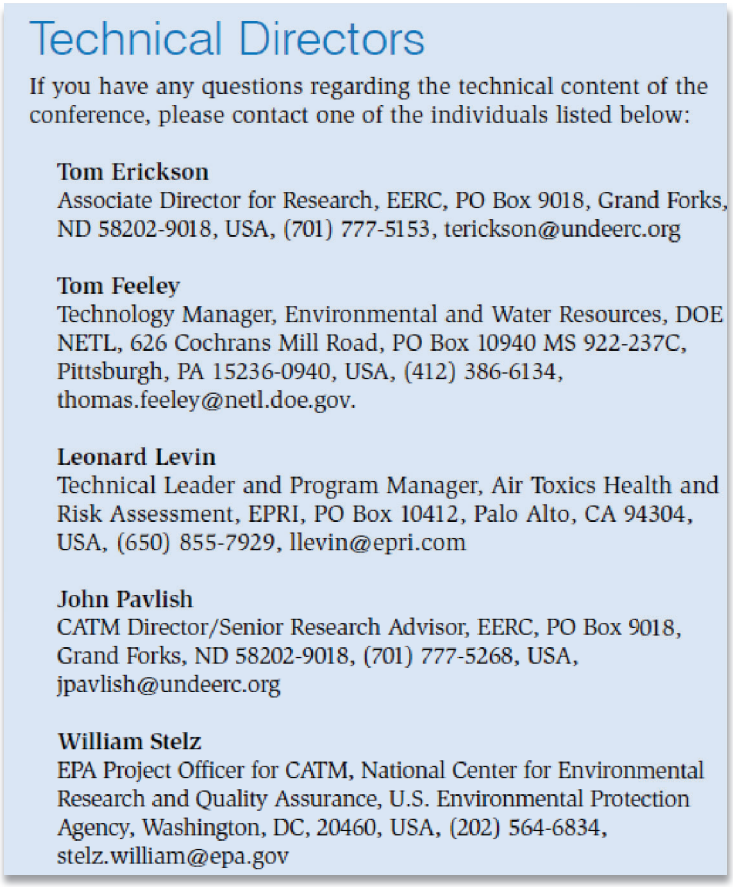
405. Named inventor Michael Holmes submitted research articles for distribution and/or presentation to attendees at the Air Quality V Conference.

406. Named inventor John Pavlish submitted research articles for distribution and/or presentation to attendees at the Air Quality V Conference.

407. Named inventor John Pavlish was a Technical Director of the Air Quality V Conference. *See* Exhibit 6 at 17.

408. Thomas Erickson was a Technical Director of the Air Quality V Conference. *See* Exhibit 6 at 17.

409. An excerpt from the Final Program Schedule for the Air Quality V Conference, Exhibit 6, is shown below and identifies Thomas Erickson and John Pavlish as Technical Directors of the Air Quality V conference.



Technical Directors

If you have any questions regarding the technical content of the conference, please contact one of the individuals listed below:

Tom Erickson
Associate Director for Research, EERC, PO Box 9018, Grand Forks, ND 58202-9018, USA, (701) 777-5153, terickson@undeerc.org

Tom Feeley
Technology Manager, Environmental and Water Resources, DOE NETL, 626 Cochrans Mill Road, PO Box 10940 MS 922-237C, Pittsburgh, PA 15236-0940, USA, (412) 386-6134, thomas.feeley@netl.doe.gov.

Leonard Levin
Technical Leader and Program Manager, Air Toxics Health and Risk Assessment, EPRI, PO Box 10412, Palo Alto, CA 94304, USA, (650) 855-7929, llevin@epri.com

John Pavlish
CATM Director/Senior Research Advisor, EERC, PO Box 9018, Grand Forks, ND 58202-9018, (701) 777-5268, USA, jpavlish@undeerc.org

William Stelz
EPA Project Officer for CATM, National Center for Environmental Research and Quality Assurance, U.S. Environmental Protection Agency, Washington, DC, 20460, USA, (202) 564-6834, stelz.william@epa.gov

410. Thomas Erickson was also a Session Coordinator for the poster session that took place at the Air Quality V Conference. *See* Exhibit 6 at 7.

411. Named inventor Michael Holmes was "Session Coordinator" for Session A5 (B) of the Air Quality V Conference. *See* Exhibit 6 at 7.

412. Session A5 (B) of the Air Quality V Conference was entitled "Control: Sorbent Technologies." *See* Exhibit 6 at 10.

413. Session A5 (B) of the Air Quality V Conference took place on September 21, 2005. *See* Exhibit 6 at 10.

414. An excerpt from the Final Program Schedule for the Air Quality V Conference, Exhibit 6 at 10, is shown below describing Session A5 (B):



415. Named inventor Michael Holmes attended Session A5 (B) of the Air Quality V Conference.

416. Named inventor John Pavlish attended Session A5 (B) of the Air Quality V Conference.

417. Named inventor John Pavlish authored a paper that was scheduled for presentation at 10:40 am on September 21, 2005 at Session A5 (B) of the Air Quality V Conference, entitled "Sorbent Injection into a Slipstream Baghouse for Mercury Control: Screening and Parametric Results."

418. Below is an excerpt from the Final Program Schedule for the Air Quality V Conference, Exhibit 6 at 11, showing presentation of named inventor John Pavlish's paper during Session A5 (B).

10:40 a.m.	"Sorbent Injection into a Slipstream Baghouse for Mercury Control: Screening and Parametric Results," Jeffrey Thompson, Research Scientist, with J. Pavlish, EERC, Grand Forks, ND, USA; D. Smith and S. Podwin, SaskPower, Regina, SK, Canada; L. Brickett, DOE NETL, Pittsburgh, PA, USA; and L. Lindau, Global Technology, Växjö, Sweden
11:05 a.m.	"Full-Scale Evaluations of Mercury Control for Units Firing Powder River Basin Coals," Sharon Sjostrom, Director of Technology Development, with T. Starns, C. Wilson, J. Amrhein, M. Durham, and J. Bustard, ADA-ES, Inc., Littleton, CO, USA; A. O'Palko, DOE NETL, Morgantown, WV, USA; and R. Chang, EPRI, Palo Alto, CA, USA

419. The Sjostrom Air Quality V Conference Paper was presented during Session A5 (B) of the Air Quality V Conference. *See* Exhibit 6 at 11.

420. The Sjostrom Air Quality V Conference Paper was scheduled to be presented at 11:05 a.m. on September 21, 2005, during Session A5 (B) of the Air Quality V Conference.

421. The Sjostrom Air Quality V Conference Paper was presented immediately after named inventor John Pavlish's "Sorbent Injection into a Slipstream Baghouse for Mercury Control: Screening and Parametric Results" paper at the Air Quality V Conference.

422. Named inventor John Pavlish attended the presentation of the Sjostrom Air Quality V Conference Paper.

423. As Session Coordinator for the Session A5 (B) of the Air Quality V Conference, named inventor Michael Holmes attended the presentation of the Sjostrom Air Quality V Conference Paper.

424. As Technical Director of the Air Quality V Conference, and as a presenter during Session A5 (B), named inventor John Pavlish attended the presentation of the Sjostrom Air Quality V Conference Paper.

425. Named inventor Michael Holmes received a copy of the Sjostrom Air Quality V Conference Paper prior to filing the '219 Application on April 6, 2009.

426. Named inventor John Pavlish received a copy of the Sjostrom Air Quality V Conference Paper prior to filing the '219 Application on April 6, 2009.

427. Named inventor Edwin Olson received a copy of the Sjostrom Air Quality V Conference Paper prior to filing the '219 Application on April 6, 2009.

428. Thomas Erickson received a copy of the Sjostrom Air Quality V Conference Paper prior to filing the '219 Application on April 6, 2009.

429. None of the named inventors (Edwin Olson, Michael Holmes, and John Pavlish), Thomas Erickson, or anyone else during prosecution of any of the Patents-in-Suit or the '147 patent informed the USPTO about the existence of the Sjostrom Air Quality V Article, let alone its relevance and materiality to patentability.

430. The decision to withhold the Sjostrom Air Quality V Article was part of a pattern of intentional withholding of material prior art, as further alleged below, with intent to deceive during prosecution of the Patents-in-Suit and the '147 patent.

431. The decision to withhold the Sjostrom Air Quality V Article by the named inventors was not due to any misperception about the priority date of the alleged inventions in the Patents-

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in-Suit. This decision was driven by the named inventors' intent to deceive the USPTO to issue claims without having the benefit of material invalidating prior art, including the Sjostrom Air Quality V Article. This is evident from the fact that, while the named inventors disclosed numerous post-2005 references to the USPTO during prosecution of the Patents-in-Suit, they did not disclose the Sjostrom Air Quality V Article during the prosecution of the Patents-in-Suit. The laundry list of post-2005 references that were submitted to the USPTO during prosecution of the Patents-in-Suit include (but not limited to) the following: U.S. Patent Publication No. 2014/0224121 (Mimna), U.S. Patent Publication No. 2013/0157845 (Nalepa), U.S. Patent Publication No. 2012/0100053 (Durham), U.S. Patent Publication No. 2011/0168018 (Mohamadalizadeh), U.S. Patent Publication No. 2011/0076210 (Pollack), U.S. Patent Publication No. 2010/0024642 (Fukumoto), U.S. Patent Publication No. 2009/0320678 (Chang), U.S. Patent Publication No. 2009/0235848 (Eiteneer), U.S. Patent Publication No. 2009/0136401 (Yang), U.S. Patent Publication No. 2009/0021708 (Boxmeer), among many others.

432. Given the named inventors' and the prosecution counsel's submission of numerous post-2005 references to the USPTO during prosecution of the Patents-in-Suit (as shown above), the named inventors and the prosecution counsel knew that the claims of the Patents-in-Suit would not be entitled to the filing date of the '640 Provisional Application, the '163 Application, or the '219 Application. If the named inventors truly believed that the claims of the Patents-in-Suit were entitled to the filing date of the '640 Provisional Application and the '163 Application without a break in priority, there would have been no need for them to bury the USPTO examiner with numerous post-2005 references.

433. The named inventors submitted the numerous post-2005 references[35] because they knew the claims of the Patents-in-Suit were not entitled to the August 2004 or the August 2005 priority date.

434. The single most reasonable inference that can be drawn from the decision of each of Edwin Olson, Michael Holmes, John Pavlish, and Thomas Erickson to withhold the Sjostrom Air Quality V Article from the USPTO during prosecution of the '219 Application, is that they acted with specific intent to deceive the USPTO in order to obtain issuance of the '147 patent and each of the Patents-in-Suit.

The Named Inventors Were Aware That The Sjostrom Air Quality V Conference Paper Disclosed Bromide Compounds Added To Coal

435. On information and belief, at least named inventor John Pavlish was aware that the "KNX" disclosed in the Sjostrom Air Quality V Conference Paper contained a reference to a bromine-containing compound added to coal.

436. On information and belief, at least named inventor Michael Holmes was aware that the "KNX" disclosed in the Sjostrom Air Quality V Conference Paper contained a reference to a bromine-containing compound added to coal.

437. On information and belief, at least named inventor Edwin Olson was aware that the "KNX" disclosed in the Sjostrom Air Quality V Conference Paper contained a reference to a bromine-containing compound added to coal.

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[35] *See e.g.*, U.S. Patent Publication No. 2014/0224121 (Mimna), U.S. Patent Publication No. 2013/0157845 (Nalepa), U.S. Patent Publication No. 2012/0100053 (Durham), U.S. Patent Publication No. 2011/0168018 (Mohamadalizadeh), U.S. Patent Publication No. 2011/0076210 (Pollack), U.S. Patent Publication No. 2010/0024642 (Fukumoto), U.S. Patent Publication No. 2009/0320678 (Chang), U.S. Patent Publication No. 2009/0235848 (Eiteneer), U.S. Patent Publication No. 2009/0136401 (Yang), U.S. Patent Publication No. 2009/0021708 (Boxmeer), among many others.

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438. On information and belief, at least Thomas Erickson was aware that the "KNX" disclosed in the Sjostrom Air Quality V Conference Paper contained a reference to a bromine-containing compound added to coal.

439. Michael Holmes, Edwin Olson, John Pavlish, and Thomas Erickson each attended the Air Quality VI conference in that took place September 24-27, 2007 in Arlington, Virginia.

440. Named inventor John Pavlish was a Technical Director of the Air Quality VI Conference.

441. Named inventor Michael Holmes was a Panel Coordinator of the Air Quality VI Conference.

442. Named inventor Edwin Olson was a "Session Chair" for Session A5 of the Air Quality VI Conference, entitled: "Mercury Control: Fundamentals/Science"

443. Thomas Erickson was a Technical Director of the Air Quality VI Conference.

444. Thomas Erickson provided "Welcome and Introductions" on September 24, 2007, at the start of the Air Quality VI Conference.

445. Thomas Erickson was the Session Coordinator for Session A2 and the Poster Session at the Air Quality VI Conference.

446. Named inventors John Pavlish, Michael Holmes, and Edwin Olson each attended Session A5 of the Air Quality VI Conference.

447. Attached as Exhibit 8 is a true and correct copy of the Final Program Schedule for the Air Quality VI Conference and attached as Exhibit 9 is Paper No. A5-1 presented at that conference.

448. During Session A5 of the Air Quality VI Conference, Paper No. A5-1 was presented, entitled "Impact of Halogen Injection on Mercury Speciation and Capture in Coal-Fired Power Plants."

449. Paper No. A5-1 of the Air Quality VI Conference discusses a "process by which bromine compounds are added to the fuel or the combustion zone in furnaces and this process has been licensed in the U.S. by ALSTOM under the name of KNX additive."

450. Named inventor John Pavlish received a copy of Paper No. A5-1 prior to the filing of the '219 Application.

451. Named inventor Michael Holmes received a copy of Paper No. A5-1 prior to the filing of the '219 Application.

452. Named inventor Edwin Olson received a copy of Paper No. A5-1 prior to the filing of the '219 Application.

453. Thomas Erickson received a copy of Paper No. A5-1 prior to the filing of the '219 Application.

Additional Evidence Showing Awareness Of The Existence And Materiality Of The Sjostrom Air Quality V Article

454. On information and belief, named Inventor John Pavlish was further aware of the existence and materiality of the Sjostrom Air Quality V Article to prosecution of the '219 Application and to prosecution of each of the Patents-in-Suit, and intended to deceive the USPTO into issuing the Patents-in-Suit and the '147 patent, because he continued to cite the Sjostrom Air Quality V Article to other organizations—but not to the USPTO.

455. On information and belief, named Inventor Michael Holmes was further aware of the existence and materiality of the Sjostrom Air Quality V Article to prosecution of the '219 Application and to prosecution of each of the Patents-in-Suit, and intended to deceive the USPTO

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into issuing the Patents-in-Suit and the '147 patent, because he continued to cite the Sjostrom Air Quality V Article to other organizations—but not to the USPTO.

456. Attached as Exhibit 10 is a true and correct copy of Volume 12 Issue 1 of the CATM Technical Newsletter from March 2006 (**"**CATM Technical Newsletter").

457. The CATM Technical Newsletter was made available on the "CATM Newsletters & Reports" of the EERC Website.[36]

458. Attached as Exhibit 11 is a true and correct copy of the list of references cited in the CATM Technical Newsletter.

459. The references cited in the CATM Technical Newsletter was made available on the "CATM Newsletters & Reports" of the EERC Website.[37]

460. From at least March 2006 through November 2011, John Pavlish was Technical Director for the Center for Air Toxic Metals (**"CATM"**) at the University of North Dakota Energy & Environmental Research Center.[38]

461. From at least March 2006 through November 2011, Michael Holmes was manager of the "Control Technologies" program area for CATM.[39]

462. Named inventor John Pavlish was substantively involved in preparing and/or the CATM Technical Newsletter.

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[36] *See* https://web.archive.org/web/20060520205930/http:/www.undeerc.org:80/catm/newsletters.html.

[37] *See, e.g.*, https://web.archive.org/web/20060520205930/http:/www.undeerc.org:80/catm/newsletters.html; https://web.archive.org/web/20071110211004/http://www.undeerc.org/catm/pdf/Volume12Issue1Ref.pdf.

[38] https://web.archive.org/web/20060113103347/http://www.undeerc.org/catm/area3_catm.htm.

[39] https://web.archive.org/web/20060113103347/http://www.undeerc.org/catm/area3_catm.htm; https://web.archive.org/web/20111110031030/http://www.undeerc.org/catm/area3_catm.htm.

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463. Named inventor Michael Holmes was substantively involved in preparing and/or reviewing the CATM Technical Newsletter.

464. In the CATM Technical Newsletter, named inventor John Pavlish states, "I would like to welcome you to the CATM Newsletter and the ongoing discussion of issues concerning air toxic metals and related research." An excerpt of the CATM Technical Newsletter is shown below:


CATM Technical Newslette

As Director of CATM, I would like to welcome you to the CATM Newsletter and the ongoing discussion of issues concerning air toxic metals and related research.

In spring 2005, when EPA released the Clean Air Interstate Rule (CAIR) and the Clean Air Mercury Rule (CAMR), there was a great deal of debate. Some said CAMR did not go

John H. Pavlish, CATM Director

465. In the CATM Newsletter, named inventor John Pavlish provided a summary, stating that the "Air Quality V (AQ5) International Conference on Mercury, Trace Elements, SO_3, and Particulate Matter was held in Arlington, Virginia, September 19021, 2005" that included "525 registrants from 212 organizations, representing 15 countries and 41 states." Exhibit 10 at 2.

466. In the CATM Newsletter, named inventor John Pavlish stated, "ADA-ES used Alstom's proprietary halogenated-based chemical called KNX (45). This additive was applied directly to the coal at Holcomb, Laramie River, and Meramec." Exhibit 10 at 10.

467. Thus, it is beyond doubt that named inventor John Pavlish knew that the Sjostrom Air Quality V Article was material because it disclosed the use of a halogen-based chemical that was applied directly to coal at a power plant to reduce mercury emissions.

468. In the CATM Newsletter, named inventor John Pavlish also stated, "The third test was conducted by a team led by ADA-ES (45). One of the objectives of the project was to test NORIT DARCO® Hg carbon at four sites—Holcomb, Laramie River, Meramec, and the Monroe Power Plants—to better determine ACI effectiveness for mercury control at plants firing Powder River Basin (PRB) coal." Exhibit 10 at 9.

469. The term "ACI" is an abbreviation for "Activated Carbon Injection."

470. Reference (45), discussed by named inventor John Pavlish in the CATM Newsletter, was the Sjostrom Air Quality V Conference Article. *See* Exhibit 11 at 4 (excerpted below):

45. Sjostrom, S.; Starns, T.; Wilson, C.; Amrhein, J.; Durham, M.; Bustard, J.; O'Palko, A.; Chang, R. Full-Scale Evaluations of Mercury Control for Units Firing Powder Basin Coals. In *Proceedings of the Air Quality V: Mercury, Trace Elements, SO_3, and Particulate Matter Conference*; Arlington, VA, Sept 19–21, 2005.

471. Named inventor John Pavlish cited the Sjostrom Air Quality V Conference Article in the CATM Newsletter in March 2006, but did not cite the Sjostrom Air Quality V Conference Article to the USPTO.

472. Named inventor Michael Holmes cited the Sjostrom Air Quality V Conference Article in the CATM Newsletter in March 2006, but did not cite the Sjostrom Air Quality V Conference Article to the USPTO.

473. Attached as Exhibit 12 is a true and correct copy of "Mercury Information Clearinghouse: Quarter 8—Commercialization Aspects of Sorbent Injection Technologies in Canada" (October 2005) (**"Mercury Clearinghouse Q8 Report"**).

474. The Mercury Clearinghouse Q8 Report was made available on the "CATM Newsletters & Reports" of the EERC Website.[40]

475. Copies of the Mercury Clearinghouse Q8 were submitted to the Canadian Electricity Association and to the United States Department of Energy.

476. Named inventor John Pavlish was substantively involved in preparing and/or reviewing Mercury Clearinghouse Q8 Report.

477. Named inventor Michael Holmes was substantively involved in preparing and/or reviewing Mercury Clearinghouse Q8 Report.

478. The Mercury Clearinghouse Q8 identifies "Michael J. Holmes" and "John H. Pavlish" to contact for more information, and provides each of their phone numbers, addresses, and email addresses. Exhibit 12 at 19.

479. The Mercury Clearinghouse Q8 states, "Data also indicate that putting in low-cost proprietary additives, such as the EERC sorbent enhancement additive (SEA)2 or Alstom's KNX, ACI rates may even be lower (3, 4)." Exhibit 12 at 4.

480. Reference (3), discussed in Mercury Clearinghouse Q8, was the Sjostrom Air Quality V Conference Article. *See* Exhibit 12 at 20 (excerpted below):

[40] *See* https://web.archive.org/web/20060520205930/http:/www.undeerc.org:80/catm/newsletters.html.

3. Sjostrom, S.; Starns, T.; Wilson, C.; Amrhein, J.; Durham, M.; Bustard, J. C.; O'Palko, B.A.; Chang, R. Full-Scale Evaluations of Mercury Control for Units Firing Powder River Basin Coal. In *Proceedings of Air Quality V: International Conference on Mercury, Trace Elements, SO_3, and Particulate Matter*; Arlington, VA, Sept 2005.

481. Named inventor John Pavlish cited the Sjostrom Air Quality V Conference Article in the Mercury Clearinghouse Q8, but did not cite the Sjostrom Air Quality V Conference Article to the USPTO.

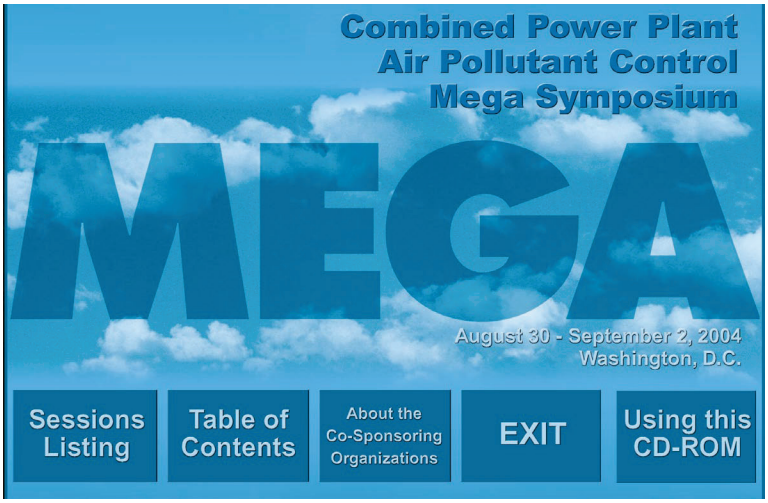
482. Named inventor Michael Holmes cited the Sjostrom Air Quality V Conference Article in the Mercury Clearinghouse Q8, but did not cite the Sjostrom Air Quality V Conference Article to the USPTO.

483. The Sjostrom Air Quality V Article was material to the patentability of the Patents-in-Suit and '147 patent.

484. Named inventors (Holmes, Olson, Pavlish) and Erickson intended to deceive the USPTO into issuing the Asserted Patents and '147 patent by deliberately withholding the Sjostrom Air Quality V Conference Article from the USPTO.

The Sjostrom Mega 2004 Article Qualifies as Prior Art

485. The Mega 2004 conference ("Combined Power Plant Air Pollutant Control Mega Symposium") was organized by EPRI, EPA, NETL and Air & Waste Management Association in Washington, D.C. The conference took place between August 30 and September 2, 2004. *See* Exhibit 13.



486. The organizers of the Mega 2004 conference made the conference materials and final program available to its participants at least as early as August 21, 2004.[41] Thus, the Sjostrom Mega 2004 Article qualifies as prior art.

487. Exhibit 14 is a true and correct copy of the final program schedule for the Mega 2004 conference. *See* Exhibit 14.

488. The Sjostrom Mega 2004 Article was publicly accessible by August 30, 2004 when it was presented to conference attendees at the Mega 2004 conference in Washington, D.C., United States.

489. The Sjostrom Mega 2004 Article was publicly accessible no later than September 2, 2004 through members of the interested public being able to order the Sjostrom Mega 2004 Article from Air & Waste Management Association.[42]

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[41] https://web.archive.org/web/20040821090800/http:/www.awma.org/events/.

[42] https://web.archive.org/web/20040821090800/http://www.awma.org/events/; https://web.archive.org/web/20040904131937/http://www.megasymposium.org/; https://web.archive.org/web/20040904184810/http://www.megasymposium.org/Preliminaryprogrammega.pdf; https://web.archive.org/web/20040904190421/http://www.megasymposium.org/Mega%20Grid%20Final.pdf;

490. The specification of the ’147 patent does not provide written-description support for claims 18 and 19 of the ’147 patent.

491. The named inventors knew and were aware that the specification of the ’147 patent does not provide written-description support for claims 18 and 19 of the ’147 patent.

492. Claims 18 and 19 of the ’147 patent are entitled to a priority date no earlier than April 6, 2009, which is the day they were first proposed as claims in the ’219 Application.

493. The named inventors knew and were aware that claims 18 and 19 of the ’147 patent are entitled to a priority date no earlier than April 6, 2009, which is the day they were first proposed as claims in the ’219 Application.

494. The Sjostrom Mega 2004 Article qualifies as prior art to claims 18 and 19 of the ’147 patent pursuant to at least 35 U.S.C. §§ 102(a) and 102(b) (pre-AIA).

495. The specification of the ’114 patent does not provide written-description support for claims 1, 23, 24 and 25 of the ’114 patent.

496. Claims 1, 23, 24 and 25 of the ’114 patent are entitled to a priority date no earlier than May 14, 2018, which is the date on which the continuation-in-part application leading to the ’114 patent was filed.

497. The Sjostrom Mega 2004 Article qualifies as prior art to claims 1, 23, 24 and 25 of the ’114 patent pursuant to at least 35 U.S.C. §§ 102(a) and 102(b) (pre-AIA).

498. The specification of the ’225 patent does not provide written-description support for claims 1, 14, 16 and 17 of the ’225 patent.

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https://web.archive.org/web/20040904222756/http://www.megasymposium.org/registrationfeesdetails.asp; https://www.proceedings.com/00122.html.

499. Claims 1, 14, 16 and 17 of the ’225 patent are entitled to a priority date no earlier than May 15, 2015, which corresponds to the filing date of the preliminary amendment to the ’225 patent’s application (No. 14/712,558) in which the claims were amended to add disclosure.

500. The Sjostrom Mega 2004 Article qualifies as prior art to claims 1, 14, 16 and 17 of the ’225 patent pursuant to at least 35 U.S.C. §§ 102(a) and 102(b) (pre-AIA).

501. The specification of the chain of patents leading up to the ’517 patent does not provide written-description support for claims 1, 29, and 30 of the ’517 patent.

502. Claims 1, 29, and 30 of the ’517 patent are entitled to a priority date no earlier than April 12, 2018, which corresponds to the actual filing date of the parent application (No. 15/951,970) in which the specification was amended to add disclosure.

503. The Sjostrom Mega 2004 Article qualifies as prior art to claims 1, 29, and 30 of the ’517 patent pursuant to at least 35 U.S.C. §§ 102(a) and 102(b) (pre-AIA).

504. The specification of the chain of patents leading up to the ’430 patent does not provide written-description support for claims 1, 28, and 29 of the ’430 patent.

505. Claims 1, 28, and 29 of the ’430 patent are entitled to a priority date no earlier than April 12, 2018, which corresponds to the actual filing date of the parent application (No. 15/951,970) in which the specification was amended to add disclosure.

506. The Sjostrom Mega 2004 Article qualifies as prior art to claims 1, 28, and 29 of the ’430 patent pursuant to at least 35 U.S.C. §§ 102(a) and 102(b) (pre-AIA).

507. The specification of the chain of patents leading up to the ’218 patent does not provide written-description support for claims 1, 25, and 26 of the ’218 patent.

508. Claims 1, 25, and 26 of the ’218 patent are entitled to a priority date no earlier than April 12, 2018, which corresponds to the actual filing date of the parent application (No. 15/951,970) in which the specification was amended to add disclosure.

509. The Sjostrom Mega 2004 Article qualifies as prior art to claims 1, 25, and 26 of the ’218 patent pursuant to at least 35 U.S.C. §§ 102(a) and 102(b) (pre-AIA).

510. The specification of the chain of patents leading up to the ’370 patent does not provide written-description support for claims 1 and 17 of the ’370 patent.

511. Claims 1 and 17 of the ’370 patent are entitled to a priority date no earlier than April 12, 2018, which corresponds to the actual filing date of the parent application (No. 15/951,970) in which the specification was amended to add disclosure.

512. The Sjostrom Mega 2004 Article qualifies as prior art to claims 1 and 17 of the ’370 patent pursuant to at least 35 U.S.C. §§ 102(a) and 102(b) (pre-AIA).

The Sjostrom Mega 2004 Article Was Material to Patentability

513. Had the USPTO Examiner been provided with the Sjostrom Mega 2004 Article, the USPTO Examiner would not have allowed the claims of the ’219 Application. In particular, at least claims 18 and 19 of the ’147 patent would not have issued.

514. Had the USPTO Examiner been provided with the Sjostrom Mega 2004 Article, the USPTO Examiner would not have allowed the claims 1, 23, 24, and 25 of the ’114 patent.

515. Had the USPTO Examiner been provided with the Sjostrom Mega 2004 Article, the USPTO Examiner would not have allowed the claims 1, 14, 16, and 17 of the ’225 patent.

516. Had the USPTO Examiner been provided with the Sjostrom Mega 2004 Article, the USPTO Examiner would not have allowed the claims 1, 29 and 30 of the ’517 patent.

517. Had the USPTO Examiner been provided with the Sjostrom Mega 2004 Article, the USPTO Examiner would not have allowed the claims 1, 28, and 29 of the ’430 patent

518. Had the USPTO Examiner been provided with the Sjostrom Mega 2004 Article, the USPTO Examiner would not have allowed the claims 1, 25, and 26 of the ’218 patent.

519. Had the USPTO Examiner been provided with the Sjostrom Mega 2004 Article, the USPTO Examiner would not have allowed the claims 1 and 17 of the ’370 patent.

520. The Sjostrom Mega 2004 Article describes techniques developed by Sharon Sjostrom and others at ADA-ES, Inc. that involved removing mercury by burning coal with added Br_2, HBr, a bromide compound, or a combination thereof, and then contacting a bromine containing promoter in gaseous form when it comes into contact with activated carbon.

521. The Sjostrom Mega 2004 Article discloses on page 12 “Sorbent Type and Injection Concentration” where it discloses using “DARCO FGD” which was manufactured by “NORIT Americas.”

522. The Patents-in-Suit also discloses embodiments using activated carbon, including the “Darco FGD sorbent” product manufactured by “NORIT Americas.” *See, e.g.,* ’225 patent at 5:52-54, 14:55-61.

523. The exemplary brand of activated carbon used in the Sjostrom Mega 2004 Article is identical with that used in embodiments of the Patents-in-Suit.

524. The Sjostrom Mega 2004 Article also teaches on page 14 burning coal with an added bromide compound. The Sjostrom Mega 2004 Article states:

> One of the parametric testing conditions was to ***add a chemical to the coal to increase the halogen concentration in the flue gas in an attempt to enhance mercury capture***. The additive was KNX, a proprietary ALSTOM Power mercury control technology.

> ***KNX was applied to the coal at the crusher house prior to entering the transfer house and coalbunkers***. At this chemical injection location, it was estimated that it would take 4–5 hours before the "treated" coal would be fired in the boiler. The chemical additive was applied to the coal continuously for a period of 48 hours. This would ensure that the entire system was "conditioned" with the additive. During this testing condition, mercury speciation at the outlet of the air preheater changed substantially from baseline levels.
>
> * * *
>
> ***The final day of chemical additive testing included the injection of the DARCO FGD sorbent at the SDA inlet location in conjunction with addition of the KNX additive to the coal***. The sorbent injection concentration at the inlet to the SDA was 1.1 lb/MMacf while the chemical additive flowrate was held steady at 20 gph. This parametric testing condition showed the total mercury capture across the system was 86% compared to 54% with DARCO FGD alone (no KNX). ***These data, plotted in Figure 7, clearly indicate the improved performance of DARCO FGD when halogens are added to the flue gas.***
>
> An additional data set is included on the graph in Figure 7 comparing the performance of DARCO FGD + KNX with performance of DARCO FGD on a unit burning PRB coal with a fabric filter and no SDA (Sjostrom et al., 1997). The data indicate that the addition of KNX allows the DARCO FGD to perform as well as it would in the absence of an SDA.

525. The "KNX" chemical additive added to coal, discussed in the Sjostrom Mega 2004 Article, included a bromide compound.

526. As discussed below, named inventor John Pavlish attended presentations describing that KNX included a bromide compound.

527. As discussed below, named inventor Michael Holmes attended presentations describing that KNX included a bromide compound.

528. As discussed below, named inventor Edwin Olson attended presentations describing that KNX included a bromide compound.

529. As discussed below, Thomas Erickson attended presentations describing that KNX included a bromide compound.

530. The Sjostrom Mega 2004 Article renders obvious under 35 U.S.C. § 103 at least claims 1, 23, 24, and 25 of the ’114 patent, claims 1, 14, 16, and 17 of the ’225 patent, claims 1, 29 and 30 of the ’517 patent, claims 1, 28, and 29 of the ’430 patent, claims 1, 25, and 26 of the ’218 patent, and claims 1 and 17 of the ’370 patent.

531. The Sjostrom Mega 2004 Article was material to the patentability and prosecution of the Patents-in-Suit.

532. The Sjostrom Mega 2004 Article was not cumulative of any references that were before the Examiner during the prosecution of the Patents-in-Suit.

533. But for the withholding of the Sjostrom Mega 2004 Article from the USPTO Examiner during prosecution of the Patents-in-Suit and the ’219 Application, at least claims 1, 23, 24, and 25 of the ’114 patent, claims 1, 14, 16, and 17 of the ’225 patent, claims 1, 29 and 30 of the ’517 patent, claims 1, 28, and 29 of the ’430 patent, claims 1, 25, and 26 of the ’218 patent, claims 1 and 17 of the ’370 patent, claims 18 and 19 of the ’147 patent would not have been allowed.

534. The Sjostrom Mega 2004 Article was presented on the same day as the filing of Provisional Application No. 60/605,640 (Aug. 30, 2004). Regardless, it was prior art and should have been disclosed to the USPTO. The named inventors cited other references dated after Aug. 30, 2004 to the USPTO Examiner during prosecution of the Patents-in-Suit. For example, the named inventors cited German patent publication no. DE 10 233 173 (dated March 2006) to the USPTO Examiner during prosecution of the ’219 Application.

Intent To Deceive By Withholding The Sjostrom Mega 2004 Article

535. The named inventors knew that they were not the first ones to conceive of the idea of adding bromine or a bromide compound to the furnace or to the flue gas to reduce mercury emissions.

536. For example, named inventor Edwin Olson admitted under oath that the inventors at the EERC "were not the first" ones to conceive of the idea of adding bromine or a bromide compound to the furnace or to the flue gas. Exhibit 7 at 145:25-146:4.

537. But instead of admitting they were not the first ones to conceive of this concept, the named inventors hid this critical information form the USPTO, including several material references that disclosed the idea of adding bromine or a bromide compound to the furnace or to the flue gas to reduce mercury emissions.

538. On information and belief, named inventor Edwin Olson was aware of the existence of the Sjostrom Mega 2004 Article during prosecution of the Patents-in-Suit.

539. On information and belief, named inventor Michael Holmes was aware of the existence of the Sjostrom Mega 2004 Article during prosecution of the Patents-in-Suit.

540. On information and belief, named inventor John Pavlish was aware of the existence of the Sjostrom Mega 2004 Article during prosecution of the Patents-in-Suit.

541. On information and belief, Thomas Erickson was aware of the existence of the Sjostrom Mega 2004 Article during prosecution of the Patents-in-Suit.

542. On information and belief, named inventor Edwin Olson was aware of the materiality of the Sjostrom Mega 2004 Article during prosecution of the Patents-in-Suit.

543. On information and belief, named inventor Michael Holmes was aware of the materiality of the Sjostrom Mega 2004 Article during prosecution of the Patents-in-Suit.

544. On information and belief, named inventor John Pavlish was aware of the materiality of the Sjostrom Mega 2004 Article during prosecution of the Patents-in-Suit.

545. On information and belief, Thomas Erickson was aware of the materiality of the Sjostrom Mega 2004 Article during prosecution of the Patents-in-Suit.

546. The Combined Power Plant Air Pollutant Control Mega Symposium took place between August 30-September 2, 2004 at Washington, D.C., United States.

547. The Combined Power Plant Air Pollutant Control Mega Symposium was organized and sponsored by EPRI, EPA, NETL and Air & Waste Management Association.

548. Named inventor Michael Holmes attended the Combined Power Plant Air Pollutant Control Mega Symposium.

549. Named inventor John Pavlish attended the Combined Power Plant Air Pollutant Control Mega Symposium.

550. On information and belief, named inventor Edwin Olson attended the Combined Power Plant Air Pollutant Control Mega Symposium.

551. On information and belief, Thomas Erickson attended the Combined Power Plant Air Pollutant Control Mega Symposium.

552. Named inventors John Pavlish and Michael Holmes submitted research articles for distribution and/or presentation to attendees at the Combined Power Plant Air Pollutant Control Mega Symposium, including a paper presented during Session 1 entitled "Enhancing Carbon Reactivity for Mercury Control: Field Test Results from Leland Olds."

553. Named inventor Michael Holmes submitted research articles for distribution and/or presentation to attendees at the Combined Power Plant Air Pollutant Control Mega Symposium.

554. Named inventor John Pavlish submitted research articles for distribution and/or presentation to attendees at the Combined Power Plant Air Pollutant Control Mega Symposium.

555. Session 1 of the Combined Power Plant Air Pollutant Control Mega Symposium was entitled "Mercury Controls: Field Demonstrations." *See* Exhibit 14 at 1.

556. Session 1 of the Combined Power Plant Air Pollutant Control Mega Symposium took place on August 30, 2004.[43]

557. An excerpt from the program schedule for the Combined Power Plant Air Pollutant Control Mega Symposium, Exhibit 14 at 1, is shown below describing Session 1:

Session 1: Mercury Controls: Field Demonstrations

Field Test Program for Long-Term Operation of a COHPAC® System for Removing Mercury from Coal-Fired Flue Gas
J. Bustard, C. Lindsey, P. Brignac, T. Taylor, T. Starns, S. Sjostrom, R. Schlager, M. Durham, ADA-ES, Inc.; R. Chang, EPRI; A. O'Palko, DOE/NETL; et al.

Sorbent Injection for Mercury Control Upstream of Small-SCA ESPs
K. Dombrowski, C. Richardson, T. Machalek, URS Corporation; D. Chapman, U.S. DOE-NETL; R. Chang, EPRI; L. Monroe, M. Berry, N. Irvin, Southern Company Generation and Energy Marketing; K. McBee, Georgia Power; S. Sjostrom, ADA-ES; et al.

Full-Scale Mercury-Sorbent Injection Testing at DTE Energy's St. Clair Station
M. McCoy, W. Rogers, DTE Energy; J. Figueroa, U.S. DOE- NETL; R. Landreth, Sorbent Technologies Corporation

Full-Scale Evaluation of Mercury Control by Injecting Activated Carbon Upstream of a Spray Dryer and Fabric Filter
S. Sjostrom, T. Starns, J. Amrhein, M. Durham, J. Bustard, ADA-ES, Inc.; L. Lindau, Alstom Power; W. Penrod, C. Lineville, Sunflower Electric Power Corp; A. O'Palko, DOE/NETL; R. Chang, EPRI

[43] https://web.archive.org/web/20040904190421/http:/www.megasymposium.org/Mega%20Grid%20Final.pdf.

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558. Named inventor Michael Holmes attended Session 1 of the Combined Power Plant Air Pollutant Control Mega Symposium.

559. Named inventor John Pavlish attended Session 1 of the Combined Power Plant Air Pollutant Control Mega Symposium.

560. As shown above, named inventors John Pavlish and Michael Holmes authored a paper that was scheduled for presentation right after the Sjostrom Mega 2004 Article was presented during Session 1 at the Combined Power Plant Air Pollutant Control Mega Symposium.

561. The Sjostrom Mega 2004 Article was presented during Session 1 of the Combined Power Plant Air Pollutant Control Mega Symposium.

562. The Sjostrom Mega 2004 Article was presented immediately before named inventor John Pavlish's and Michael Holmes' "Enhancing Carbon Reactivity for Mercury Control: Field Test Results from Leland Olds" paper at the Combined Power Plant Air Pollutant Control Mega Symposium.

563. Named inventor Michael Holmes received a copy of the Sjostrom Mega 2004 Article prior to filing the ’219 Application on April 6, 2009.

564. Named inventor John Pavlish received a copy of the Sjostrom Mega 2004 Article prior to filing the ’219 Application on April 6, 2009.

565. Named inventor Edwin Olson received a copy of the Sjostrom Mega 2004 Article prior to filing the ’219 Application on April 6, 2009.

566. Thomas Erickson received a copy of the Sjostrom Mega 2004 Article prior to filing the ’219 Application on April 6, 2009.

567. None of the named inventors (Edwin Olson, Michael Holmes, and John Pavlish), Thomas Erickson, or anyone else during prosecution of any of the Patents-in-Suit or the ’147 patent informed the USPTO about the existence of the Sjostrom Mega 2004 Article, let alone its relevance and materiality to patentability.

568. The decision to withhold the Sjostrom Mega 2004 Article was part of a pattern of intentional withholding of material prior art, as further alleged below, with intent to deceive during prosecution of the Patents-in-Suit and the ’147 patent.

569. The decision to withhold the Sjostrom Mega 2004 Article by the named inventors was not due to any misperception about the priority date of the alleged inventions in the Patents-in-Suit. This decision was driven by the named inventors’ intent to deceive the USPTO to issue claims without having the benefit of material invalidating prior art, including the Sjostrom Mega 2004 Article. This is evident from the fact that, while the named inventors disclosed numerous post-2005 references to the USPTO during prosecution of the Patents-in-Suit, they did not disclose the Sjostrom Mega 2004 Article during the prosecution of the Patents-in-Suit. The laundry list of post-2005 references that were submitted to the USPTO during prosecution of the Patents-in-Suit

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include (but not limited to) the following: U.S. Patent Publication No. 2014/0224121 (Mimna), U.S. Patent Publication No. 2013/0157845 (Nalepa), U.S. Patent Publication No. 2012/0100053 (Durham), U.S. Patent Publication No. 2011/0168018 (Mohamadalizadeh), U.S. Patent Publication No. 2011/0076210 (Pollack), U.S. Patent Publication No. 2010/0024642 (Fukumoto), U.S. Patent Publication No. 2009/0320678 (Chang), U.S. Patent Publication No. 2009/0235848 (Eiteneer), U.S. Patent Publication No. 2009/0136401 (Yang), U.S. Patent Publication No. 2009/0021708 (Boxmeer), among many others.

570. Given the named inventors' and the prosecution counsel's submission of numerous post-2005 references to the USPTO during prosecution of the Patents-in-Suit (as shown above), the named inventors and the prosecution counsel knew that the claims of the Patents-in-Suit would not be entitled to the filing date of the '640 Provisional Application, the '163 Application, or the '219 Application. If the named inventors truly believed that the claims of the Patents-in-Suit were entitled to the filing date of the '640 Provisional Application and the '163 Application without a break in priority, there would have been no need for them to bury the USPTO examiner with numerous post-2005 references.

571. The named inventors submitted the numerous post-2005 references[44] because they knew the claims of the Patents-in-Suit were not entitled to the August 2004 or the August 2005 priority date.

[44] *See e.g.*, U.S. Patent Publication No. 2014/0224121 (Mimna), U.S. Patent Publication No. 2013/0157845 (Nalepa), U.S. Patent Publication No. 2012/0100053 (Durham), U.S. Patent Publication No. 2011/0168018 (Mohamadalizadeh), U.S. Patent Publication No. 2011/0076210 (Pollack), U.S. Patent Publication No. 2010/0024642 (Fukumoto), U.S. Patent Publication No. 2009/0320678 (Chang), U.S. Patent Publication No. 2009/0235848 (Eiteneer), U.S. Patent Publication No. 2009/0136401 (Yang), U.S. Patent Publication No. 2009/0021708 (Boxmeer), among many others.

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572. The single most reasonable inference that can be drawn from the decision of each of Edwin Olson, Michael Holmes, John Pavlish, and Thomas Erickson to withhold the Sjostrom Mega 2004 Article from the USPTO during prosecution of the '219 Application, is that they acted with specific intent to deceive the USPTO in order to obtain issuance of the '147 patent and each of the Patents-in-Suit.

The Named Inventors Were Aware That The Sjostrom Mega 2004 Article Disclosed Bromide Compounds Added To Coal

573. kOn information and belief, at least named inventor John Pavlish was aware that the "KNX" disclosed in the Sjostrom Mega 2004 Article contained a reference to a bromine-containing compound added to coal.

574. On information and belief, at least named inventor Michael Holmes was aware that the "KNX" disclosed in the Sjostrom Mega 2004 Article contained a reference to a bromine-containing compound added to coal.

575. On information and belief, at least named inventor Edwin Olson was aware that the "KNX" disclosed in the Sjostrom Mega 2004 Article contained a reference to a bromine-containing compound added to coal.

576. On information and belief, at least Thomas Erickson was aware that the "KNX" disclosed in the Sjostrom Mega 2004 Article contained a reference to a bromine-containing compound added to coal.

577. Michael Holmes and John Pavlish each attended the Combined Power Plant Air Pollutant Control Mega Symposium that took place during August 30-September 2, 2004 in Washington, D.C.

578. On information and belief, Edwin Olson and Thomas Erickson each attended the Combined Power Plant Air Pollutant Control Mega Symposium that took place during August 30-September 2, 2004 in Washington, D.C.

579. Named inventors John Pavlish and Michael Holmes each attended Session 1 of the Combined Power Plant Air Pollutant Control Mega Symposium.

580. On information and belief, Edwin Olson and Thomas Erickson each attended Session 1 of the Combined Power Plant Air Pollutant Control Mega Symposium.

581. During Session 1 of the Combined Power Plant Air Pollutant Control Mega Symposium, the paper entitled "Full-Scale Evaluation of Mercury Control by Injecting Activated Carbon Upstream of a Spray Dryer and Fabric Filter" was presented.

582. "Full-Scale Evaluation of Mercury Control by Injecting Activated Carbon Upstream of a Spray Dryer and Fabric Filter" (Sjostrom Mega 2004 Article) presented at the Combined Power Plant Air Pollutant Control Mega Symposium discusses "introducing halogens [] to treat the gas stream" and "to add a chemical to the coal to increase the halogen concentration in the flue gas in an attempt to enhance mercury capture."

583. Named inventor John Pavlish received a copy of Sjostrom Mega 2004 Article prior to the filing of the '219 Application.

584. Named inventor Michael Holmes received a copy of Sjostrom Mega 2004 Article prior to the filing of the '219 Application.

585. Named inventor Edwin Olson received a copy of Sjostrom Mega 2004 Article prior to the filing of the '219 Application.

586. Thomas Erickson received a copy of Sjostrom Mega 2004 Article prior to the filing of the '219 Application.

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Additional Evidence Showing Awareness Of The Existence And Materiality Of The Sjostrom Mega 2004 Article

587. d On information and belief, named Inventor John Pavlish was further aware of the existence and materiality of the Sjostrom Mega 2004 Article to prosecution of the '219 Application and to prosecution of each of the Patents-in-Suit, and intended to deceive the USPTO into issuing the Patents-in-Suit and the '147 patent, because he continued to discuss the testing data in Sjostrom Mega 2004 Article in his other publications—but did not disclose Sjostrom Mega 2004 Article to the USPTO.

588. On information and belief, named Inventor Michael Holmes was further aware of the existence and materiality of the Sjostrom Mega 2004 Article to prosecution of the '219 Application and to prosecution of each of the Patents-in-Suit, and intended to deceive the USPTO into issuing the Patents-in-Suit and the '147 patent, because he continued to discuss the testing data in Sjostrom Mega 2004 Article in his other publications— but did not disclose Sjostrom Mega 2004 Article to the USPTO.

589. On information and belief, named Inventor Edwin Olson was further aware of the existence and materiality of the Sjostrom Mega 2004 Article to prosecution of the '219 Application and to prosecution of each of the Patents-in-Suit, and intended to deceive the USPTO into issuing the Patents-in-Suit and the '147 patent, because he continued to discuss the testing data in Sjostrom Mega 2004 Article in his other publications— but did not disclose Sjostrom Mega 2004 Article to the USPTO.

590. For example, named inventors John Pavlish, Michael Holmes and Edwin Olson prepared and/or authored the "Mercury Information Clearinghouse."[45]

[45] Mercury Information Clearinghouse (available at https://www.osti.gov/biblio/907884).

591. Authors of the Mercury Clearinghouse Report include all three inventors of the Patents-in-Suit: Michael Holmes, John Pavlish, and Edwin Olson.

592. The Mercury Information Clearinghouse was available to the public as early as April 2006.[46]

593. The Mercury Information Clearinghouse consisted of quarterly reports. "A total of eight topical reports were completed and are summarized and updated in this final CEA quarterly report. The original quarterly reports can be viewed at the CEA Web site (www.ceamercuryprogram.ca)."[47]

594. Several quarterly reports contained within the Mercury Information Clearinghouse were available to the public much earlier.[48]

595. The website that published the quarterly reports was maintained by EERC employees and specifically identified John Pavlish.

596. In the report for Quarter 6, dated April 2005, named inventors John Pavlish, Michael Holmes and Edwin Olson reported the testing at the "Holcomb Station – Sunflower Electric Power Corporation," which is the same facility that was reported in the Sjostrom Mega 2004 Article.

597. In the report for Quarter 6, dated April 2005, named inventors John Pavlish, Michael Holmes and Edwin Olson stated that "Project results were documented in two symposium papers with the same titles, "Full-Scale Evaluation of Mercury Control by Injecting Activated

[46] Mercury Information Clearinghouse (available at https://www.osti.gov/biblio/907884).

[47] Mercury Information Clearinghouse (available at https://www.osti.gov/biblio/907884) at 3.

[48] https://web.archive.org/web/20050215000906/http:/www.undeerc.org/catm/newsletters.html.

Carbon Upstream of a Spray Dryer and Fabric Filter," and different primary authors (15, 16)." This is the same as the Sjostrom Mega 2004 Article.

598. The named inventors then cited to the Sjostrom Mega 2004 Article in the Mercury Information Clearinghouse, as shown below, but never disclosed Sjostrom Mega 2004 Article to the USPTO:

15. Sjostrom, S.; Starns, T.; Amrhein, J.; Bustard, J.; Durham, M.; Penrod, W.; Linville, C.; O'Palko, A.; Chang, R. Full-Scale Evaluation of Mercury Control by Injecting Activated Carbon. Presented at the Combined Power Plant Air Pollutant Control Mega Symposium, Washington DC, Aug 30–Sept 4, 2004.

16. Starns, T.; Sjostrom, S.; Amrhein, J.; Bustard, J.; Durham, M.; Penrod, W.; Linville, C.; O'Palko, A.; Chang, R. Full-Scale Evaluation of Mercury Control by Injecting Activated Carbon Upstream of a Spray Dryer and Fabric Filter. In *Proceedings of the 19th Western Fuels Symposium*; Billings, MT, Oct 2004.

599. Upon reporting the results of the Sjostrom Mega 2004 Article in the Mercury Information Clearinghouse, the named inventors reported that "These data indicate that the use of a fuel additive to increase the flue gas halogen concentration in conjunction with ACI can significantly increase mercury removal rates."

600. Thus, it is beyond doubt that named inventors knew that the Sjostrom Mega 2004 Article was material because it disclosed the use of a halogen-based chemical that was applied to coal at a power plant to reduce mercury emissions.

601. Named inventor John Pavlish was substantively involved in preparing and/or reviewing the portion of the Mercury Information Clearinghouse report that issued in April 2005.

602. Named inventor Michael Holmes was substantively involved in preparing and/or reviewing the portion of the Mercury Information Clearinghouse report that issued in April 2005.

603. Named inventor Edwin Olson was substantively involved in preparing and/or reviewing the portion of the Mercury Information Clearinghouse report that issued in April 2005.

604. The Mercury Information Clearinghouse report from April 2005 identifies "Michael Holmes" and "John Pavlish" as additional contact for their readers, and provides each of their phone numbers, addresses, and email addresses.

605. Named inventor John Pavlish cited the Sjostrom Mega 2004 Article in the Mercury Information Clearinghouse, but did not cite the Sjostrom Mega 2004 Article to the USPTO.

606. Named inventor Michael Holmes cited the Sjostrom Mega 2004 Article in the Mercury Information Clearinghouse, but did not cite the Sjostrom Mega 2004 Article to the USPTO.

The Sjostrom Quarterly Technical Report

607. The Sjostrom Quarterly Technical Report is not cited on the cover of any of the Patents-in-Suit or the '147 patent.

608. The Sjostrom Quarterly Technical Report was not disclosed to the USPTO during prosecution of any of the Patents-in-Suit or the '147 patent.

609. The Sjostrom Quarterly Technical Report would have established a prima facie case of unpatentability of one or more claims of the Patents-in-Suit and the '147 patent.

610. But for the failure to disclose the Sjostrom Quarterly Technical Report, at least claims 18 and 19 of the '147 patent would not have issued.

611. But for the failure to disclose the Sjostrom Quarterly Technical Report, at least claims 1, 23, 24, and 25 of the '114 patent would not have issued.

612. But for the failure to disclose the Sjostrom Quarterly Technical Report, at least claims 1, 14, 16, and 17 of the '225 patent would not have issued.

613. But for the failure to disclose the Sjostrom Quarterly Technical Report, at least claims 1, 29 and 30 of the '517 patent would not have issued.

614. But for the failure to disclose the Sjostrom Quarterly Technical Report, at least claims 1, 28, and 29 of the ’430 patent would not have issued.

615. But for the failure to disclose the Sjostrom Quarterly Technical Report, at least claims 1, 25, and 26 of the ’218 patent would not have issued.

616. But for the failure to disclose the Sjostrom Quarterly Technical Report, at least claims 1 and 17 of the ’370 patent would not have issued.

617. The Sjostrom Quarterly Technical Report was material to the prosecution of the Patents-in-Suit and the ’147 patent.

618. As detailed below, the information contained within the Sjostrom Quarterly Technical Report was material and non-cumulative because none of the references before the USPTO during prosecution of the Asserted Patents contain the same disclosure that invalidates the claims of the Asserted Patents in the same way.

619. Each of the named inventors (Edwin Olson, Michael Holmes, and John Pavlish) and Thomas Erickson withheld the Sjostrom Quarterly Technical Report from disclosure to the USPTO during prosecution of the Patents-in-Suit and the ’219 Application, with an intent to deceive to secure issuance of the Patents-in-Suit and the ’147 patent.

620. Failure to disclose the Sjostrom Quarterly Technical Report, alone, would have been sufficient to render the Patents-in-Suit and the ’147 patent unenforceable and to invoke the doctrine of unclean hands.

621. Put together, the sheer number of references that were intentionally withheld during prosecution of the Patents-in-Suit and ’147 patent—and the sheer number of other places in which the named inventors cited to the Sjostrom Quarterly Technical Report (but not to the USPTO)—demonstrate a pattern of intentional misconduct by the named inventors (Edwin Olson, Michael

Holmes, and John Pavlish) and Thomas Erickson, and establish that the single most reasonable inference that can be drawn is a specific intent to deceive the USPTO in order to obtain issuance of the Patents-in-Suit and the '147 patent.

The Sjostrom Quarterly Technical Report Qualifies as Prior Art

622. The Sjostrom Quarterly Technical Report was publicly accessible by February 2, 2005, when it was published by the Department of Energy pursuant to DOE Cooperative Agreement No.: DE-FC26-03NT41986.[49]

623. The Sjostrom Quarterly Technical Report was publicly accessible no later than February 2, 2005 through the Department of Energy's Office of Scientific and Technical Information.

624. Indeed, the named inventors had access to the Sjostrom Quarterly Technical Report as reflected by the fact that they cited this publication in their Mercury Information Clearinghouse.

625. The specification of the '147 patent does not provide written-description support for claims 18 and 19.

626. Claims 18 and 19 of the '147 patent are entitled to a priority date no earlier than April 6, 2009, which is the day they were first proposed as claims in the '219 Application.

627. The Sjostrom Quarterly Technical Report qualifies as prior art to claims 18 and 19 of the '147 patent pursuant to at least 35 U.S.C. §§ 102(a) and 102(b) (pre-AIA).

628. The specification of the '114 patent does not provide written-description support for claims 1, 23, 24 and 25 of the '114 patent.

[49] https://www.osti.gov/servlets/purl/862216

629. Claims 1, 23, 24 and 25 of the ’114 patent are entitled to a priority date no earlier than May 14, 2018, which is the date on which the continuation-in-part application leading to the ’114 patent was filed.

630. The Sjostrom Quarterly Technical Report qualifies as prior art to claims 1, 23, 24 and 25 of the ’114 patent pursuant to at least 35 U.S.C. §§ 102(a) and 102(b) (pre-AIA).

631. The specification of the ’225 patent does not provide written-description support for claims 1, 14, 16 and 17 of the ’225 patent.

632. Claims 1, 14, 16 and 17 of the ’225 patent are entitled to a priority date no earlier than May 15, 2015, which corresponds to the filing date of the preliminary amendment to the ’225 patent’s application (No. 14/712,558) in which the claims were amended to add disclosure.

633. The Sjostrom Quarterly Technical Report qualifies as prior art to claims 1, 14, 16 and 17 of the ’225 patent pursuant to at least 35 U.S.C. §§ 102(a) and 102(b) (pre-AIA).

634. The specification of the chain of patents leading up to the ’517 patent does not provide written-description support for claims 1, 29, and 30 of the ’517 patent.

635. Claims 1, 29, and 30 of the ’517 patent are entitled to a priority date no earlier than April 12, 2018, which corresponds to the actual filing date of the parent application (No. 15/951,970) in which the specification was amended to add disclosure.

636. The Sjostrom Quarterly Technical Report qualifies as prior art to claims 1, 29, and 30 of the ’517 patent pursuant to at least 35 U.S.C. §§ 102(a) and 102(b) (pre-AIA).

637. The specification of the chain of patents leading up to the ’430 patent does not provide written-description support for claims 1, 28, and 29 of the ’430 patent.

638. Claims 1, 28, and 29 of the ’430 patent are entitled to a priority date no earlier than April 12, 2018, which corresponds to the actual filing date of the parent application (No. 15/951,970) in which the specification was amended to add disclosure.

639. The Sjostrom Quarterly Technical Report qualifies as prior art to claims 1, 28, and 29 of the ’430 patent pursuant to at least 35 U.S.C. §§ 102(a) and 102(b) (pre-AIA).

640. The specification of the chain of patents leading up to the ’218 patent does not provide written-description support for claims 1, 25, and 26 of the ’218 patent.

641. Claims 1, 25, and 26 of the ’218 patent are entitled to a priority date no earlier than April 12, 2018, which corresponds to the actual filing date of the parent application (No. 15/951,970) in which the specification was amended to add disclosure.

642. The Sjostrom Quarterly Technical Report qualifies as prior art to claims 1, 25, and 26 of the ’218 patent pursuant to at least 35 U.S.C. §§ 102(a) and 102(b) (pre-AIA).

643. The specification of the chain of patents leading up to the ’370 patent does not provide written-description support for claims 1 and 17 of the ’370 patent.

644. Claims 1 and 17 of the ’370 patent are entitled to a priority date no earlier than April 12, 2018, which corresponds to the actual filing date of the parent application (No. 15/951,970) in which the specification was amended to add disclosure.

645. The Sjostrom Quarterly Technical Report qualifies as prior art to claims 1 and 17 of the ’370 patent pursuant to at least 35 U.S.C. §§ 102(a) and 102(b) (pre-AIA).

The Sjostrom Quarterly Technical Report Was Material to Patentability

646. Had the USPTO Examiner been provided with the Sjostrom Quarterly Technical Report, the USPTO Examiner would not have allowed the claims of the ’219 Application. In particular, at least claims 18 and 19 of the ’147 patent would not have issued.

647. Had the USPTO Examiner been provided with the Sjostrom Quarterly Technical Report, the USPTO Examiner would not have allowed the claims 1, 23, 24, and 25 of the ’114 patent.

648. Had the USPTO Examiner been provided with the Sjostrom Quarterly Technical Report, the USPTO Examiner would not have allowed the claims 1, 14, 16, and 17 of the ’225 patent.

649. Had the USPTO Examiner been provided with the Sjostrom Quarterly Technical Report, the USPTO Examiner would not have allowed the claims 1, 29 and 30 of the ’517 patent.

650. Had the USPTO Examiner been provided with the Sjostrom Quarterly Technical Report, the USPTO Examiner would not have allowed the claims 1, 28, and 29 of the ’430 patent

651. Had the USPTO Examiner been provided with the Sjostrom Quarterly Technical Report, the USPTO Examiner would not have allowed the claims 1, 25, and 26 of the ’218 patent.

652. Had the USPTO Examiner been provided with the Sjostrom Quarterly Technical Report, the USPTO Examiner would not have allowed the claims 1 and 17 of the ’370 patent.

653. The Sjostrom Quarterly Technical Report describes techniques developed by Sharon Sjostrom and others at ADA-ES, Inc. that involved removing mercury by burning coal with added Br2, HBr, a bromide compound, or a combination thereof, and then contacting a bromine containing promoter in gaseous form when it comes into contact with activated carbon.

654. The Sjostrom Quarterly Technical Report discloses on page 21 using DARCO FGD as an activated carbon, which was manufactured by “NORIT Americas.”

655. The Patents-in-Suit also discloses embodiments using activated carbon, including the “Darco” product manufactured by “NORIT Americas.” See, e.g., ’225 patent at 14:55-61.

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656. The exemplary brand of activated carbon used in the Sjostrom Quarterly Technical Report is identical with that used in embodiments of the Patents-in-Suit.

657. The Sjostrom Quarterly Technical Report also teaches on page 16 burning coal with an added bromide compound. The Sjostrom Quarterly Technical Report states:

> During the final week of parametric testing, a halogen-based coal additive, ALSTOM's KNX material, was evaluated for enhancements when injecting untreated activated carbon and to native fly ash removal. By the start of this test, Mill B had been returned to service; however, the changes made to Mills A, C, and D during the outage had not been reset for 4-mill operation. This resulted in increased LOI, as verified by LOI measurements. The ESP inlet mercury concentration was more stable than when Mill B was out of service, but the vapor-phase mercury concentration was lower than during previous tests. This was likely due to additional particulate-phase mercury associated with the higher LOI.
>
> Coal treated with KNX reached Unit 2 at around 08:00 on September 20. On September 22 and 23, two ash samples were collected upstream of the ESP using an in-situ cyclone sampling device designed to capture all particulate matter >1 micron. Mercury analysis of these samples yielded 1.59 and 2.27 ppm of mercury in the ash, indicating a large fraction of the incoming mercury is in the particulate phase.
>
> Due to the increased LOI and the resulting decrease in vapor-phase mercury, it is difficult to determine the effectiveness of KNX by itself. The mercury removal and oxidation (indicated by low elemental Hg) was typically higher at the ESP inlet with KNX and high LOI. Data from 9/20–9/23 with KNX addition only can be compared to the data from 9/25 and 9/27 with no KNX or DARCO Hg. With KNX, removal ranged from 57 to 64% compared to 22 to 34% with no KNX. No boiler operational changes were made during this time. These data suggest the KNX alone can enhance the effectiveness of native fly ash containing LOI.
>
> ***During one day of KNX injection (9/23), DARCO FGD was injected at the ESP inlet. The maximum vapor-phase mercury removal was 87% at an injection concentration of 5 lb/MMacf.*** The total removal (total mercury = particulate + vapor phase) was likely higher, but the SCEMs do not account for particulate mercury. For example, ***if we assume based on coal mercury values that the total mercury was actually 10 µg/Nm3 when particulate mercury is factored in, then the removal at 5 lb/MMacf would be 95%.*** For comparison, the change in the vapor-phase mercury at the ESP outlet at a DARCO Hg injection concentration of 5 lb/MMacf was 73% in the absence of KNX.

658. The "KNX" chemical additive added to coal, discussed in the Sjostrom Quarterly Technical Report, included a bromide compound.

659. As discussed below, named inventor John Pavlish was aware of the Sjostrom Quarterly Technical Report and even cited it in his own work, but did not disclose it to the USPTO.

660. As discussed below, named inventor Michael Holmes was aware of the Sjostrom Quarterly Technical Report and even cited it in his own work, but did not disclose it to the USPTO.

661. The Sjostrom Quarterly Technical Report renders obvious under 35 U.S.C. § 103 at least claims 1, 23, 24, and 25 of the '114 patent, claims 1, 14, 16, and 17 of the '225 patent, claims 1, 29 and 30 of the '517 patent, claims 1, 28, and 29 of the '430 patent, claims 1, 25, and 26 of the '218 patent, and claims 1 and 17 of the '370 patent.

662. The Sjostrom Quarterly Technical Report was material to the patentability and prosecution of the Patents-in-Suit.

663. The Sjostrom Quarterly Technical Report was not cumulative of any references that were before the Examiner during the prosecution of the Patents-in-Suit.

664. But for the withholding of the Sjostrom Quarterly Technical Report from the USPTO Examiner during prosecution of the Patents-in-Suit and the '219 Application, at least claims 1, 23, 24, and 25 of the '114 patent, claims 1, 14, 16, and 17 of the '225 patent, claims 1, 29 and 30 of the '517 patent, claims 1, 28, and 29 of the '430 patent, claims 1, 25, and 26 of the '218 patent, claims 1 and 17 of the '370 patent, claims 18 and 19 of the '147 patent would not have been allowed.

665. Although the Sjostrom Quarterly Technical Report was dated after the filing of Provisional Application No. 60/605,640 (Aug. 30, 2004), the named inventors cited other references dated after Aug. 30, 2004, to the USPTO Examiner during prosecution of the Patents-

in-Suit. For example, the named inventors cited German patent publication no. DE 10 233 173 (dated March 2006) to the USPTO Examiner during prosecution of the '219 Application.

Intent To Deceive By Withholding The Sjostrom Quarterly Technical Report

666. The named inventors knew that they were not the first ones to conceive of the idea of adding bromine or a bromide compound to the furnace or to the flue gas to reduce mercury emissions.

667. For example, named inventor Edwin Olson admitted under oath that the inventors at the EERC "were not the first" ones to conceive of the idea of adding bromine or a bromide compound to the furnace or to the flue gas. Exhibit 7 at 145:25–146:4.

668. But instead of admitting they were not the first ones to conceive of this concept, the named inventors hid this critical information form the USPTO, including several material references that disclosed the idea of adding bromine or a bromide compound to the furnace or to the flue gas to reduce mercury emissions.

669. On information and belief, named Inventor John Pavlish was further aware of the existence and materiality of the Sjostrom Quarterly Technical Report to prosecution of the '219 Application and to prosecution of each of the Patents-in-Suit, and intended to deceive the USPTO into issuing the Patents-in-Suit and the '147 patent, because he continued to discuss the testing data in Sjostrom Quarterly Technical Report in his other publications—but did not disclose Sjostrom Quarterly Technical Report to the USPTO.

670. On information and belief, named Inventor Michael Holmes was further aware of the existence and materiality of the Sjostrom Quarterly Technical Report to prosecution of the '219 Application and to prosecution of each of the Patents-in-Suit, and intended to deceive the USPTO into issuing the Patents-in-Suit and the '147 patent, because he continued to discuss the testing

data in Sjostrom Quarterly Technical Report in his other publications— but did not disclose Sjostrom Quarterly Technical Report to the USPTO.

671. On information and belief, named Inventor Edwin Olson was further aware of the existence and materiality of the Sjostrom Quarterly Technical Report to prosecution of the '219 Application and to prosecution of each of the Patents-in-Suit, and intended to deceive the USPTO into issuing the Patents-in-Suit and the '147 patent, because he continued to discuss the testing data in Sjostrom Quarterly Technical Report in his other publications—but did not disclose Sjostrom Quarterly Technical Report to the USPTO.

672. For example, named inventors John Pavlish, Michael Holmes and Edwin Olson prepared and/or authored the "Mercury Information Clearinghouse."

673. Authors of the Mercury Clearinghouse Report include all three inventors of the Patents-in-Suit: Michael Holmes, John Pavlish, and Edwin Olson.

674. The Mercury Information Clearinghouse was available to the public as early as April 2006.

675. The Mercury Information Clearinghouse consisted of quarterly reports. "A total of eight topical reports were completed and are summarized and updated in this final CEA quarterly report. The original quarterly reports can be viewed at the CEA Web site (www.ceamercuryprogram.ca)."

676. Several quarterly reports contained within the Mercury Information Clearinghouse were available to the public much earlier.

677. The website that published the quarterly reports was maintained by EERC employees and specifically identified John Pavlish.

678. In the report for Quarter 6, dated April 2005, named inventors John Pavlish, Michael Holmes and Edwin Olson reported the testing at the "Laramie River Station – Missouri Basin Power Project," which is the same facility that was reported in the Sjostrom Quarterly Technical Report.

679. In the report for Quarter 6, dated April 2005, named inventors John Pavlish, Michael Holmes and Edwin Olson stated that "The test plan for work at the Laramie River Station involves short-term parametric tests. Specifically, two carbon-based sorbents will be injected into the flue gas at the inlet of the SDA. The sorbents selected were DARCO Hg and DARCO Hg-LH. Test plans also include coal 19 blending (PRB and western bituminous coal) tests and the use of KNX. Plans for this project were briefly addressed in a Quarterly Technical Report entitled "Evaluation of Sorbent Injection for Mercury Control" (17)." This reference is the same as the Sjostrom Quarterly Technical Report.

680. The named inventors then cited to the Sjostrom Mega 2004 Article in the Mercury Information Clearinghouse, as shown below, but never disclosed Sjostrom Quarterly Technical Report to the USPTO:

17. Sjostrom, S. *Evaluation of Sorbent Injection for Mercury Control*; Quarterly Technical Report (Oct 1 – Dec 31, 2004) for U.S. Department of Energy Cooperative Agreement No. DE-FC26-03NT41986; Report No. 41986R05; Feb 2, 2005.

681. Thus, it is beyond doubt that named inventors knew that the Sjostrom Quarterly Technical Report was material because it disclosed the use of a halogen-based chemical that was applied to coal at a power plant to reduce mercury emissions.

682. Named inventor John Pavlish was substantively involved in preparing and/or reviewing the portion of the Mercury Information Clearinghouse report that issued in April 2005.

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683. Named inventor Michael Holmes was substantively involved in preparing and/or reviewing the portion of the Mercury Information Clearinghouse report that issued in April 2005.

684. Named inventor Edwin Olson was substantively involved in preparing and/or reviewing the portion of the Mercury Information Clearinghouse report that issued in April 2005.

685. The Mercury Information Clearinghouse report from April 2005 identifies "Michael Holmes" and "John Pavlish" as additional contact for their readers, and provides each of their phone numbers, addresses, and email addresses.

686. Named inventor John Pavlish cited the Sjostrom Quarterly Technical Report in the Mercury Information Clearinghouse, but did not cite the Sjostrom Quarterly Technical Report to the USPTO.

687. Named inventor Michael Holmes cited the Sjostrom Quarterly Technical Report in the Mercury Information Clearinghouse, but did not cite the Sjostrom Quarterly Technical Report to the USPTO.

688. The decision to withhold the Sjostrom Quarterly Technical Report was part of a pattern of intentional withholding of material prior art, as further alleged below, with intent to deceive during prosecution of the Patents-in-Suit and the '147 patent.

689. The decision to withhold the Sjostrom Quarterly Technical Report by the named inventors was not due to any misperception about the priority date of the alleged inventions in the Patents-in-Suit. This decision was driven by the named inventors' intent to deceive the USPTO to issue claims without having the benefit of material invalidating prior art, including the Sjostrom Quarterly Technical Report. This is evident from the fact that, while the named inventors disclosed numerous post-2005 references to the USPTO during prosecution of the Patents-in-Suit, they did not disclose the Sjostrom Quarterly Technical Report during the prosecution of the Patents-in-Suit.

The laundry list of post-2005 references that were submitted to the USPTO during prosecution of the Patents-in-Suit include (but not limited to) the following: U.S. Patent Publication No. 2014/0224121 (Mimna), U.S. Patent Publication No. 2013/0157845 (Nalepa), U.S. Patent Publication No. 2012/0100053 (Durham), U.S. Patent Publication No. 2011/0168018 (Mohamadalizadeh), U.S. Patent Publication No. 2011/0076210 (Pollack), U.S. Patent Publication No. 2010/0024642 (Fukumoto), U.S. Patent Publication No. 2009/0320678 (Chang), U.S. Patent Publication No. 2009/0235848 (Eiteneer), U.S. Patent Publication No. 2009/0136401 (Yang), U.S. Patent Publication No. 2009/0021708 (Boxmeer), among many others.

690. Given the named inventors' and the prosecution counsel's submission of numerous post-2005 references to the USPTO during prosecution of the Patents-in-Suit (as shown above), the named inventors and the prosecution counsel knew that the claims of the Patents-in-Suit would not be entitled to the filing date of the '640 Provisional Application, the '163 Application, or the '219 Application. If the named inventors truly believed that the claims of the Patents-in-Suit were entitled to the filing date of the '640 Provisional Application and the '163 Application without a break in priority, there would have been no need for them to bury the USPTO examiner with numerous post-2005 references.

691. The named inventors submitted the numerous post-2005 references[50] because they knew the claims of the Patents-in-Suit were not entitled to the August 2004 or the August 2005 priority date.

[50] *See e.g.*, U.S. Patent Publication No. 2014/0224121 (Mimna), U.S. Patent Publication No. 2013/0157845 (Nalepa), U.S. Patent Publication No. 2012/0100053 (Durham), U.S. Patent Publication No. 2011/0168018 (Mohamadalizadeh), U.S. Patent Publication No. 2011/0076210 (Pollack), U.S. Patent Publication No. 2010/0024642 (Fukumoto), U.S. Patent Publication No. 2009/0320678 (Chang), U.S. Patent Publication No. 2009/0235848 (Eiteneer), U.S. Patent

692. The single most reasonable inference that can be drawn from the decision of each of Edwin Olson, Michael Holmes, John Pavlish, and Thomas Erickson to withhold the Sjostrom Quarterly Technical Report from the USPTO during prosecution of the '219 Application, is that they acted with specific intent to deceive the USPTO in order to obtain issuance of the '147 patent and each of the Patents-in-Suit.

Mercury Information Clearinghouse Reports

693. The named inventors were employees of the EERC in the early to mid 2000s.

694. As part of their work at EERC, the named inventors prepared and/or authored the "Mercury Information Clearinghouse."[51]

695. Authors of the Mercury Clearinghouse Report include all three inventors of the Patents-in-Suit: Michael Holmes, John Pavlish, and Edwin Olson.

696. The Mercury Information Clearinghouse was available to the public as early as April 2006.[52]

697. The Mercury Information Clearinghouse consisted of quarterly reports. "A total of eight topical reports were completed and are summarized and updated in this final CEA quarterly report. The original quarterly reports can be viewed at the CEA Web site (www.ceamercuryprogram.ca)."[53]

Publication No. 2009/0136401 (Yang), U.S. Patent Publication No. 2009/0021708 (Boxmeer), among many others.

[51] Mercury Information Clearinghouse (available at https://www.osti.gov/biblio/907884).

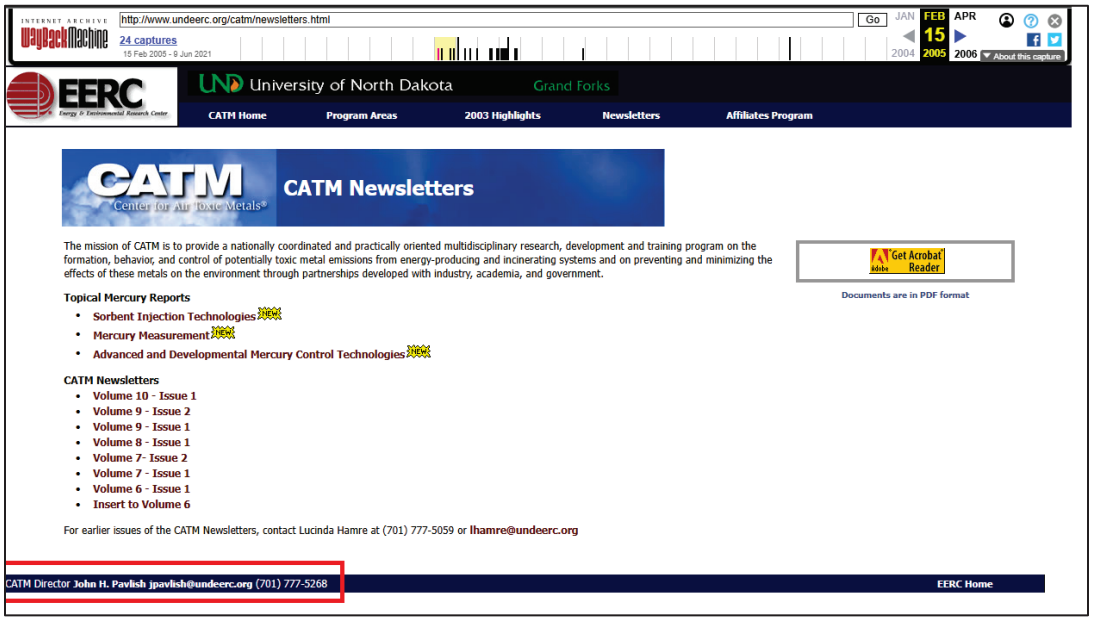
[52] Mercury Information Clearinghouse (available at https://www.osti.gov/biblio/907884).

[53] Mercury Information Clearinghouse (available at https://www.osti.gov/biblio/907884) at 3.

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698. Several quarterly reports contained within the Mercury Information Clearinghouse were available to the public much earlier.[54]

699. The website that published the quarterly reports was maintained by EERC employees and specifically identified John Pavlish.



700. For example, the report for Quarter 3 was available as early as July 2004.[55] The report for Quarter 4 was available as early as October 2004.[56] The report for Quarter 5 was available as early as January 2005.[57] The report for Quarter 6 was available as early as April

[54] https://web.archive.org/web/20050215000906/http:/www.undeerc.org/catm/newsletters.html.

[55] Mercury Information Clearinghouse (available at https://www.osti.gov/biblio/907884) at 142.

[56] Mercury Information Clearinghouse (available at https://www.osti.gov/biblio/907884) at 180.

[57] Mercury Information Clearinghouse (available at https://www.osti.gov/biblio/907884) at 212.

2005.[58] The report for Quarter 7 was available as early as July 2005.[59] The report for Quarter 8 was available as early as October 2005.[60]

701. The named inventors knew about the quarterly reports and the Mercury Information Clearinghouse at the time they were published, at least because the three named inventors on the Patents-in-Suit were authors of the Mercury Information Clearinghouse reports, and also because they maintained the website at EERC that published the reports.

702. The named inventors were aware of the report for Quarter 3 as of July 2004.[61]

703. The named inventors were aware of the report for Quarters 3 and 4 as of October 2004.[62]

704. The named inventors were aware of the report for Quarters 3-5 as of January 2005.[63]

705. The named inventors were aware of the report for Quarters 3-6 as of April 2005.[64]

706. The named inventors were aware of the report for Quarters 3-7 as of July 2005.[65]

707. The named inventors were aware of the report for Quarters 3-8 as of October 2005.[66]

[58] Mercury Information Clearinghouse (available at https://www.osti.gov/biblio/907884) at 249.
[59] Mercury Information Clearinghouse (available at https://www.osti.gov/biblio/907884) at 304.
[60] Mercury Information Clearinghouse (available at https://www.osti.gov/biblio/907884) at 328.
[61] Mercury Information Clearinghouse (available at https://www.osti.gov/biblio/907884) at 142.
[62] Mercury Information Clearinghouse (available at https://www.osti.gov/biblio/907884) at 180.
[63] Mercury Information Clearinghouse (available at https://www.osti.gov/biblio/907884) at 212.
[64] Mercury Information Clearinghouse (available at https://www.osti.gov/biblio/907884) at 249.
[65] Mercury Information Clearinghouse (available at https://www.osti.gov/biblio/907884) at 304.
[66] Mercury Information Clearinghouse (available at https://www.osti.gov/biblio/907884) at 328.

708. The named inventors were aware of the entirety of the Mercury Information Clearinghouse as of March 2006.[67]

709. The named inventors did not disclose any of the quarterly reports to the USPTO during prosecution of any of the Patents-in-Suit.

710. The named inventors did not disclose the Mercury Information Clearinghouse to the USPTO during prosecution of any of the Patents-in-Suit.

711. The named inventors intentionally withheld the quarterly reports from the USPTO during prosecution of the Patents-in-Suit.

712. The named inventors intentionally withheld the Mercury Information Clearinghouse from the USPTO during prosecution of the Patents-in-Suit.

713. As detailed below, the information contained within the Mercury Information Clearinghouse was material and non-cumulative because none of the references before the USPTO during prosecution of the Asserted Patents contain the same disclosure that invalidates the claims of the Asserted Patents in the same way.

714. In addition to withholding the entire Mercury Information Clearinghouse from the USPTO during prosecution of the Patents-in-Suit—an omission which itself forms an independent basis for finding that the named inventors procured the Patents-in-Suit through inequitable conduct—the Mercury Information Clearinghouse also lists additional material prior art references which the named inventors were aware of but which the named inventors did not disclose to the examiner during the prosecution of the Patents-in-Suit.

[67] Mercury Information Clearinghouse (available at https://www.osti.gov/biblio/907884).

715. Indeed, because the named inventors had disclosed other prior art to the patent examiner, including prior art publicly available after August 2005 art, but withheld the above-mentioned references appearing in Mercury Information Clearinghouse, it is apparent that named inventors were not making any distinction between prior art reference based on any perceived entitlement to the August 2004 filing date of the relevant provisional application.

716. The Mercury Information Clearinghouse would have established by themselves, or in combination with other references, a prima facie case of unpatentability of one or more claims of the Patents-in-Suit and the ’147 patent.

717. But for the failure to disclose the Mercury Information Clearinghouse, at least claims 18 and 19 of the ’147 patent would not have issued.

718. But for the failure to disclose the Mercury Information Clearinghouse, at least claims 1, 23, 24, and 25 of the ’114 patent would not have issued.

719. But for the failure to disclose the Mercury Information Clearinghouse, at least claims 1, 14, 16, and 17 of the ’225 patent would not have issued.

720. But for the failure to disclose the Mercury Information Clearinghouse, at least claims 1, 29 and 30 of the ’517 patent would not have issued.

721. But for the failure to disclose the Mercury Information Clearinghouse, at least claims 1, 28, and 29 of the ’430 patent would not have issued.

722. But for the failure to disclose the Mercury Information Clearinghouse, at least claims 1, 25, and 26 of the ’218 patent would not have issued.

723. But for the failure to disclose the Mercury Information Clearinghouse, at least claims 1 and 17 of the ’370 patent would not have issued.

724. The Mercury Information Clearinghouse was material to the prosecution of the Patents-in-Suit and the ’147 patent.

725. The Mercury Information Clearinghouse was material to the prosecution of the Patents-in-Suit and the ’147 patent.

726. Each of the named inventors (Edwin Olson, Michael Holmes, and John Pavlish) and Thomas Erickson withheld the Mercury Information Clearinghouse from disclosure to the USPTO during prosecution of the Patents-in-Suit and the ’219 Application, with an intent to deceive to secure issuance of the Patents-in-Suit and the ’147 patent.

727. Failure to disclose the Mercury Information Clearinghouse alone, would have been sufficient to render the Patents-in-Suit and the ’147 patent unenforceable and to invoke the doctrine of unclean hands.

728. Put together, the sheer number of references that were intentionally withheld during prosecution of the Patents-in-Suit and ’147 patent—and the sheer number of other places in which the named inventors cited to the Mercury Information Clearinghouse (but not to the USPTO)—demonstrate a pattern of intentional misconduct by the named inventors (Edwin Olson, Michael Holmes, and John Pavlish) and Thomas Erickson, and establish that the single most reasonable inference that can be drawn is a specific intent to deceive the USPTO in order to obtain issuance of the Patents-in-Suit and the ’147 patent.

The Named Inventors’ Admissions In The Mercury Information Clearinghouse Regarding The Use Of Bromine-Containing Chemicals And Other Halogens For Reducing Mercury Emissions

729. The Mercury Information Clearinghouse report authored by the Applicants acknowledged that, “[i]t has been known since 1934, when the first patent for mercury sorption was granted, that adding molecular halogens such as chlorine (Cl2), bromine (Br2), or iodine (I2)

to carbons results in effective sorbents for Hg0 capture in air (15). The first application used iodine as the halogen, but later applications used chlorine (16) and bromine (17) or a mixed halogen compound (18)."[68]

The Named Inventors' Admissions In The Mercury Information Clearinghouse Regarding Direct Bromine Injection For Reducing Mercury Emissions

730. The Mercury Information Clearinghouse report prepared and/or authored by the Applicants acknowledged that in the third quarter of 2004 "Direct Bromine Injection" was being considered by various entities in the field of mercury control.[69] Specifically, the report authored by the Applicants noted that, "[w]ith the reported success of the bromine sorbents, a logical question is whether direct bromine injection into the flue gas might enhance mercury capture by the fly ash or other sorbent materials."[70]

731. In a section of the report authored by the named inventors titled "Bromine-Impregnated Activated Carbon," the named inventors stated that "Sorbent Technologies Corporation (STC) has been working to develop better-performing and lower-cost technology to control mercury stack emissions for a number of years."[71]

732. The named inventors' report further discloses that "Results from the testing with these sorbent materials have previously been reported (14, 15), but the formulation has only been recently disclosed (16-18)."[72]

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[68] Mercury Information Clearinghouse (available at https://www.osti.gov/biblio/907884) at 57-58.

[69] *Id.*at 144.

[70] *Id.* at 162.

[71] *Id.* at 161.

[72] *Id.* at 161.

733. When discussing that the formulations and testing regarding "Bromine-Impregnated Activated Carbon" had been publicly disclosed, the named inventors cited several publications authored by Sidney G. Nelson, Jr. and others, including (1) "Novel Duct-Injection Mercury Sorbents" presented at the Air Quality III Conference in 2002, (2) "Mercury Sorbent Injunction Test Results at the Lausche Plant" presented at the Mega Symposium in 2003, (3) "Why Mercury Compliance Will Cost Around $5000 per-lb-of-Hg-Removed, Not $50,000 per-lb" presented at the EUEC 7th Electric Utilities Environmental Conference in 2004, and "Mercury Sorbent Results for a Hot-Side ESP at the Cliffside Plant" also presented at the EUEC 7th Electric Utilities Environmental Conference in 2004 (hereinafter the "Nelson Publications").[73] None of these publications were cited to the patent examiner during prosecution of the '114 patent, the '225 patent, the '370 patent, the '430 patent, the '517 patent, and the '218 patent, despite the Applicant's assertion in the Mercury Information Clearinghouse report that they report results from testing with brominated sorbent materials, as well as the formulation for those materials.[74]

734. On information and belief, each of the Nelson Publications cited in the Mercury Information Clearinghouse report are material as they disclose formulations of brominated coal and/or powdered activated carbon, and the patent examiner would not have issued the Patents-in-Suit were they made aware of these publications during prosecution.

735. Had the USPTO Examiner been provided with the Nelson Publications, the USPTO Examiner would not have allowed the claims of the '219 Application. In particular, at least claims 18 and 19 of the '147 patent would not have issued.

[73] *Id.* at 161.

[74] *Id.* at 161.

736. Had the USPTO Examiner been provided with the Nelson Publications, the USPTO Examiner would not have allowed the claims 1, 23, 24, and 25 of the ’114 patent.

737. Had the USPTO Examiner been provided with the Nelson Publications, the USPTO Examiner would not have allowed the claims 1, 14, 16, and 17 of the ’225 patent.

738. Had the USPTO Examiner been provided with the Nelson Publications, the USPTO Examiner would not have allowed the claims 1, 29 and 30 of the ’517 patent.

739. Had the USPTO Examiner been provided with the Nelson Publications, the USPTO Examiner would not have allowed the claims 1, 28, and 29 of the ’430 patent

740. Had the USPTO Examiner been provided with the Nelson Publications, the USPTO Examiner would not have allowed the claims 1, 25, and 26 of the ’218 patent.

741. Had the USPTO Examiner been provided with the Nelson Publications, the USPTO Examiner would not have allowed the claims 1 and 17 of the ’370 patent.

742. On information and belief, the Nelson Publications describe, among other thing, formulations of brominated coal and/or powdered activated carbon along with test results obtained from the use of these materials when removing mercury when burning coal. Such publication thus disclose the use of added Br2, HBr, a bromide compound, or a combination thereof, and then contacting a bromine containing promoter in gaseous form when it comes into contact with activated carbon.

743. The Mercury Information Clearinghouse report prepared and/or authored by the named inventors acknowledged that the two step process of adding bromine-containing chemicals separate and apart from activated carbon sorbent would enhance the mercury capture process.[75]

[75] Mercury Information Clearinghouse (available at https://www.osti.gov/biblio/907884) at 162.

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744. Specifically, the named inventors admitted that the two-step process had already been performed at certain power plants and yielded positive results. For example, the named inventors reported the testing at Holcomb Station in the Mercury Information Clearinghouse:

> Holcomb Station – Sunflower Electric Power Corporation
>
> ADA Environmental Solutions Inc., in conjunction with Sunflower Electric Power Corporation, NETL, and EPRI, is conducting an ACI project at Sunflower Electric Power Corporation's Holcomb Station. The Holcomb Station is located near Garden City, Kansas. The unit being used in support of this project is a load-following, subcritical, 360-MW pc-fired system. The B&W opposed-fired Carolina-type radiant boiler was designed to burn PRB coal. SO2 and particulate emission control is accomplished with three SDA modules supplied by Niro Joy Western, followed by two very low-A/C ratio reverse-air FFs, supplied by Joy Western.
>
> The project at the Holcomb Station involved five phases: 1) baseline testing, 2) coal blending, 3) sorbent screening, 4) parametric testing, and 5) long-term tests. As many as five different coals were expected to be fired during the test program. However, Jacobs Ranch (mine located near Gillette, Wyoming) and Black Thunder (mine located near Wright, Wyoming) were fired during the baseline, coal blending, and parametric tests. Project results were documented in two symposium papers with the same titles, "Full-Scale Evaluation of Mercury Control by Injecting Activated Carbon Upstream of a Spray Dryer and Fabric Filter," and different primary authors (15, 16).
>
> Baseline tests were conducted firing 100% PRB. Resulting mercury removal rates varied from !3% to 23% across the SDA–FF. Coal-blending tests involved blending a western bituminous coal from the West Elk Mine with a PRB subbituminous coal in an attempt to improve upon the baseline mercury removal observed. Graphical data presented in the paper indicated that an unspecified (1.5x) blend ratio of bituminous to subbituminous coal resulted in 50% mercury removal. Increasing the unspecified blend ratio to 3x resulted in 76% mercury removal. Sorbent screening tests evaluated 20 sorbents from ten vendors. Based on the screening tests, three activated carbons were selected for parametric testing.
>
> The three activated carbons selected for parametric testing were identified as FGD-E3 (NORIT), 208CP (Calgon), and DARCO FGD (NORIT). Each of the activated carbons was tested for a period of 4 to 7 hr. Data showed that the 208CP and DARCO FGD activated carbons resulted in similar levels of mercury removal, 50% and 54%, respectively, for a sorbent injection rate of 1.0 lb/Macf. The activated carbon identified as FGD-E3

demonstrated the best performance, resulting in 77% mercury removal at an injection rate of 0.7 lb/Macf.

A proprietary chemical additive, ALSTOM's KNX, was added to the coal at the crusher house to increase the halogen concentration in the flue gas in an attempt to improve mercury capture. Application of the additive to the coal for a 48-hr period significantly changed the speciation of the mercury at the outlet of the air preheater. Specifically, the percentage of elemental mercury was reduced from 70%–90% to 20%–30%. However, no change in mercury removal across the SDA–FF system was observed. Also, at the FF outlet, the percentage of elemental mercury was 80%, only marginally lower than the 90% elemental mercury observed during baseline sampling. Two potential explanations were offered concerning these results: 1) the chemical additive resulted in a sampling artifact at the air preheater outlet or 2) oxidized mercury was reduced to elemental mercury across the SDA–FF system. The EERC believes the potential for the chemical additive to result in a sampling artifact is more likely than the reduction of oxidized mercury across the SDA–FF system. Although the reduction of mercury species has been widely shown in WFGD systems, it is not commonly expected in dry systems.

Simultaneous injection of the DARCO FGD activated carbon upstream of the SDA–FF system and addition of the KNX chemical additive to the coal resulted in 86% mercury removal compared to 54% mercury removal with DARCO FGD injection alone. These data indicate that the use of a fuel additive to increase the flue gas halogen concentration in conjunction with ACI can significantly increase mercury removal rates.

Based on the results from parametric testing, the FGD-E3 activated carbon was selected for use during 30 days of continuous injection. Results from this long-term testing showed an average mercury removal of 93% for an ACI rate of 1.2 lb/Macf. The corresponding outlet flue gas mercury concentration was 1.13 μg/Nm3. Balance of plant issues were not discussed in the references cited. Sample and data analysis are ongoing for this site demonstration.

Plans for subsequent work include four additional sites: 1) AmerenEU's Meramec Station, 2) Missouri Basin Power Project's Laramie River Station, 3) Detroit Edison's Monroe Station, and 4) American Electric Power's Conesville Station. Brief summaries concerning these site demonstrations are included later in this report.

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745. Moreover, the named inventors also reported the testing at Meramec Station in the Mercury Information Clearinghouse, where the two step process for reducing mercury emissions was performed:

> Meramec Station – AmerenEU
>
> ADA Environmental Solutions, Inc., in conjunction with AmerenEU, NETL, EPRI, and other organizations, is conducting an ACI project at AmerenEU Meramec Station Unit 2 at St. Louis, Missouri. Unit 2 is a load-following, 140-MW pc-fired system. The boiler fires 100% PRB coal from multiple mines for compliance with SO2 emission limits. Particulate emission control is accomplished with a c-ESP manufactured by American Air Filter with an SCA of 320 ft2/1000 acfm. The demonstration test was conducted on a flue gas volume representing a nominal capacity of 70 MW. Project results through December 31, 2004, were documented in a Quarterly Technical Report entitled "Evaluation of Sorbent Injection for Mercury Control" (17).
>
> The project at the Meramec Station involved three phases: baseline, parametric, and longterm testing. Baseline tests were conducted firing 100% PRB from several sources. Initial mercury sampling data showed average ESP inlet and outlet mercury concentrations were 8.5 and 6.8 µg/dNm3, respectively, indicating 20% mercury removal. Generally, baseline mercury removal rates ranged from 15% to 18% across the ESP.
>
> Two activated carbons were selected for parametric testing, DARCO Hg (previously referred to as DARCO FGD) (NORIT) and DARCO Hg-LH (previously referred to as DARCO FGD-E3) (NORIT), as well as the use of a fuel additive. Data showed that the DARCO Hg activated carbon resulted in 72% mercury removal for an injection rate of 5 lb/Macf. No improvement in mercury removal was observed for increased carbon injection rates as high as 20 lb/Macf. Similar to other tests involving low-rank fuels, increasing the carbon injection rate beyond a certain value does not result in further mercury removal because of the limited halogen concentration in the fuel.
>
> DARCO Hg-LH is a brominated activated carbon. Chemically treated carbons have been shown to increase mercury removal when compared to untreated carbons. Data from the parametric testing showed that the DARCO Hg-LH carbon resulted in at least 91% mercury removal at an injection rate of 3.2 lb/Macf. This represents a nominal 26% increase in mercury removal for the DARCO Hg-LH versus DARCO Hg carbon at a 36% lower carbon injection rate.

KNX was added to the coal to increase the halogen concentration in the flue gas in an attempt to improve mercury capture with and without carbon injection. Because of changes in mill operation, LOI values were higher during these tests and likely increased the observed mercury removal somewhat. However, the addition of the KNX to the fuel increased mercury removal from 22%–34% to 57%–64% without any carbon addition. ***When KNX additive was injected with the fuel and the DARCO Hg carbon at the inlet of the ESP, vapor-phase mercury removal was 87%***. Indirectly accounting for particulate mercury indicated total mercury removal was 95% for a DARCO Hg carbon injection rate of 5 lb/Macf. These data indicate that the use of a fuel additive to increase the flue gas halogen concentration with and without the injection of an activated carbon can significantly increase mercury removal rates.

Based on the results from parametric testing, the DARCO Hg-LH activated carbon was selected for use during long-term testing. The long-term testing aimed to demonstrate 60%–70% mercury removal with no impact on ash sales and show 85%–95% mercury removal. Data from a 5-day test demonstrated that a carbon injection rate of nominally 1.0 lb/Macf resulted in 60%–70% vapor-phase mercury removal across the ESP.

Injection of the DARCO Hg-LH activated carbon during a 30-day period demonstrated >90% mercury removal across the ESP. A carbon injection rate of 4.5 lb/Macf was initially required to achieve 90% vapor-phase mercury removal across the ESP. However, after 4 days, the injection rate was reduced to 3 lb/Macf while maintaining the mercury removal objective. Based on mercury continuous emission monitor (CEM) data, vapor-phase mercury removal averaged 93% for an average carbon injection rate of 3.3 lb/Macf. ESP inlet and outlet mercury concentrations averaged 5.98 and 0.44 lb/Tbtu, respectively. Ontario Hydro sampling supported the CEM data.

The high overall mercury removal observed during this demonstration project may have been influenced to some degree by site-specific characteristics. Specifically, the 30% particulatephase mercury observed at the ESP inlet was higher than typically observed for a PRB coal-fired system. This was attributed to the higher-than-expected LOI carbon in the ash and the highsurface-area tubular air preheater.

Balance-of-plant issues were discussed with respect to ESP performance and ash sales. No increase in stack opacity was observed during the 35 days of carbon injection at the inlet of the Unit 2 ESP. However, problems with ESP data acquisition during the long-term testing made it difficult to determine the impact of carbon injection on ESP operating parameters. Longer duration testing was recommended for an ESP with a smaller SCA to conclusively document potential impacts on ESP performance.

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> Although carbon injection at a low rate (1 lb/Macf) resulted in a small increase in the ash carbon content (0.4%), previous work has shown that ash quality for concrete applications is negatively impacted by even trace amounts of activated carbon. Therefore, the ash is not expected to be salable for cement applications even at the low carbon injection rates. Segregation of the injected carbon and ash would be required to maintain ash sales. Segregation options identified for consideration included TOXECON and TOXECON II.
>
> Sample and data analysis are ongoing for this site demonstration. Final results are expected to be addressed in a site report to be completed in September 2005. Plans for subsequent work include three additional sites: 1) Missouri Basin Power Project's Laramie River Station, 2) Detroit Edison's Monroe Station, and 3) American Electric Power's Conesville Station.

The Named Inventors' Admissions In The Mercury Information Clearinghouse Regarding Public Use Of Bromine-Containing Chemicals And Activated Carbon Sorbents For Reducing Mercury Emissions

746. Subsequently, in April 2005 the named inventors prepared "Quarter 6 – Mercury Control Field Demonstrations" report that was included in the Mercury Information Clearinghouse.[76]

747. In particular, the named inventors noted that by 2004 and 2005 several power plants had conducted "Mercury Control Demonstration Projects" that included an activated carbon injection as well as additives, as shown below:[77]

[76] Mercury Information Clearinghouse (available at https://www.osti.gov/biblio/907884) at 249.

[77] *Id.* at 257-58.

Table ES-1 – Mercury Control Demonstration Projects Funded by the U.S. Department of Energy

Lead Contractor	Demonstration Site	Boiler Type/Size	Fuel Type	APCD	Hg Control Technology	Status
UND EERC	Leland Olds Station Unit 1 Basin Electric Power Cooperative	B&W wall-fired 220 MW	ND lignite	c-ESP	ACI with SEA	Complete
ADA-ES Inc.	Coal Creek Station Unit 1 Great River Energy	CE t-fired 546 MW	ND lignite	c-ESP Wet FGD	TOXECON II™	Complete
B&W	Endicott Station Michigan South Central Power Agency	B&W Stirling Boiler 55 MW	Bituminous	c-ESP Wet FGD	FGD reagent additive	Complete
B&W	Zimmer Station Cinergy	B&W Carolina boiler 1300 MW	Bituminous	c-ESP Wet FGD	FGD reagent additive	Complete
Mobotec USA	Cape Fear Station Unit 5 Progress Energy	CE t-fired 154 MW	Low-sulfur bituminous	c-ESP	Sorbent injection ROFA™/ROTAMIX™	Complete
Southern Company	E.C. Gaston Station Unit 3 Alabama Power	CE t-fired 270 MW	Low-sulfur bituminous	h-ESP COHPAC™	ACI	Ongoing
URS	Plant Yates Unit 1 Georgia Power	CE t-fired 100 MW	Low-sulfur bituminous	c-ESP	ACI	Ongoing
URS	Plant Yates Unit 2 Georgia Power	CE t-fired 100 MW	Low-sulfur bituminous	c-ESP Wet FGD	ACI	Ongoing
Sorbent Technologies Corporation	St. Clair Station Unit 1 DTE Energy	B&W wall-fired 160 MW	PRB PRB–bit. blend	c-ESP	Brominated ACI	Ongoing
Sorbent Technologies Corporation	Buck Station Duke Energy	NA	Low-sulfur bituminous	h-ESP	Brominated ACI	Ongoing
ADA-ES Inc.	Holcomb Station Sunflower Electric Power Corporation	B&W Carolina Boiler 360 MW	PRB PRB/W-bit.	SDA–FF	ACI Coal blending	Ongoing
URS	Stanton Station Unit 1 Great River Energy	FW wall-fired 150 MW	PRB	c-ESP	ACI	Ongoing
URS	Stanton Station Unit 10 Great River Energy	CE t-fired 60 MW	ND lignite	SDA–FF	ACI	Ongoing
SaskPower and UND EERC	Poplar River Power Station Units 1 and 2 SaskPower	NA 300 MW	Poplar River lignite	c-ESP	ACI Pilot-scale slipstream	Ongoing
ADA-ES Inc.	Meramec Station AmerenEU	NA 140 MW	PRB	c-ESP	ACI	Ongoing
UND EERC	Stanton Station Unit 1 Great River Energy	FW wall-fired 150 MW	PRB	c-ESP	ACI	2005
UND EERC	Antelope Valley Station Unit 1 Basin Electric Power Cooperative	CE t-fired 440 MW	ND lignite	SDA–FF	ACI ACI with SEA	2005

Continued . . .

Table ES-1 – Mercury Control Demonstration Projects Funded by the U.S. Department of Energy (continued)

Lead Contractor	Demonstration Site	Boiler Type/Size	Fuel Type	APCD	Hg Control Technology	Status
UND EERC	Milton R. Young Station Unit 2 Minnkota Power Cooperative	B&W cyclone- fired 450 MW	ND lignite	c-ESP Wet FGD	Mercury oxidation fuel/FG additives	2005
UND EERC	Monticello Station Unit 3 Texas Utilities Company	B&W wall-fired 750 MW	Texas lignite	c-ESP Wet FGD	Mercury oxidation fuel/FG additives	2005
UND EERC	Big Brown Station Texas Utilities Company	CE t-fired 600 MW	Texas lignite Lignite–PRB	c-ESP	ACI	2005
URS	Monticello Station Unit 3 Texas Utilities Company	B&W wall-fired 750 MW	Texas lignite	c-ESP Wet FGD	Wet FGD additives	2005
URS	Plant Yates Unit 2 Georgia Power	CE t-fired 100 MW	Low-sulfur bituminous	c-ESP Wet FGD	Wet FGD additive	2005
URS	Conesville Station American Electric Power	NA 400 MW	Bituminous	c-ESP Wet FGD	Wet FGD additive	2005
ADA-ES Inc.	Conesville Station American Electric Power	NA 400 MW	Bituminous	c-ESP Wet FGD	ACI	2005
ADA-ES Inc.	Laramie River Station Unit 3 Missouri Basin Power Project	B&W 550 MW	PRB	SDA–ESP	ACI	2005
ADA-ES Inc.	Monroe Station Unit 4 Detroit Edison	B&W 785 MW	PRB–bit. blend	c-ESP	ACI	2005
ADA-ES Inc.	Louisa Station Unit 1 MidAmerican	B&W 650 MW	PRB	h-ESP	Sorbent injection	2005
ADA-ES Inc.	Independence Station Unit 1 Entergy	CE 840 MW	PRB	c-ESP	TOXECON II™	TBD
ADA-ES Inc.	Gavin Station American Electric Power	B&W 1300 MW	Bituminous	c-ESP	TOXECON II™	TBD
ADA-ES Inc.	Council Bluff Unit 2 MidAmerican	NA	PRB	h-ESP	Sorbent injection	TBD
ALSTOM Power, Inc.	Dave Johnston Station PacificCorp	NA	PRB	c-ESP	ACI with additives	2005
ALSTOM Power, Inc.	Leland Olds Station Unit 1 Basin Electric Power Cooperative	B&W 440 MW	ND lignite	c-ESP	ACI with additives	2006
ALSTOM Power, Inc.	Portland Station Reliant Energy	NA	Bituminous	c-ESP	ACI with additives	2006
GE EER	John Sevier Station Tennessee Valley Authority	NA	Bituminous	NA	Combined Hg and NO_x Control	2005

Continued . . .

REDACTED PUBLIC VERSION

748. The named inventors did not disclose the information contained in the above table to the USPTO during prosecution of the Patents-in-Suit.

749. In addition, the named inventors noted that ADA Environmental Solutions Inc. ("ADA-ES") conducted a project at Sunflower Electric Power Corporation's Holcomb Station near Garden City, Kansas where "[s]imultaneous injection of the DARCO FGD activated carbon upstream of the SDA–FF system and addition of the KNX chemical additive to the coal resulted in 86% mercury removal compared to 54% mercury removal with DARCO FGD injection alone. These data indicate that the use of a fuel additive to increase the flue gas halogen concentration in conjunction with ACI can significantly increase mercury removal rates."[78] The KNX chemical was a proprietary chemical additive from ALSTOM that included halogen and "was added to the coal at the crusher house to increase the halogen concentration in the flue gas in an attempt to improve mercury capture."[79]

750. KNX was an aqueous solution of calcium bromide.

751. The named inventors knew that the two step process of adding a halogen to coal and injecting activated carbon sorbent had already been implemented as of 2005 at power plants in the United States. But the named inventors did not disclose the Mercury Information Clearinghouse during prosecution of any of the Patents-in-Suit.

752. In addition, the named inventors knew that "ADA Environmental Solutions, Inc., in conjunction with AmerenEU, NETL, EPRI, and other organizations, is conducting an ACI project at AmerenEU Meramec Station Unit 2 at St. Louis, Missouri. Unit 2 is a load-following, 140-MW pc-fired system. The boiler fires 100% PRB coal from multiple mines for compliance

[78] Mercury Information Clearinghouse (available at https://www.osti.gov/biblio/907884) at 275.

[79] Mercury Information Clearinghouse (available at https://www.osti.gov/biblio/907884) at 275.

with SO2 emission limits. Particulate emission control is accomplished with a c-ESP manufactured by American Air Filter with an SCA of 320 ft2/1000 acfm. The demonstration test was conducted on a flue gas volume representing a nominal capacity of 70 MW. Project results through December 31, 2004, were documented in a Quarterly Technical Report entitled "Evaluation of Sorbent Injection for Mercury Control" (17)."[80] But the named inventors did not disclose Quarterly Technical Report entitled "Evaluation of Sorbent Injection for Mercury Control" or the Mercury Information Clearinghouse during prosecution of any of the Patents-in-Suit.

753. Moreover, during this testing at AmerenEU Meramec Station Unit 2 at St. Louis, Missour, "KNX was added to the coal to increase the halogen concentration in the flue gas in an attempt to improve mercury capture with and without carbon injection."[81] The named inventors also disclosed that, "[b]ecause of changes in mill operation, LOI values were higher during these tests and likely increased the observed mercury removal somewhat. However, the addition of the KNX to the fuel increased mercury removal from 22%–34% to 57%–64% without any carbon addition. When KNX additive was injected with the fuel and the DARCO Hg carbon at the inlet of the ESP, vapor-phase mercury removal was 87%. Indirectly accounting for particulate mercury indicated total mercury removal was 95% for a DARCO Hg carbon injection rate of 5 lb/Macf. These data indicate that the use of a fuel additive to increase the flue gas halogen concentration with and without the injection of an activated carbon can significantly increase mercury removal rates." Thus, the named inventors knew that the two step process of adding a halogen to coal and injecting activated carbon sorbent had already been implemented as of 2005 at power plants in the

[80] Mercury Information Clearinghouse (available at https://www.osti.gov/biblio/907884) at 275.

[81] Mercury Information Clearinghouse (available at https://www.osti.gov/biblio/907884) at 276.

United States. But the named inventors did not disclose the Mercury Information Clearinghouse during prosecution of any of the Patents-in-Suit.

The Patents-in-Suit Are Not Entitled To A Priority Date Earlier Than November 4, 2009[82] When They Surreptitiously Amended The '219 Application

754. The '225 patent, the '370 patent, the '430 patent, the '517 patent and the '218 patent are not entitled to the August 30, 2004 date (filing date of U.S. Provisional Patent Application No. 60/605,640) as their priority date.

755. The '225 patent, the '370 patent, the '430 patent, the '517 patent and the '218 patent are not entitled to the August 22, 2005 date (filing date of U.S. Patent Application No. 11/209,163) as their priority date.

756. The '163 Application, which is the first non-provisional application in the family of Patents-in-Suit, did not disclose separate addition of bromine-containing chemicals and activated carbon.

757. Any statement in the '163 Application that purports to incorporate the contents of the '640 Provisional Application was insufficient under the USPTO rules, as already found by the PTAB and detailed below.

758. The '225 patent, the '370 patent, the '430 patent, the '517 patent and the '218 patent are not entitled to the April 6, 2009 date (filing date of U.S. Patent Application No. 12/419,219) as their priority date.

759. The '219 Application, which was filed on April 6, 2009, did not disclose separate addition of bromine-containing chemicals and activated carbon.

[82] The priority dates for the Patents-in-Suit are actually in 2018 given the substantial amount of new matter added in 2018.

760. Any statement in the ’219 Application that purports to incorporate the contents of the ’640 Provisional Application was insufficient under the USPTO rules, as already found by the PTAB and detailed below.

761. The ’225 patent, the ’370 patent, the ’430 patent, the ’517 patent and the ’218 patent are not entitled to the earlier dates listed above because the named inventors made a number of material changes and added new matter to the applications well after the filing dates of U.S. Provisional Patent Application No. 60/605,640, U.S. Patent Application No. 11/209,163, and U.S. Patent Application No. 12/419,219.

762. The alleged inventions contained in the claims of the ’225 patent, the ’370 patent, the ’430 patent, the ’517 patent and the ’218 patent were not conceived until well after the filing dates of U.S. Provisional Patent Application No. 60/605,640, U.S. Patent Application No. 11/209,163, and U.S. Patent Application No. 12/419,219.

763. Even if the alleged inventions contained in the claims of the ’225 patent, the ’370 patent, the ’430 patent, the ’517 patent and the ’218 patent were conceived at or near the time of filing dates of U.S. Provisional Patent Application No. 60/605,640, U.S. Patent Application No. 11/209,163, and U.S. Patent Application No. 12/419,219, material changes were made to the specification and new matter was added to the ’225 patent, the ’370 patent, the ’430 patent, the ’517 patent and the ’218 patent that precludes a priority claim to any earlier filing.[83]

[83] *See e.g.,* MPEP 211.05(B) (“The disclosure of a continuation application must be the same as the disclosure of the prior-filed application; i.e., the continuation must not include anything which would constitute new matter if inserted in the original application. See MPEP § 201.07. The disclosure of a divisional application must be the same as the disclosure of the prior-filed application, or include at least that portion of the disclosure of the prior-filed application that is germane to the invention claimed in the divisional application. See MPEP § 201.06. The disclosure of a continuation or divisional application cannot include anything which would constitute new matter if inserted in the prior-filed application. A continuation-in-part application may include matter not disclosed in the prior-filed application. *See* MPEP § 201.08. Only the claims of the

764. The Applicants filed US Patent Application 12/419,219 (the ’219 Application) on April 6, 2009. The ’219 Application was filed by attorney Dennis Daley who represented the named inventors.

765. Original-Figure 1 of the ’219 Application that was filed on April 6, 2009, by the named inventors and attorney Daley was as shown below[84]:

continuation-in-part application that are disclosed in the manner provided by 35 U.S.C. 112(a) in the prior-filed application are entitled to the benefit of the filing date of the prior-filed application. If there is a continuous chain of copending nonprovisional applications, each copending application must disclose the claimed invention of the later-filed application in the manner provided by 35 U.S.C. 112(a) in order for the later-filed application to be entitled to the benefit of the earliest filing date. See Regents of the University of Minnesota v. Gilead Scis., Inc., 61 F.4th 1350, 1358, 1360, 2023 USPQ2d 269 (Fed. Cir. 2023) (affirming the PTAB's decision in an inter partes review proceeding and holding that the patentee was not entitled to rely on the earlier filing dates of two nonprovisional applications and a provisional application because the prior-filed applications did not provide sufficient written description to support the invention claimed in the challenged patent).”)

[84] File History of U.S. Patent No. 8,168,147, Drawings, 04/06/2009 at 1.

REDACTED PUBLIC VERSION

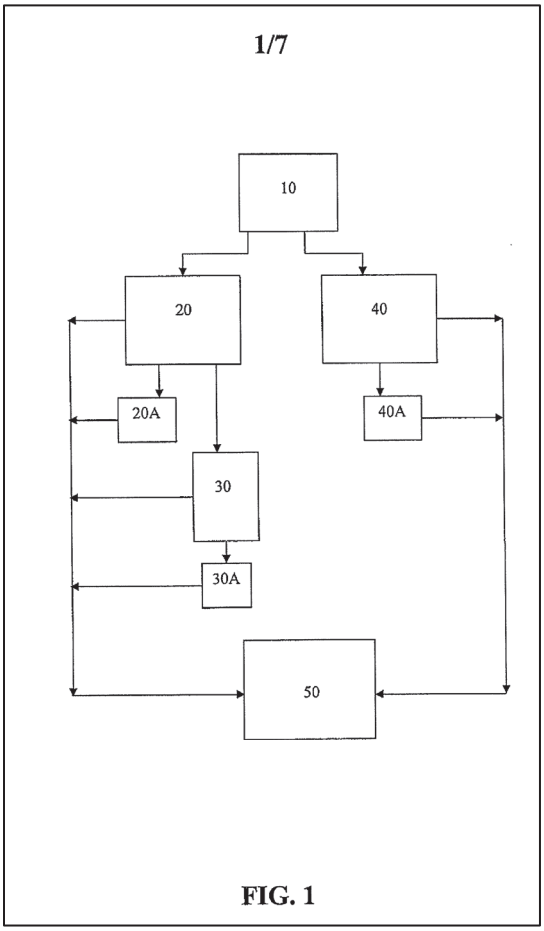


FIG. 1

766. In Original-Figure 1 of the '219 Application, "block 10 illustrates providing a base activated carbon, and adding a halogen or halide promoter that reacts with the carbon, illustrated at block 20, to produce a product promoted carbon sorbent." '147 patent at 6:45–48. The specification also states, "adding a secondary component illustrated at block 30 that reacts with the result of block 20 to produce a promoted carbon sorbent." *Id.* at 6:56-61.

767. In Original-Figure 1 of the '219 Application, block 40 represents an embodiment that includes "providing a base activated carbon as illustrated at block 10, and adding a halogen or halide promoter and a secondary component to the activated carbon together, with which they react as illustrated by block 40." '147 patent at 7:3-6.

REDACTED PUBLIC VERSION

768. In Original-Figure 1 of the '219 Application, block 50 represents a mercury-containing (flue) gas. '147 patent at 7:13-15.

769. In Original-Figure 1 of the '219 Application, there is no direct pathway between block 10 (activated carbon) and block 50 (mercury-containing flue gas).

770. In the specification of the '219 Application, there is no description of any pathway directly from block 10 (activated carbon) to block 50 (mercury-containing flue gas).

771. In Original-Figure 1 of the '219 Application, the activated carbon (20) contacts a halogen or halide promoter *prior* to (upstream of) the mercury-containing flue gas (50).

772. The disclosure of Figure 1 of the '219 Application, as filed on April 6, 2009, did not support adding any halogens to the coal or combustion chamber, let alone any specific species of halogens. This figure disclosed preparing a brominated activated carbon outside mercury-containing flue gas, and then injecting the pre-brominated sorbent into the mercury-containing flue gas downstream from the combustion chamber

773. The specification of the '219 Application also did not disclose adding any halogens to the coal or combustion chamber, let alone any specific species of halogens.

774. On September 4, 2009, the Examiner examining the '219 Application issued a Notice to File Corrected Application Papers, which stated as follows:[85]

[85] File History of U.S. Patent No. 8,168,147, Notice to File Corrected Application Papers, 09/04/2009 at 1.

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Filing Date Granted

An application number and filing date have been accorded to this application. The application is informal since it does not comply with the regulations for the reason(s) indicated below. Applicant is given TWO MONTHS from the date of this Notice within which to correct the informalities indicated below. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

The required item(s) identified below must be timely submitted to avoid abandonment:

- Replacement drawings in compliance with 37 CFR 1.84 and 37 CFR 1.121(d) are required. The drawings submitted are not acceptable because:
  - The drawings have a line quality that is too light to be reproduced (weight of all lines and letters must be heavy enough to permit adequate reproduction) or text that is illegible (reference characters, sheet numbers, and view numbers must be plain and legible) see 37 CFR 1.84(l) and (p)(1)); See Figure(s) 2, 4-10.
  - Numbers, letters, and reference characters on the drawings must measure at least 0.32 cm (1/8 inch) in height. See Figure(s) 3-10.

Applicant is cautioned that correction of the above items may cause the specification and drawings page count to exceed 100 pages. If the specification and drawings exceed 100 pages, applicant will need to submit the required application size fee.

775. Specifically, the Notice to File Corrected Application Papers required "Replacement drawings in compliance with 37 C.F.R. § 1.84 and 37 C.F.R. § 1.121(d) … because: [t]he drawings have a line quality that is too light to be reproduced (weight of all lines and letters must be heavy enough to permit adequate reproduction) or text that is illegible (reference characters, sheet numbers, and view numbers must be plain and legible) see 37 C.F.R. § 1.84(I) and (p)(1)); See Figure(s) 2, 4-10."[86]

776. The Examiner's Notice to File Corrected Application Papers did not identify Figure 1 as needing a replacement.

777. The Notice to File Corrected Application Papers did not authorize or otherwise allow the named inventors to submit new matter in the replacement drawings.

778. The Notice to File Corrected Application Papers specifically stated that the replacement drawings had to comply with 37 C.F.R. § 1.121(d).

[86] File History of U.S. Patent No. 8,168,147, Notice to File Corrected Application Papers, 09/04/2009 at 1.

The Named Inventors And Attorney Daley Violated The Duty of Candor By Amending Figure 1 Without Informing The USPTO

779. 37 C.F.R. § 1.121(d) states as follows:

> (d) Drawings. One or more application drawings shall be amended in the following manner: Any changes to an application drawing must be in compliance with § 1.84 or, for a nonprovisional international design application, in compliance with §§ 1.84(c) and 1.1026 and must be submitted on a replacement sheet of drawings which shall be an attachment to the amendment document and, in the top margin, labeled "Replacement Sheet." Any replacement sheet of drawings shall include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is amended. Any new sheet of drawings containing an additional figure must be labeled in the top margin as "New Sheet." ***All changes to the drawings shall be explained, in detail, in either the drawing amendment or remarks section of the amendment paper.***
> (1) A marked-up copy of any amended drawing figure, including annotations indicating the changes made, may be included. The marked-up copy must be clearly labeled as "Annotated Sheet" and must be presented in the amendment or remarks section that explains the change to the drawings.
> (2) A marked-up copy of any amended drawing figure, including annotations indicating the changes made, must be provided when required by the examiner.

37 C.F.R. § 1.121(d) (emphasis added).

780. In addition, 37 C.F.R. § 1.53(b) states as follows:

> (b) Application filing requirements — Nonprovisional application. The filing date of an application for patent filed under this section, except for a provisional application under paragraph (c) of this section or a continued prosecution application under paragraph (d) of this section, is the date on which a specification as prescribed by 35 U.S.C. § 112 containing a description pursuant to § 1.71 and at least one claim pursuant to § 1.75 , and any drawing required by § 1.81(a) are filed in the Patent and Trademark Office. ***No new matter may be introduced into an application after its filing date.*** A continuing application, which may be a continuation, divisional, or continuation-in-part application, may be filed under the conditions specified in 35 U.S.C. §§ 120 , 121 or 365(c) and §§ 1.78(c) and (d).

781. In addition 35 U.S.C. § 132 states as follows:

> (a)Whenever, on examination, any claim for a patent is rejected, or any objection or requirement made, the Director shall notify the applicant thereof, stating the reasons for such rejection, or objection or requirement,

> together with such information and references as may be useful in judging of the propriety of continuing the prosecution of his application; and if after receiving such notice, the applicant persists in his claim for a patent, with or without amendment, the application shall be re-examined. ***No amendment shall introduce new matter into the disclosure of the invention.***

782. In addition, the Manual of Patent Examining Procedure (MPEP) § 608.02(p) ¶ 6.40, cautions patent applicants as follows:

> Drawing changes must be made by presenting replacement sheets which incorporate the desired changes and which comply with 37 C.F.R. § 1.84. ***An explanation of the changes made must be presented either in the drawing amendments section, or remarks, section of the amendment paper.*** Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 C.F.R. § 1.121(d). A replacement sheet must include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of the amended drawing(s) must not be labeled as "amended." If the changes to the drawing figure(s) are not accepted by the examiner, applicant will be notified of any required corrective action in the next Office action. No further drawing submission will be required, unless applicant is notified.

783. In addition, the MPEP requires applicants to submit Form paragraph 2.10.01 where a continuation or divisional application includes new matter relative to the prior-filed application. *See* MPEP § 211.05 ("This form paragraph should be used when an application, which claims the benefit of a prior-filed application under 35 U.S.C. 120, 121, 365(c), or 386(c) contains new matter relative to the prior-filed application, and purports to be a "continuation," "division," or "divisional application" of the prior-filed application.").

784. In response to the September 4, 2009 Notice to File Corrected Application Papers, the Applicants submitted replacement drawings (on November 4, 2009) which stated as follows[87]:

[87] File History of U.S. Patent No. 8,168,147, Response to Notice to File Corrected Application Papers, 09/04/2009 at 1.

RESPONSE TO NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

In response to the Notice to File Missing Parts of Nonprovisional Application mailed September 4, 2009, Applicants submit the following:

- Replacement Drawings.

The undersigned hereby authorizes the U.S. Patent and Trademark Office to charge any additional fees due or credit any overpayment to Deposit Account No. 132725.

Respectfully submitted,

MERCHANT & GOULD P.C.
P.O. Box 2903
Minneapolis, Minnesota 55402-0903

Date: November 4, 2009

Dennis R. Daley
Reg. No. 34,994

23552
PATENT TRADEMARK OFFICE

785. As shown above, this response was submitted by attorney Daley on behalf of the named inventors and specifically stated that, "[i]n response to the Notice to File Missing Parts … ***Applicants submit the following:*** - Replacement Drawings."

786. The named inventors' and attorney Daley's Response to Notice to File Missing Parts of Nonprovisional Application (submitted by attorney Daley) included the following replacement for Figure 1[88]:

[88] File History of U.S. Patent No. 8,168,147, Response Notice to File Corrected Application Papers—Replacement Drawings, 09/04/2009 at 1.

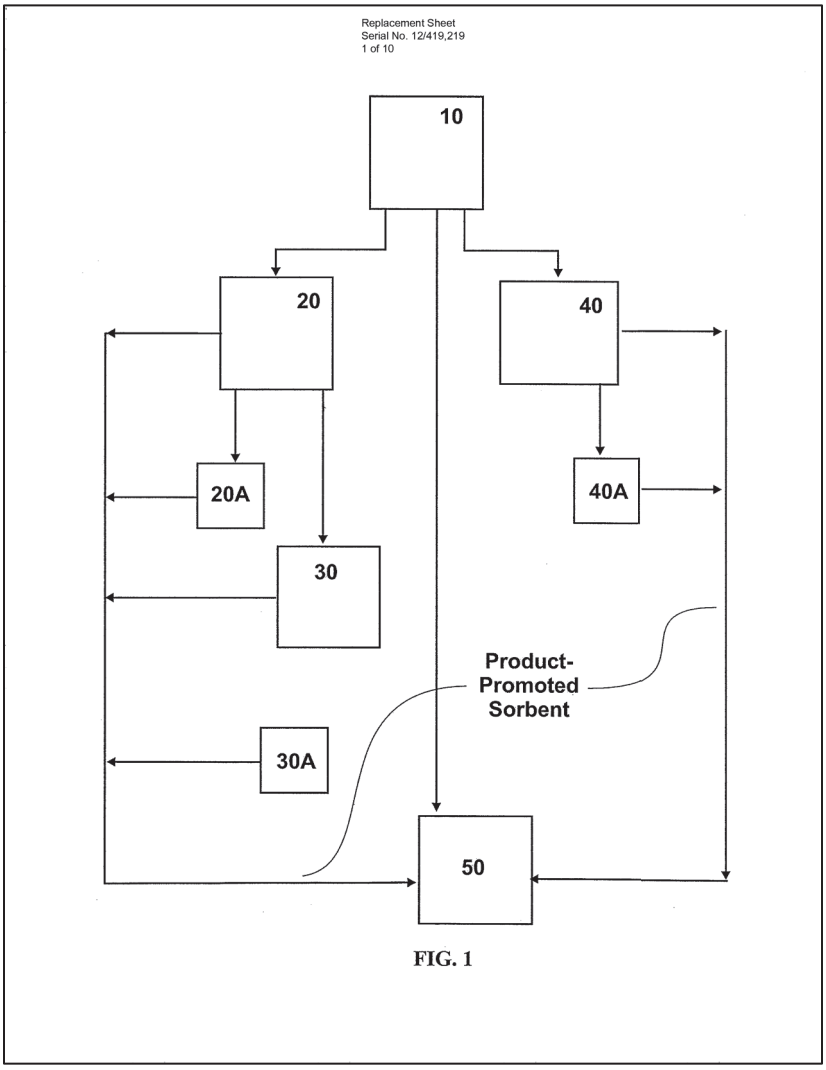


FIG. 1

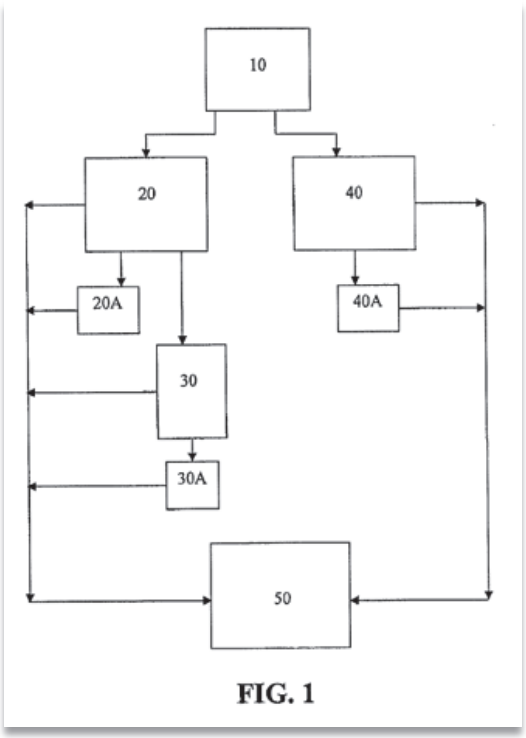
787. The replacement Figure 1 is not the same as Figure 1 that was originally submitted in the '219 Application on April 6, 2009.

788. Replacement Figure 1 in the '219 Application was substantively different than Original-Figure 1.

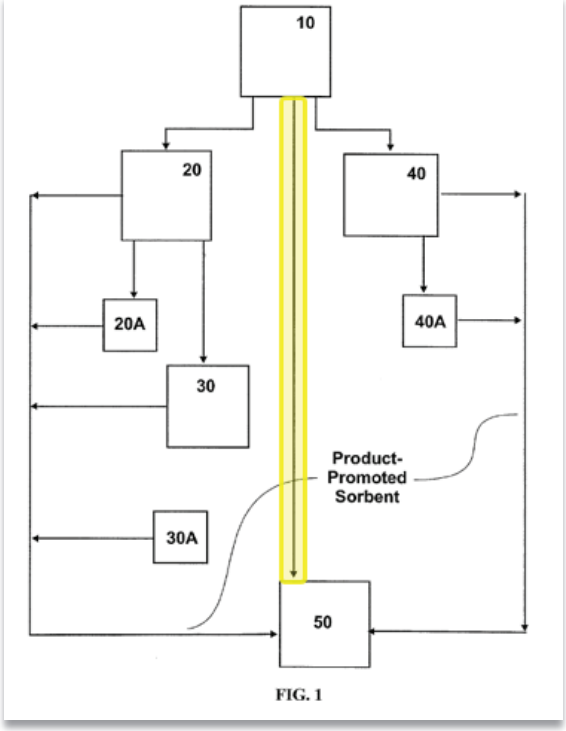
789. The replacement Figure 1 adds a line directly connecting elements 10 and 50.

790. The line directly connecting elements 10 and 50 was not present in original Figure 1 that was filed on April 6, 2009.

791. For purposes of comparison, shown on the left is Original-Figure 1 in the '219 Application, and shown on the right is replacement Figure 1 in the '219 Application (with yellow highlighting added):



'219 Application, Original-Figure 1



'219 Application, Replacement Figure 1

792. As compared to Original-Figure 1, replacement-Figure 1 added a "Product-Promoted Sorbent" label and associated arrows. Addition of the label and associated arrows was a substantive change to Original-Figure 1.

793. Element 10 in Figure 1 refers to activated carbon.

794. Element 50 in Figure 1 refers to flue gas.

795. Thus, the replacement Figure 1 (submitted on November 4, 2009) added new matter that disclosed adding activated carbon directly to the mercury-containing gas independently and separately from any halide promoter.

REDACTED PUBLIC VERSION

796. As compared to Original-Figure 1, replacement-Figure 1 added a direct pathway from block 10 (activated carbon) to block 50 (mercury-containing flue gas) that bypassed the halogen or halide promoters. Addition of the line was a substantive change to Original-Figure 1.

797. The named inventors and attorney Daley intentionally modified replacement Figure 1.

798. The named inventors and attorney Daley intentionally omitted any explanation for the modifications to Figure 1.

799. On information and belief, named inventor John Pavlish helped prepare Replacement Figure 1 of the ’219 Application.

800. On information and belief, named inventor John Pavlish was aware of the content of Replacement Figure 1 of the ’219 Application.

801. On information and belief, named inventor Michael Holmes helped prepare Replacement Figure 1 of the ’219 Application.

802. On information and belief, named inventor Michael Holmes was aware of the content of Replacement Figure 1 of the ’219 Application.

803. On information and belief, named inventor Edwin Olson helped prepare Replacement Figure 1 of the ’219 Application.

804. On information and belief, named inventor Edwin Olson was aware of the content of Replacement Figure 1 of the ’219 Application.

805. On information and belief, attorney Dennis Daley helped prepare, or was at least aware of the content, of Replacement Figure 1 of the ’219 Application.

806. The named inventors' and attorney Daley's Response to Notice to File Missing Parts of Nonprovisional Application, dated November 4, 2009, did not include any "remarks section" explaining any changes to the drawings.

807. The named inventors' and attorney Daley's Response to Notice to File Missing Parts of Nonprovisional Application, dated November 4, 2009, did not include any explanation of any changes to the drawings.

808. The named inventors' and attorney Daley's Response to Notice to File Missing Parts of Nonprovisional Application, dated November 4, 2009, failed to comply with the requirements of 37 C.F.R. § 1.121(d).

809. The named inventors' and attorney Daley's Response to Notice to File Missing Parts of Nonprovisional Application, dated November 4, 2009, failed to comply with the requirements of 37 C.F.R. § 1.53(b).

810. The named inventors' and attorney Daley's Response to Notice to File Missing Parts of Nonprovisional Application, dated November 4, 2009, failed to comply with the 35 U.S.C. § 132(a).

811. The Applicants' Response to Notice to File Missing Parts of Nonprovisional Application, dated November 4, 2009, failed to comply with the MPEP 608.

812. The Applicants' Response to Notice to File Missing Parts of Nonprovisional Application, dated November 4, 2009, failed to comply with the MPEP 211.05.

813. Attorney Dennis Daley did not inform the Examiner that any changes to Figure 1 of the '219 Application had been made.

814. Attorney Dennis Daley did not inform the Examiner that Replacement Figure 1 was substantively different from Original-Figure 1 of the '219 Application.

REDACTED PUBLIC VERSION

815. The named inventors did not inform the Examiner that any changes to Figure 1 of the ’219 Application had been made.

816. The named inventors did not inform the Examiner that Replacement Figure 1 was substantively different from Original-Figure 1 of the ’219 Application.

817. The information required under 35 U.S.C. § 132(a), 37 C.F.R. § 1.53(b), 37 C.F.R. § 1.121(d), MPEP 608, and MPEP 211.05 was necessary for the Examiner to make a determination regarding priority date.

818. Mere submission of two versions of the same drawing is not cumulative of the information before the examiner.

819. If mere submission of two versions of the same drawing were cumulative of the information before the examiner, there would be no reason for the requirements in 35 U.S.C. § 132(a), 37 C.F.R. § 1.53(b), 37 C.F.R. § 1.121(d), MPEP 608, and MPEP 211.05 that require an applicant to identify changes made to a drawing or otherwise made to a patent application.

820. The Examiner of the ’219 Application relied upon attorney Dennis Daley’s representations as to priority date, because Examiners do not making findings of priority as a matter of course during prosecution. *See* MPEP § 201.08.

821. The named inventors and attorney Daley knew that had they drawn attention to the changes made in replacement Figure 1 of the ’219 Application, the Examiner would have rejected the amendment, rejected any entitlement to an earlier filing date, and rejected the claims on the basis of additional prior art dated between August 2004 and the filing date of the ’219 Application. To avoid drawing the Examiner’s attention to the substantial new matter added to the specification, the Applicants intentionally did not comply with the requirements of 37 C.F.R. 1.121.

822. The Applicants' Response to Notice to File Missing Parts of Nonprovisional Application, dated November 4, 2009, intentionally and deliberately misused the patent prosecution process to deceive the Examiner into believing that no new matter was added and to surreptitiously add new matter to gain an improper advantage.

823. Because of the named inventors' and attorney Daley's intentional withholding of material information, the Examiner did not have all the information (required under 37 C.F.R and the MPEP) that would allow the Examiner to determine all changes made to the application, assess the implications of those changes, and determine allowability of any claims subsequent to the changes.

824. But for the substantive modifications to Figure 1, the Examiner would have rejected application claims 54-55 of the '219 Application, which issued as claims 18 and 19 of the '147 patent. But for the substantive modifications to Figure 1, the Examiner would have rejected claims of the Patents-in-Suit directed at the two-step process of adding halogens (bromine or iodine) and activated carbon to reduce mercury emissions.

825. The USPTO's guidance on responding to Notice to File Missing Parts explains how applicants should respond to a notice regarding "[d]rawings filed in a nonprovisional application must satisfy rules regarding clarity and reproducibility" and states "[y]our drawings did not meet all those rules. You'll need to submit at least one new sheet of drawings labeled as 'Replacement Sheet' in the top margin. Each replacement sheet of drawings must include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is amended. The specific corrections required by the notice must appear in the amended figure(s)."[89]

[89] *See* https://www.uspto.gov/patents/apply/when-patent-applications-are-incomplete-or-missing-information.

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826. The named inventors' and attorney Daley's submission of replacement Figure 1 on November 4, 2009, did not satisfy the USPTO's guidance because it did not specify what corrections were being made and which figures were being amended.

827. The omission of any explanation of the changes to the drawings by the named inventors and attorney Daley was intentional.

828. The named inventors' and attorney Daley's omission of any explanation of the changes to the drawings (as submitted by attorney Daley) deceived the Examiner into believing that no new matter was added and no material changes were made to the drawings or the specification of the '219 Application.

829. The omission of any explanation of the changes to the drawings (by the named inventors and as submitted by attorney Daley) was material to the Examiner's determination of the priority date of the '147 patent.

830. Had the named inventors and attorney Daley explained the changes to replacement Figure 1 in detail, as required by 37 C.F.R. § 1.121(d), the Examiner would have determined that any claims directed at adding activated carbon directly to the mercury-containing gas independently and separately from any halide promoter are entitled to a priority date of no earlier than November 4, 2009,[90] when the replacement Figure 1was submitted.

831. Had the named inventors and attorney Daley explained the changes to replacement Figure 1 in detail, as required by 37 C.F.R. § 1.121(d), the Examiner would have determined that any claims directed at adding activated carbon directly to the mercury-containing gas independently and separately from any halide promoter are entitled to a priority date of no earlier

[90] The priority dates for the Patents-in-Suit are actually in 2018 given the substantial amount of new matter added in 2018.

than November 4, 2009,[91] and that certain references (including but not limited to U.S. Patent Pub. No. 2006/0048646, the Nelson Publications, and U.S. Patent Publication No. 2007/0168213) are invalidating prior art to any claims directed at adding activated carbon directly to the mercury-containing gas, separately from any halide promoter.

832. Had the named inventors disclosed the Mercury Information Clearinghouse and explained the changes to replacement Figure 1 in detail, as required by 37 C.F.R. § 1.121(d), the Examiner would have determined that claims directed at adding activated carbon directly to the mercury-containing gas independently and separately from any halide promoter are invalid in view of the Mercury Information Clearinghouse.

833. Patent examiners do not make determinations of priority date as a matter of course. *See, e.g.*, MPEP. § 216. Instead, patent examiners accept representations from patent applicants.

834. The Examiner thus relied on named inventors' and attorney Daley's representations of priority date throughout the prosecution of the '219 Application.

835. Subsequent patent examiners who examined the '225 patent, '370 patent, '430 patent, '517 patent, and '218 patent, relied on the named inventors' representations of priority when they filed "continuation" applications leading up to the '225 patent, '370 patent, '430 patent, '517 patent, and '218 patent, each of which claim priority to the '147 patent.

836. But for the named inventors' and attorney Daley's intentional omission of any explanation of the changes in replacement Figure 1, the Examiner failed to determine the correct priority date for the '147 patent and the '225 patent, '370 patent, '430 patent, '517 patent, and '218 patent, each of which claim priority to the '147 patent.

[91] The priority dates for the Patents-in-Suit are actually in 2018 given the substantial amount of new matter added in 2018.

837. The single most reasonable inference that can be drawn from the decision of each of attorney Dennis Daley, named inventor John Pavlish, Michael Holmes and Ed Olson to substantively modify Figure 1 of the '219 Application, without informing the USPTO Examiner, is that they acted with specific intent to deceive the USPTO in order to obtain issuance of claims directed at the two-step process to include new matter first added November 11, 2009 while still asserting a priority date of August 30, 2004.

The PTAB Has Also Confirmed That Neither The Provisional Application ('640 Application) Nor The Chain Of Non-Provisional Applications Subsequently Filed Disclose The Alleged Invention Of A Two-Step Process For Reducing Mercury Emissions

838. The Patent Trial and Appeals Board (PTAB) has also reviewed the file histories of the patents in the family of Asserted Patents and confirmed that the '640 Provisional Application does not disclose the alleged invention of a two-step process for reducing mercury emissions.

839. The PTAB has also confirmed that the chain of non-provisional applications filed after the '640 Provisional Application also fail to disclose the alleged invention of a two-step process for reducing mercury emissions.

840. The PTAB reviewed the validity of certain claims in U.S. Patent No. 8,168,147, which issued from U.S. Patent Application No. 12/419,219. *See* IPR2020-00926 and IPR2020-00928.

841. The PTAB also reviewed the validity of certain claims in U.S. Patent No. 10,343,114, which issued from U.S. Patent Application No. 15/978,760. *See* IPR2020-00832 and IPR2020-00834.

842. The '147 patent is a parent to the '225 patent, '370 patent, '430 patent, '517 patent, and '218 patent.

843. The ’114 patent is related to the ’225 patent, ’370 patent, ’430 patent, ’517 patent, and ’218 patent, and belongs to the same family of patents. The ’114 patent is a continuation-in-part of a continuation-in-part and traces its filing to U.S. Patent Application No. 12/201,595. The ’225 patent, ’370 patent, ’430 patent, ’517 patent, and ’218 patent are continuations that trace their filing to the same U.S. Patent Application No. 12/201,595. Thus, the ’114 patent is related to the ’225 patent, ’370 patent, ’430 patent, ’517 patent, and ’218 patent.

844. In its decision instituting *inter partes* review of the ’147 patent, the PTAB determined that the ’147 patent failed to disclose the two-step process of adding bromine-containing chemicals and activated carbon separately into a mercury-containing gas. *See* IPR2020-00928, Paper 17 at 29 (“There is ***no suggestion that bromine and the activated carbon are separately injected*** into mercury-containing flue gas line 15 through “multiple injection points.””) (emphasis added).

845. Specifically, even though ME2C[92] argued that the ’640 Provisional Application disclosed separate addition of bromine to coal and the addition of activated carbon,[93] the PTAB disagreed and held that “one or more of the applications in the priority chain for the ’147 patent lacks written description from the ’640 provisional application to support the challenged claims.” *See* IPR2020-00928, Paper 17 at 21.

846. The PTAB went on to note that “Here, Figure 2 of the ’640 provisional application and its corresponding written description are entirely missing from the intervening applications. *Compare* Ex. 1020, 12, Fig. 2, *with* Ex. 1021 ¶¶ 52–53, Fig. 2. Therefore, even if the ’640

[92] Plaintiff ME2C participated in the IPR2020-00928 proceeding in its capacity as the patent owner.

[93] This is the same argument that Plaintiff recently advanced in this proceeding. *See* ECF 57-1 at 9-11.

provisional application was found to provide support for challenged claims 18 and 19 of the '147 patent, at least the '163 application and the '595 application do not include that written description from the '640 provisional application. Thus, there is a break in the priority chain." *See* IPR2020-00928, Paper 17 at 21-22.

847. The PTAB made the same finding in IPR2020-00832. *See* IPR2020-00832, Paper 17 at 26 ("Even if the provisional application and/or the '760 application were found to provide support for the challenged claims of the '114 patent, at least the '163 application and the '595 application do not provide written description support for the challenged claims."). The PTAB also noted that "Although Figure 6 of the '760 application corresponds to Figure 2 of the provisional application, that drawing is absent from the [intervening] '595 and '163 applications. Ex. 1026, 62; Ex. 1020, 16; Ex 1020, 41–47; Ex. 1022, 40–46." *See* IPR2020-00832, Paper 17 at 27.

848. The PTAB further noted that there was no teaching of an in-flight reaction of bromine and activated carbon in the combustion chamber or within the mercury-containing gas in the combustion chamber. The PTAB specifically noted that "With respect to Figure 2, it is unclear whether the term "additive injection" in Figure 2 includes bromine or is limited to Group I or Group II elements, as Petitioner suggests, and further, whether an in-flight reaction occurs *in* the mercury-containing gas even assuming the "additive injection" includes bromine. For example, the '640 provisional application refers to "additives" as "Ca, Na, and others" as separate from the "additional substances," including bromine. *See e.g.*, Ex. 1020, Abstract, 3–4. The '640 provisional application further states that bromine may be reacted with the activated carbon in-flight and *within* "the duct through which the carbon is transported from a reservoir *to* the flue gas duct." *Id.* at 3 (emphasis added); *see also id.* 10–11 ("the sorbent can be readily treated with any combination of bromine and the second component in-flight using vapors of the these components contacting the

very fine carbon particles dispersed in air or other gas stream that *conveys the particles to the flue gas duct*." (emphasis added)). ***Thus, the only teaching of an in-flight reaction between bromine and activated carbon occurs in the duct work before being introduced into the mercury containing gas***." *See* IPR2020-00928, Paper 17 at 22 (emphasis added).

849. During the IPR2020-00928 proceeding, Plaintiff ME2C also argued that the '640 Provisional Application was "incorporated by reference" into the subsequent non-provisional patent applications, including U.S. Patent Application No. 12/419,219. But the PTAB disagreed and did not allow ME2C to claim the filing date of the '640 Provisional Application as its priority date for the claims in the '147 patent.

850. With regards to Plaintiff's argument about the '640 Provisional Application being "incorporated by reference," the PTAB stated that "37 C.F.R. § 1.57(c) (2005) permits incorporation by reference of essential material, which includes material necessary to provide a written description of the claimed invention, ***but it is critical to note that it limits such incorporations to U.S. patents and U.S. patent application publications***. 37 C.F.R. § 1.57(c) (2005)). Patent Owner [ME2C] does not dispute this point. *See generally* Prelim. Resp.; Sur-reply; *cf*. *Ex parte Maziere*, 27 USPQ2d 1705, 1706–07 (BPAI 1993) (holding that if "essential material" is included in the application at issue, incorporation by reference in the parent application was sufficient to claim priority and to satisfy the written description requirement, but not discussing provisional applications). ***Therefore, to the extent the provisional application provides support for the challenged claims, incorporation by reference of the provisional application by the '595 and '163 applications cannot cure the deficiencies discussed above***." *See* IPR2020-00928, Paper 17 at 23-24 (emphasis added). The PTAB made the same finding in IPR2020-00832. *See* IPR2020-00832, Paper 17 at 29-30 ("Therefore, to the extent the provisional application provides

support for the challenged claims, the incorporation by reference of the provisional application by the '595 and '163 applications cannot cure the deficiencies discussed above.").

851. The PTAB further noted that "although we have only analyzed the '595 and '163 applications, we also look to the incorporation statements in the other applications in the chain leading to the '219 application. The '219 application provides that it "is a continuation of U.S. patent application 12/201,595 . . . which is a division of U.S. patent application 11/209,163 . . . which claims priority *to the extent appropriate* from provisional application 60/604,640." Ex. 1019, 54. The '219 application then states that "Application Serial Numbers 12/201,595; 11/209,163; and 60/604,640 are incorporated herein by reference." *Id*. "To incorporate material by reference, the host document must identify with *detailed particularity* what specific material it incorporates and *clearly indicate where* that material is found in the various documents." *Zenon Envtl., Inc. v. U.S. Filter Corp.*, 506 F.3d 1370, 1378, 1379 (Fed. Cir. 2007) (quoting *Cook Biotech Inc. v. Acell, Inc.*, 460 F.3d 1365, 1376 (Fed. Cir. 2006)). It is unclear to us what "to the extent appropriate" means in this context. The '219 application claims priority "to the extent appropriate" and fails to identify with detailed particularity the specific material incorporated and fails to clearly indicate where that material is found in the various documents. *See also* MPEP 211.02 ("In view of this requirement for a specific reference in the later-filed application, the right to rely on a prior art application may be waived by an applicant if a proper reference to the prior application is not included in the later-filed application."). This ambiguity creates an additional concern regarding the chain of priority for the '219 application. In view of the present record, … one or more of the applications in the priority chain for the '147 patent lack written description support for challenged claims 18 and 19. Patent Owner, on this record, has not presented persuasive arguments or evidence that claims 18 and 19 of the '147 patent are entitled to a priority date earlier than April

6, 2009, the filing date of the '219 patent." *See* IPR2020-00928, Paper 17 at 31-32 (emphasis in original).

852. The PTAB made similar findings in IPR2020-00832 where it stated that "one or more of the applications in the priority chain for the '114 patent lacks written description support for the [] claims. Conversely, Patent Owner's arguments are insufficient to establish that the applications in question provide written description support." *See* IPR2020-00832, Paper 17 at 25. The PTAB concluded that "one or more of the applications in the priority chain for the '114 patent lacks written description support for the challenged claims. [ME2C], on this record, has not presented persuasive arguments or evidence that the '114 patent is entitled to a priority date earlier than the May 14, 2018 filing date of the '760 application." *See* IPR2020-00832, Paper 17 at 31.

853. Thus, the PTAB expressly rejected ME2C's theory that the claims directed at the two-step process of adding bromine and separately adding activated carbon were entitled to the priority date of the '640 Provisional Application (August 30, 2004).

854. The PTAB expressly rejected ME2C's theory that the claims directed at the two-step process of adding bromine and separately adding activated carbon were entitled to the priority date of the '163 Application (August 22, 2005).

855. The PTAB expressly rejected ME2C's theory that the claims directed at the two-step process of adding bromine and separately adding activated carbon were entitled to the priority date of the '595 Application (August 29, 2008).

856. Any statement in the '163 Application that purports to incorporate the contents of the '640 Provisional Application was insufficient under the USPTO rules, as already found by the PTAB.

857. Any statement in the '219 Application that purports to incorporate the contents of the '640 Provisional Application was insufficient under the USPTO rules, as already found by the PTAB.

858. The named inventors knew that any claim directed at the two-step process of adding bromine and separately adding activated carbon could not possibly be entitled to the priority date of the '640 Provisional Application (August 30, 2004), or the priority date of the '163 Application (August 22, 2005), or the priority date of the '595 Application (August 29, 2008) in light of the MPEP's strict requirements. *See e.g.*, MPEP §§ 201.07, 211.

859. And, indeed, ME2C knows that any claim directed at the two-step process of adding bromine and separately adding activated carbon could not possibly be entitled to the priority date of the '640 Provisional Application (August 30, 2004), or the priority date of the '163 Application (August 22, 2005), or the priority date of the '595 Application (August 29, 2008) in light of the PTAB's orders in IPR2020-00832 and IPR2020-00928.

860. During the *inter partes* review proceedings concerning the '147 patent in IPR2020-00926, ME2C also relied on the inventors' "testing logbooks, and post-testing reports" to support its argument that the inventors conceived their invention and reduced it to practice prior to filing the '640 Provisional Application. ME2C made a similar argument in the *inter partes* review proceeding concerning the '114 patent in IPR2020-00834. *See* IPR2020-00834, Paper 18 at 29-30 (relying on "logbooks … to support its argument that the inventors reduced the invention to practice 'through pilot scale testing conducted in September 2003, December 2003, and February 2004.'").

861. The "testing logbooks" are based on the same set of documents that ME2C relied on in its motion for preliminary injunction filed in this proceeding. *See* Case No. 24-CV-243, ECF 138-07 and 138-08.

862. But the PTAB did not find ME2C's evidence to be sufficient, as it rejected its claim for entitlement to an earlier conception date based on ME2C's "testing logbooks." *See* IPR2020-00926, Paper 19 at 28-33 (rejecting argument for an earlier conception date to overcome prior art and determining that "for purposes of this Decision, Nelson, Olson-Paper, Lissianski, and Downs-Halogenation constitute prior art under 35 U.S.C. § 102, and, as such, it is proper to rely on them in the grounds presented under 35 U.S.C. § 103."); *see also* IPR2020-00934, Paper 18 at 33 (rejecting argument for an earlier conception date to overcome prior art and stating that "we 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. Most importantly, [ME2C] does not explain in sufficient detail how the proffered testimony and documents disclose every feature of the subject matter challenged. It is also unclear, without further explanation, what the documents that purport to show conception and reduction to practice actually demonstrate, and how they are related specifically to the limitations of the challenged claims. Accordingly, based on the preliminary record, we determine that, for purposes of this Decision, Vosteen and Downs-Boiler constitute prior art under 35 U.S.C. § 102.").

863. Thus, the PTAB expressly rejected ME2C's theory that the claims directed at the two-step process of adding bromine and separately adding activated carbon would be entitled to an earlier conception date based on any pre-filing testing logbooks or any other pre-filing activity by the inventors.

The '225 Patent Is Not Entitled To A Priority Date Earlier Than November 4, 2009

864. The priority date of the '147 patent was material to the determination of the priority date of the '225 patent, '370 patent, '430 patent, '517 patent, and '218 patent, by its respective examiners because each of these patents claim priority to the '147 patent.

865. The application leading to the '225 patent (U.S. Patent Application No. 14/712,558 or the '558 Application) was filed on May 14, 2015.

866. On May 14, 2015, the named inventors (through their prosecution counsel) informed the Patent Office that the '558 Application was a "Continuation" of the preceding applications without any break in priority dating back to August 30, 2004, as shown below[94]:

[94] File History of U.S. Patent No. 10,589,225, Application Data Sheet, 05/14/2015 at 4.

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78(a)(2) or CFR 1.78(a)(4), and need not otherwise be made part of the specification.

Prior Application Status	Pending		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing Date (YYYY-MM-DD)**
This Application	continuation of	14/318,270	2014-06-27
Prior Application Status	Patented		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing Date (YYYY-MM-DD)**
14/318,270	continuation of	13/966,768	2013-08-14
Prior Application Status	Patented		

Application Number	**Continuity Type**	**Prior Application Number**	**Filing Date (YYYY-MM-DD)**
13/966,768	continuation of	13/427,665	2012-03-22
Prior Application Status	Patented		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing Date (YYYY-MM-DD)**
13/427,665	continuation of	12/419,219	2009-04-06
Prior Application Status	Abandoned		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing Date (YYYY-MM-DD)**
12/419,219	continuation of	12/201,595	2008-08-29
Prior Application Status	Patented		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing Date (YYYY-MM-DD)**
12/201,595	division of	11/209,163	2005-08-22
Prior Application Status	Expired		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing Date (YYYY-MM-DD)**
11/209,163	Claims benefit of provisional	60/605,640	2004-08-30

867. The named inventors sought the benefit of the earlier-filed applications under 35 U.S.C. § 120. In doing so, the named inventors misrepresented the status of the '558 Application because it contained new matter that was not contained in chain of applications leading up to the '163 Application from which '558 Application claimed priority.

868. In accordance with MPEP § 201.07, "[t]he disclosure presented in the continuation must not include any subject matter which would constitute new matter if submitted as an amendment to the parent application."

869. But the disclosure of Figure 1 in the '558 Application constituted new matter because it directly linked element 10 and element 50, which was not contained in any of the filings in this patent family prior to November 4, 2009.[95]

870. The Examiner examining the '558 Application (Amber Orlando) did not independently determine the priority date of the claims of the '558 Application.

871. The Examiner examining the '558 Application relied upon prosecution counsel's representations as to priority date, because Examiners do not making findings of priority as a matter of course during prosecution. *See* MPEP § 201.08.

872. Figure 1 of the '558 Application was identical to the replacement Figure 1 submitted in the '219 Application on November 4, 2019.

873. The '558 Application ultimately issued as the '225 patent on March 17, 2020.

874. The claims of the '225 patent are directed at the two-step process of adding some type of bromine compound to the coal followed by adding activated carbon to the mercury-containing gas.

875. Had the named inventors explained the changes to replacement Figure 1 in detail during prosecution of the '219 Application, as required by 37 C.F.R. § 1.121(d), the Examiner examining the '225 patent would have determined that any claims directed at adding activated carbon directly to the mercury-containing gas independently and separately from any halide

[95] Applicants also added other new matter to the '225 Patent through claim amendments, thus rendering the priority date of the '225 Patent much later than 2009. The priority dates for the Patents-in-Suit are actually in 2018 given the substantial amount of new matter added in 2018. Applicants' addition of new matter to the '225 Patent through later claim amendments renders those claims of the '225 Patent invalid for lack of written description.

promoter are entitled to a priority date of no earlier than November 4, 2009,[96] and that certain references (including but not limited to U.S. Patent Pub. No. 2006/0048646) are invalidating prior art references are prior art to any claims directed at adding activated carbon directly to the mercury-containing gas, separately from any halide promoter.

876. Had the named inventors disclosed the Mercury Information Clearinghouse and explained the changes to replacement Figure 1 in detail, as required by 37 C.F.R. § 1.121(d), the Examiner would have determined that claims directed at adding activated carbon directly to the mercury-containing gas independently and separately from any halide promoter are invalid in view of the Mercury Information Clearinghouse.

877. But for the named inventors' intentional omission of any explanation of the changes in replacement Figure 1 during the '219 Application, the Examiner would have determined the correct priority date for the claims of the '225 patent.

878. But for the named inventors' intentional omission of any explanation of the changes in replacement Figure 1 during the '219 Application, the claims of the '225 patent directed at the two step process would have been found invalid in light of at least the above-referenced prior art references and the claims of the '225 patent would not have issued.

879. In addition, during prosecution of the '558 Application, the named inventors sought to claim the two-step process of adding some type of bromine compound to the coal followed by adding activated carbon to the mercury-containing gas.[97]

[96] The priority dates for the Patents-in-Suit are actually in 2018 given the substantial amount of new matter added in 2018.

[97] *See* File History of U.S. Patent No. 10,589,225, at Claims Submitted on 5/15/2015 (claims 2-21).

880. The Examiner rejected the claims because the specification of the '558 Application or the earlier-filed applications did not disclose such a two-step process. Specifically, the Examiner noted that "Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, 365(c), or 386(c) is acknowledged. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 112(a) or the first paragraph of pre-AIA 35 U.S.C. 112 as follows: The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application). The disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of 35 U.S.C. 112(a) or the first paragraph of pre-AIA 35 U.S.C. 112, except for the best mode requirement. *See Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994) The disclosure of the prior-filed application, Application No. 14/318270, fails to provide adequate support or enablement in the manner provided by 35 U.S.C. 112(a) or pre-AIA 35 U.S.C. 112, first paragraph for one or more claims of this application. ***Claims 2-20, combusting coal, the coal comprising a promoter, to form the mercury-containing gas, wherein the promoter is chosen from halides, halogens, and combinations thereof and subsequently reacting the promoter with particulate sorbent material (claim 2) and subsequent claimed subject matter of claims 3-5 which pertain the coal comprising at promoter are not disclosed within the prior-filed application***. Claims 6-20 depend from claim 2. Claim 21, the limitation "adding a promoter to coal, wherein the promoter is chosen from Br2, HBr, and combinations thereof: combusting the coal to form the mercury-containing gas" and

subsequently reacting the promoter with particulate sorbent material ***are not disclosed within the prior-filed application***."[98]

881. Moreover, the Examiner objected to the specification as failing to disclose the alleged invention in the claims. The Examiner stated that "The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01 (o). Correction of the following is required: Claims 2-20, the limitation "combusting coal, ***the coal comprising a promoter***, to form the mercury-containing gas, wherein the promoter is chosen from halides, halogens, and combinations thereof' (claim 2) and subsequently reacting the promoter with particulate sorbent material and subsequent claimed subject matter of claims 3-5 which pertain the coal comprising at promoter ***are not disclosed within the specification***. Claims 6-20 depend from claim 2. Claim 21, the limitation "***adding a promoter to coal***, wherein the promoter is chosen from Br2, HBr, and combinations thereof: com busting the coal to form the mercury-containing gas" and subsequently reacting the promoter with particulate sorbent material ***are not disclosed within the specification***."[99]

882. The Examiner also rejected the claims directed at the two-step process under 35 U.S.C. 112. Specifically, the Examiner stated that "Claims 2-21 are rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the enablement requirement. ***The claim(s) contains subject matter which was not described in the specification*** in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. ***The specification does enable the claim limitations***

[98] *See* File History of U.S. Patent No. 10,589,225, at Non-Final Rejection, 7/6/2017, at 2-3 (emphasis added).

[99] *See* File History of U.S. Patent No. 10,589,225, at Non-Final Rejection, 7/6/2017, at 3 (emphasis added).

of combusting coal, the coal comprising a promoter, to form the mercury-containing gas, wherein the promoter is chosen from halides, halogens, and combinations thereof' (claim 2) and subsequent claimed subject matter of claims 3-5 which pertain the coal comprising at promoter are not disclosed within the specification. Claims 6-20 depend from claim 2. As well as the limitation of claim 21, "adding a promoter to coal, wherein the promoter is chosen from Br2, HBr, and combinations thereof: combusting the coal to form the mercury-containing gas"."[100]

883. Thus, at least as early as July 6, 2017, the named inventors knew that any claims directed at the two-step process of combusting coal (where the coal comprises a halogen promoter) and separately adding activated carbon would not be entitled to the priority date of the '640 Provisional Application.

884. Thus, at least as early as July 6, 2017, the named inventors knew that any claims directed at the two-step process of combusting coal (where the coal comprises a halogen promoter) and separately adding activated carbon would be limited to a priority date of no earlier than May 15, 2015 when such claims were added to the '558 Application.

885. To overcome the Examiner's rejection, the named inventors attempted to amend the specification as follows:

IN THE SPECIFICATION

Please amend the specification as follows:

The following paragraph, to follow paragraph [0013], is added:

In an embodiment, coal and promoter can be present as a mixture. The promoter and the coal can be mixed before combustion of the coal at a location upstream of a boiler. The promoter can include a halide, a halogen, salts thereof, Br_2, HBr, and combinations thereof.

[100] *See* File History of U.S. Patent No. 10,589,225, at Non-Final Rejection, 7/6/2017, at 4 (emphasis added).

See File History of U.S. Patent No. 10,589,225, at Response to Non-Final Rejection, 10/6/2017.

886. But the Examiner rejected this amendment to the specification and stated that "The amendment filed 10/06/2017 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the applicant includes an additional embodiment … which was not within the original disclosure."[101]

887. The Examiner maintained the rejection under 35 U.S.C. 112 and stated "Claims 2-21 are rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for pre-AIA the inventor(s), at the time the application was filed, had possession of the claimed invention. Combusting a mixture of coal and a promoter is not present within the original specification (claim 2). Claims 3-20 depend on claim 2. Combusting coal, mixed with a promoter and wherein the coal and promoter are mixed at a location upstream of a combustion furnace where combustion occurs is not within the original specification (claim 21)."[102]

888. In response to the Final Rejection dated December 6, 2017, the named inventors deleted their proposed amendment to the specification, as shown below:[103]

[101] *See* File History of U.S. Patent No. 10,589,225, at Final Rejection, 12/6/2017.

[102] *See* File History of U.S. Patent No. 10,589,225, at Final Rejection, 12/6/2017.

[103] *See* File History of U.S. Patent No. 10,589,225, at Response after Final Rejection, 1/23/2018.

IN THE SPECIFICATION

Please amend the specification as follows:

The following paragraph, to follow paragraph [0013], is deleted:

~~In an embodiment, coal and promoter can be present as a mixture. The promoter and the coal can be mixed before combustion of the coal at a location upstream of a boiler. The promoter can include a halide, a halogen, salts thereof, Br_2, HBr, and combinations thereof.~~

889. In its response to the Final Rejection, the named inventors relied on the disclosure of the '640 Provisional Application as disclosing the two-step process and specifically referred to Figure 2 of the provisional application.[104]

890. In an Advisory Action dated February 12, 2018, the Examiner explained to the named inventors that even the provisional application failed to disclose the alleged invention. Specifically, the Examiner stated: "Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 112(a) or the first paragraph of pre-AIA 35 U.S.C. 112 as follows: The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application). The disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of 35 U.S.C. 112(a) or the first paragraph of pre-AIA 35 U.S.C. 112, except for the best mode requirement. *See Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994). The disclosure of the prior-filed application, Application No. 14/318270, 13/966,768, 13427,655, 12/419,219, 12/201,595, 11/209,163, 60/605,640 fails to provide adequate support or

[104] *See* File History of U.S. Patent No. 10,589,225, at Response after Final Rejection, 1/23/2018, at 7-10.

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enablement in the manner provided by 35 U.S.C. 112(a) or pre-AIA 35 U.S.C. 112, first paragraph for one or more claims of this application."[105]

891. In response to the named inventors' reliance on the disclosure of the '640 Provisional Application, the Examiner responded and stated that "The applicant contends that '640 provides antecedent basis for the claimed subject matter (claims 2-21). The examiner disagrees. ***The current application itself, not the provisional, is required to have antecedent basis for the claimed subject matter***. The application contends that '640 provides support for the written description requirement. The examiner disagrees. ***The current application itself, not the provisional, is required to have written description for the claimed subject matter***."[106]

892. Following the Examiner's rejection of the named inventors' arguments regarding priority, the Applicants had an Examiner Interview which was attended by Nicholas Lanzatella and Ryan Connell on behalf of the named inventors. The summary of the Examiner Interview stated with respect to Section 112 rejections that "The applicant proposed a CIP [continuation-in-part] in order to overcome the 112 issues. The examiner agreed that a CIP including the limitations of the current claims would overcome the 112 issues."[107]

893. But the '558 Application was never converted into a continuation-in-part application and the claims of the '558 Application were not abandoned and later submitted in a continuation-in-part application.

[105] *See* File History of U.S. Patent No. 10,589,225, at Advisory Action, 2/12/2018, at 2.

[106] *See* File History of U.S. Patent No. 10,589,225, at Advisory Action, 2/12/2018, at 6 (emphasis added).

[107] *See* File History of U.S. Patent No. 10,589,225, at Examiner Interview Summary, 3/5/2018.

894. Instead, on April 2, 2018, the Applicants submitted a request for continued examination deleting all pending claims and submitted new claims.

895. The next month, on May 15, 2018, the named inventors made additional amendments to the pending claims.

896. On June 13, 2018, the Applicants again cancelled all pending claims and then submitted a new set of claims directed at the two-step process for reducing mercury emissions. Specifically, the new claims added on June 13, 2018 recited "combusting a mixture comprising coal, pyrolysis char, and a promoter, to form the mercury-containing gas."[108]

897. Along with this claim amendment, the Applicants represented to the Examiner that the claim language had support in the specification, and represented to the Examiner as follows:[109]

Claim #, feature	Example of support
45, combusting a mixture comprising coal, pyrolysis char, and a promoter, to form the mercury-containing gas	[0006] combusting coal to form the mercury-containing gas [0119] the halogen/halide promoted sorbent can be added where desired, "e.g., before, after, or within the boiler." [0049] the activated carbon can be pyrolysis char [0073] and [0093] a promoted sorbent can include the promoter

898. But the specification contained no support for this claim element. Specifically, there is no support for "combusting a mixture comprising coal … and a promoter …". None of the cited passages provided any support for "combusting a mixture comprising coal … and a promoter …" separately from a promoted sorbent. The passage from paragraph [0119] that is cited refers to "promoted sorbent" not just the "promoter" by itself. By separating the "promoter" from

[108] *See* File History of U.S. Patent No. 10,589,225, at Supplemental Amendment, 6/13/2018.

[109] *See* File History of U.S. Patent No. 10,589,225, at Supplemental Amendment, 6/13/2018.

the "promoted sorbent", the Applicants materially misrepresented the written description to the examiner and claimed specification support where none exists. There is no disclosure in the specification for adding a promoter by itself to a mercury-containing flue gas in the combustion chamber (*i.e.*, promoter that is separate and apart from a promoted sorbent, which is then added to a mercury-containing flue gas in the combustion chamber).

899. The Applicants materially misrepresented the specification's disclosure to the Examiner in order to overcome a Section 112 rejection.

900. But before the Examiner could act, the Applicants again cancelled all then-pending claims (claims 45-65) on June 22, 2018—just nine days after adding these claims—and added another seventeen new claims (claims 66-82).[110] The claims added on June 22, 2018 similarly recited a two-step process for reducing mercury emissions:[111]

> 66. (New) A method for treating a mercury-containing gas, the method comprising:
>
> combusting a mixture comprising coal, pyrolysis char, and a promoter, to form the mercury-containing gas, wherein the promoter comprises Br_2, HBr, Br^-, or a combination thereof; and
>
> adding a particulate sorbent material comprising activated carbon into the mercury-containing gas.

901. Along with the new set of claims, the Applicants told the Examiner that "Claims 66-82 are similar to claims 45-65, with a difference that the independent claims do not require that the particulate sorbent injected into the flue gas be promoted in-flight, do not require chemical

[110] *See* File History of U.S. Patent No. 10,589,225, at Supplemental Amendment, 6/22/2018.

[111] *See* File History of U.S. Patent No. 10,589,225, at Supplemental Amendment, 6/22/2018, at 2. Application Claim 66 issued as claim 1 of the '225 Patent.

reaction of the sorbent and the mercury, and do not require removal of the mercury from the flue gas. ***No new matter is added via the new claims herein***."[112]

902. Applicants' statement that "No new matter is added via the new claims herein" was material to the subsequent issuance of the claims.[113] This statement was also a false statement because the claims submitted on June 22, 2018 added new matter in the form of the two-step process to reduce mercury emissions, which was absent from the '558 Application as it was filed. Indeed, the Applicants previously tried to add this new matter via an amendment to the specification, which was rejected by the Examiner.[114] Despite that previous rejection, the Applicants again attempted to get claims directed at the new matter without a specification amendment and by making a false statement.

903. The Applicants made a material misrepresentation to the Examiner in their Supplemental Amendment dated June 22, 2018. But for this material misrepresentation, the claims of the '225 patent would not have issued.

904. Following the June 22, 2018 Supplemental Amendment, the Applicants submitted a response to an office action on August 14, 2018 in which they stated that "Applicant wishes to

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[112] *See* File History of U.S. Patent No. 10,589,225, at Supplemental Amendment, 6/22/2018, at 6 (emphasis added).

[113] Application claim 66 in the '558 Application issued as claim 1 of the '225 Patent with minor amendments. The only change made to claim 66 before issuance was to change the element reciting "combusting a mixture comprising coal, pyrolysis char, and ***a promoter, to form the mercury-containing gas, wherein the promoter comprises Br2***, HBr, ***Br-***, or a combination thereof" to "combusting a mixture comprising coal, pyrolysis char, and ***an additive comprising*** HBr, a bromide compound, or a combination thereof, to form the mercury-containing, gas."

[114] *See* File History of U.S. Patent No. 10,589,225, at Advisory Action, 2/12/2018. *See also id.* at Final Rejection, 12/6/2017 (Examiner noting that "Combusting coal, mixed with a promoter and wherein the coal and promoter are mixed at a location upstream of a combustion furnace where combustion occurs is not within the original specification"). *See also id.* at Response after Final Rejection, 1/23/2018.

thank Examiner Orlando for the courtesy of a telephone interview on March 6, 2018. During the interview, various issues of support and priority of the claims were discussed. ***The Examiner agreed that a CIP including the disclosure of the priority provisional application would resolve the § 112 issues in the Final Office Action*** mailed 12/6/2018 (sic: 12/6/2017). ***Subsequently, Applicant has amended the present claims via the supplemental amendment of 7/22/2018*** (sic: 6/22/2018) ***to avoid the § 112 rejections asserted by the Final Office Action, and has filed several Track 1 CIP applications incorporating the disclosure of the provisional application***."[115]

905. But the Applicants' June 22, 2018 Supplemental Amendment raised the same issues that formed the basis of the Section 112 rejections. The new claims added in the June 22, 2018 Supplemental Amendment recited the two step process of adding bromine and separately adding activated carbon to reduce mercury emissions, and specifically claimed the step of "combusting a mixture comprising coal, pyrolysis char, and a promoter, to form the mercury-containing gas, wherein the promoter comprises Br2, HBr, Br-, or a combination thereof."[116] The Section 112 rejection in the Final Office Action rejected the claims for lack of written description disclosing a two step process of adding bromine and separately adding activated carbon to reduce mercury emissions, and the Examiner specifically stated that "Claims 2-21 are rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for pre-AIA the inventor(s), at the time the application was filed,

[115] *See* File History of U.S. Patent No. 10,589,225, at Response to Office Action, 8/14/2018, at 5 (emphasis added).

[116] *See* File History of U.S. Patent No. 10,589,225, at Supplemental Amendment, 6/22/2018.

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had possession of the claimed invention. Combusting a mixture of coal and a promoter is not present within the original specification (claim 2). Claims 3-20 depend on claim 2. Combusting coal, mixed with a promoter and wherein the coal and promoter are mixed at a location upstream of a combustion furnace where combustion occurs is not within the original specification (claim 21)."[117]

906. Moreover, the fact that the Applicants "filed several Track 1 CIP applications incorporating the disclosure of the provisional application" does nothing to address the lack of written description for the two step process in the specification of the '558 Application. There is no provision in any statute, regulation, or Patent Office procedures that allows an applicant to overcome a claim rejection based on Section 112 in a pending application by filing a separate continuation-in-part application. Applicants' statement to the contrary was a material misrepresentation that deceived the Examiner into allowing the claims.

907. Following this material misrepresentation by the Applicants, the Examiner did not issue any further Section 112 rejections based on lack of written description.[118] And the claims eventually issued in the '225 patent.

908. But for the Applicants' intentional misrepresentation of material facts, the claims of the '225 patent would not have issued.

909. In addition to the Applicants' misrepresentation of material facts regarding the lack of written description, the Applicants also misrepresented the status of a prior art reference as "not prior art."

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[117] *See* File History of U.S. Patent No. 10,589,225, at Final Rejection, 12/6/2017.

[118] The only subsequent rejection under Section 112 was for lack of antecedent basis, which is a separate basis to reject claims under Section 112. *See* File History of U.S. Patent No. 10,589,225, at Non-Final Rejection, 10/19/2018.

910. Specifically, in the July 2, 2018 Non-Final rejection, the Examiner rejected all pending claims (claims 66-82) and specifically rejected claims 66-69, 72. 73, 75-77, 79-82 in light of U.S. Patent Publication No. 2004/00033716 ("Nelson" reference), U.S. Patent Publication No. 2007/0168213 ("Comrie" reference), and U.S. Patent No. 6,103,205 ("Wojtowicz" reference).[119]

911. The Examiner noted that "Nelson Jr. reference discloses a method for treating a mercury-containing gas, the method comprising: corn busting coal, to form the mercury-containing gas (paragraphs [0059] and [0060]); and adding a particulate sorbent material comprising activated carbon and a promoter wherein the promoter comprises Br2 HBr, Br-, or a combination thereof into the mercury-containing gas (paragraphs [0044], [0055], and [0060])." The Examiner also noted that "The Wojtowicz et al. reference discloses pyrolysis char can be a cost-effective alternative to activated carbon for the absorption of mercury." And the Examiner finally noted that "The Comire reference discloses that the sorbent compositions can be added anywhere within the coal burning process, before, during, or after (paragraph [0006])" thereby rendering the pending claims obvious under 35 U.S.C. 103 because it would have been obvious to combine these references.[120]

912. The Applicants responded to the Non-Final rejection and stated that "Comrie is not prior art" because "Comrie was published July 19, 2007, and the earliest priority is to a provisional application filed January 19, 2006. In contrast, the present application is a continuation that derives priority from a provisional application filed August 30, 2004 and converted to a U.S. Utility application on August 22, 2005. The present application has priority that is one year and five months prior to Comrie's earliest priority date; even if only the first U.S. Utility application is

[119] *See* File History of U.S. Patent No. 10,589,225, at Non-Final Rejection, 7/2/2018.

[120] *See* File History of U.S. Patent No. 10,589,225, at Non-Final Rejection, 7/2/2018.

considered for support, Comrie's earliest priority date is still about five months later. Comrie is not prior art and could not be considered by a person of ordinary skill in the art prior to the time the present invention was made and the present application filed."[121]

913. The named inventors knew, at least as early as July 6, 2017, that any claims directed at the two-step process of combusting coal (where the coal comprises a halogen promoter) and separately adding activated carbon would not be entitled to the priority date of the '640 Provisional Application.

914. The named inventors knew, at least as early as July 6, 2017, that any claims directed at the two-step process of combusting coal (where the coal comprises a halogen promoter) and separately adding activated carbon would be limited to a priority date of no earlier than May 15, 2015 when such claims were added to the '558 Application.

915. Thus, named inventors knew that Comrie was, in fact, prior art to the claims directed at the two-step process of combusting coal (where the coal comprises a halogen promoter) and separately adding activated carbon.

916. Applicants' statement to the Examiner that "Comrie is not prior art" or otherwise suggesting that the claims directed at the two-step process of combusting coal (where the coal comprises a halogen promoter) and separately adding activated carbon were entitled to the August 30, 2004 priority date or the August 22, 2005 priority date was a material misrepresentation made with deceptive intent.

917. Applicants intended to deceive the Examiner into believing that Comrie was not prior art and could not be used in a rejection of the pending claims.

[121] *See* File History of U.S. Patent No. 10,589,225, at Response to Non-Final Rejection, 8/14/2018.

918. Applicants' material misrepresentation regarding the prior art status of the Comrie reference deceived the Examiner as evidenced by the fact that the Examiner withdrew any rejections based on the Comrie reference.[122]

919. But for the Applicants' intentional misrepresentation of material facts regarding the prior art status of the Comrie reference, the claims of the '225 patent would not have issued.[123]

The '370 Patent Is Not Entitled To A Priority Date Earlier Than November 4, 2009

920. The priority date of the '147 patent was material to the determination of the priority date of the '225 patent, '370 patent, '430 patent, '517 patent, and '218 patent, by its respective examiners because each of these patents claim priority to the '147 patent.

921. The application leading to the '370 patent (U.S. Patent Application No. 15/951,970 or the '970 Application) was filed on April 12, 2018.

922. On April 12, 2018, the named inventors (through their prosecution counsel) informed the Patent Office that the '970 Application was a "Continuation" of the preceding applications without any break in priority dating back to US Provisional Patent Application No. 60/605,640 filed on August 30, 2004, as shown below[124]:

[122] *See* File History of U.S. Patent No. 10,589,225, at Non-Final Rejection, 10/19/2018.

[123] The Applicants made the same material misrepresentation about the prior art status of Comrie during prosecution of the '430 Patent and the '517 Patent. *See* File History of U.S. Patent No. 10,668,430, Response to Non-Final Rejection, 8/14/2018; *see* File History of U.S. Patent No. 10,596,517, Response to Non-Final Rejection, 8/14/2018. The claims of the '430 Patent are also unenforceable due to Applicants' inequitable conduct based on their intentional misrepresentation of Comrie's prior art status to the Examiner, which resulted in the allowance of the claims in the '430 Patent.

[124] File History of U.S. Patent No. 10,933,370, Application Data Sheet, 04/12/2018 at 4.

Modified PTO/AIA/14 (12-13)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	4820.001US8
	Application Number	Unknown
Title of Invention	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78(a)(2) or CFR 1.78(a)(4), and need not otherwise be made part of the specification.

Prior Application Status	Pending		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
This Application	continuation of	14/712,558	2015-05-14
Prior Application Status	Patented		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
14/712,558	continuation of	14/318,270	2014-06-27
Prior Application Status	Patented		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
14/318,270	continuation of	13/966,768	2013-08-14
Prior Application Status	Patented		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
13/966,768	continuation of	13/427,665	2012-03-22
Prior Application Status	Patented		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
13/427,665	continuation of	12/419,219	2009-04-06
Prior Application Status	Abandoned		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
12/419,219	continuation of	12/201,595	2008-08-29
Prior Application Status	Patented		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
12/201,595	division of	11/209,163	2005-08-22
Prior Application Status	Expired		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
11/209,163	Claims benefit of provisional	60/605,640	2004-08-30

923. The Applicants sought the benefit of the earlier-filed applications under 35 U.S.C. § 120. In doing so, the Applicants misrepresented the status of the ’970 Application because it contained new matter that was not contained in chain of applications leading up to the ’163 Application from which ’970 Application claimed priority.

924. In accordance with MPEP § 201.07, "[t]he disclosure presented in the continuation must not include any subject matter which would constitute new matter if submitted as an amendment to the parent application."

925. But the disclosure of Figure 1 in the '970 Application constituted new matter because it directly linked element 10 and element 50, which was not contained in any of the filings in this patent family prior to November 4, 2009.[125]

926. The Examiner examining the '970 Application relied upon prosecution counsel's representations as to priority date, because Examiners do not making findings of priority as a matter of course during prosecution. *See* MPEP § 201.08.

927. Moreover, the Applicants added substantial amount of new matter to the specification of the '970 Application that was copied from the '640 Provisional Application.

928. The Applicants did not advise the Examiner that a substantial amount of new matter was added to the specification of the '970 Application that was previously not present in the '558 Application, the '219 Application or any of the other applications leading up to the '163 Application filed on August 22, 2005.

929. 37 C.F.R. 1.121 requires patent applicants to expressly identify any matter added to the specification of the patent application. This provision states:

> (b) *Specification.* Amendments to the specification, other than the claims, "Large Tables" (§ **1.58(c)**), a "Computer Program Listing Appendix" (§ **1.96(c)(5) and (7)**), a "Sequence Listing" (§ **1.825**), or a "Sequence Listing XML" (§ **1.835**), must be made by adding, deleting, or replacing a paragraph; by replacing a section; or by providing a substitute specification, in the manner specified in this section.
>
> (b) (1) *Amendment to delete, replace, or add a paragraph*. Amendments to the specification, including amendment to a section

[125] Significant amounts of other new matter were also added in 2018 with the filing of the '370 Patent.

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> heading or the title of the invention which are considered for amendment purposes to be an amendment of a paragraph, must be made by submitting:
>
> > (i) ***An instruction, which unambiguously identifies the location, to*** delete one or more paragraphs of the specification, replace a paragraph with one or more replacement paragraphs, or ***add one or more paragraphs***;
> >
> > * * *
>
> (h) *Amendment sections*. ***Each section of an amendment document (e.g., amendment to the claims, amendment to the specification, replacement drawings, and remarks) must begin on a separate sheet***.

930. The Applicants' amendments to the specification of the '970 Application did not unambiguously identify the location of the amendment.

931. The Applicants' amendments to the specification of the '970 Application were made in a way to hide the fact that an amendment was being made.

932. The Applicants' amendments to the specification of the '970 Application failed to comply with the requirements of 37 C.F.R. 1.121 because it did not include "an instruction, which unambiguously identifies the location, to … add one or more paragraphs."

933. The Applicants' amendments to the specification of the '970 Application failed to comply with the requirements of 37 C.F.R. 1.121 because "[e]ach section of [the] amendment document … [did not] begin on a separate sheet."

934. The Applicants knew that had they drawn attention to the significant amendments made in the specification of the '970 Application, the Examiner would have rejected the amendment, rejected any entitlement to an earlier filing date, and rejected the claims on the basis of additional prior art dated between August 2004 and the filing date of the '970 Application. To avoid drawing the Examiner's attention to the substantial new matter added to the specification, the Applicants intentionally did not comply with the requirements of 37 C.F.R. 1.121.

935. The MPEP explains how patent applicants can address inadvertently omitted subject matter. Specifically, MPEP 217 explains that an "application must be amended to include the inadvertently omitted portion of the specification or drawing(s) within any time period set by the Office, but in no case later than the close of prosecution as defined in 37 CFR 1.114(b), or the abandonment of the application, whichever occurs earlier."

936. MPEP 217 also provides examples to show how an applicant must amend the specification to add any inadvertently omitted text from the specification. Example 3 in MPEP 217 states:

> Example 3:
>
> Applicant filed a (third) application that includes a claim under 37 CFR 1.78 for the benefit of a (second) prior-filed application and a (first) prior-filed application. The second application was a continuation application of the first application and the second application was abandoned after the filing of the third application. Subsequently, the applicant discovered the last page of the specification was inadvertently omitted from the third application and the second application.
>
> If the benefit of the filing date of first application for the omitted subject matter is required (for example, the omitted material is required to provide support for the claimed subject matter of the third application and there is an intervening reference that has a prior art date prior to the filing date of the third application, but after the filing date of the first application), applicant must amend the specification of the second application and the specification of the third application to include the inadvertently omitted material in compliance with 37 CFR 1.57(b) (note: the second and third applications must be filed on or after September 21, 2004. Since the second application is abandoned, applicant must file a petition to revive under 37 CFR 1.137 in the second application only for the purpose of correcting the specification under 37 CFR 1.57(b) along with the amendment in compliance with 37 CFR 1.57(b).

937. The Applicants did not amend any of the non-provisional applications leading to the '970 Application to add the omitted subject matter that was added in the '970 Application. This was a violation of MPEP 217 and 37 C.F.R. 1.57(b).

938. The Applicants did not file a petition to revive the ’219 Application, or any of the other patent applications leading to the ’970 Application—namely U.S. Patent Application No. 13/427,665, U.S. Patent Application No. 13/966,768, U.S. Patent Application No. 14/318,270 or U.S. Patent Application No. 14/712,558. Applicants’ failure to amend the specification of the interim applications, while simultaneously adding new matter to the ’970 Application, was a violation of MPEP 217 and 37 C.F.R. 1.57(b). As such, the amendments to the specification of the ’370 patent added new matter, and the ’370 patent should not have been filed as a continuation application.

939. The Examiner examining the ’970 Application (Frank M. Lawrence Jr.) did not independently determine the priority date of the claims of the ’970 Application.

940. Figure 1 of the ’970 Application was identical to the replacement Figure 1 submitted in the ’219 Application on November 4, 2019.

941. The ’970 Application ultimately issued as the ’370 patent on March 2, 2021.

942. The claims of the ’370 patent are directed at the two step process of adding some type of bromine compound to the coal followed by adding activated carbon to the mercury-containing gas.

943. Had the Applicants explained the changes to replacement Figure 1 in detail during prosecution of the ’219 Application, as required by 37 C.F.R. § 1.121(d), the Examiner examining the ’370 patent would have determined that any claims directed at adding activated carbon directly to the mercury-containing gas independently and separately from any halide promoter are entitled to a priority date of no earlier than November 4, 2009,[126] and that certain references (including but

[126] The priority dates for the Patents-in-Suit are actually in 2018 given the substantial amount of new matter added in 2018.

not limited to U.S. Patent Pub. No. 2006/0048646) are invalidating prior art references are prior art to any claims directed at adding activated carbon directly to the mercury-containing gas, separately from any halide promoter.

944. Had the Applicants disclosed the Mercury Information Clearinghouse and explained the changes to replacement Figure 1 in detail, as required by 37 C.F.R. § 1.121(d), the Examiner would have determined that claims directed at adding activated carbon directly to the mercury-containing gas independently and separately from any halide promoter are invalid in view of the Mercury Information Clearinghouse.

945. But for the Applicants' intentional omission of any explanation of the changes in replacement Figure 1 during the '219 Application, the Examiner would have determined the correct priority date for the claims of the '370 patent.

946. But for the Applicants' intentional omission of any explanation of the changes in replacement Figure 1 during the '219 Application, the claims of the '370 patent directed at the two step process would have been found invalid in light of at least the above-referenced prior art references and the claims of the '370 patent would not have issued.

The '430 Patent Is Not Entitled To A Priority Date Earlier Than November 4, 2009

947. The priority date of the '147 patent was material to the determination of the priority date of the '225 patent, '370 patent, '430 patent, '517 patent, and '218 patent, by its respective examiners because each of these patents claim priority to the '147 patent.

948. The application leading to the '430 patent (U.S. Patent Application No. 15/974,343 or the '343 Application) was filed on May 8, 2018.

949. On May 8, 2018, the named inventors (through their prosecution counsel) informed the Patent Office that the '343 Application was a "Continuation" of the preceding applications

without any break in priority dating back to U.S. Provisional Patent Application No. 60,605,640 filed on August 30, 2004, as shown below[127]:

Modified PTO/AIA/14 (12-13)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	4820.001US9
	Application Number	Unknown
Title of Invention	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78(a)(2) or CFR 1.78(a)(4), and need not otherwise be made part of the specification.

Prior Application Status	Pending		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
This Application	continuation of	15/951,970	2018-04-12
Prior Application Status	Pending		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
15/951,970	continuation of	14/712,558	2015-05-14
Prior Application Status	Pending		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
14/712,558	continuation of	14/318,270	2014-06-14
Prior Application Status	Patented		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
14/318,270	continuation of	13/966,768	2013-08-14
Prior Application Status	Patented		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
13/966,768	continuation of	13/427,665	2012-03-22
Prior Application Status	Patented		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
13/427,665	continuation of	12/419,219	2009-04-06
Prior Application Status	Patented		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
12/419,219	continuation of	12/201,595	2008-08-29
Prior Application Status	Patented		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
12/201,595	continuation of	11/209,163	2005-08-22
Prior Application Status	Expired		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
11/209,163	Claims benefit of provisional	60/605,640	2004-08-30

[127] File History of U.S. Patent No. 10,668,430, Application Data Sheet, 05/08/2018 at 4.

REDACTED PUBLIC VERSION

950. The Applicants sought the benefit of the earlier-filed applications under 35 U.S.C. § 120. In doing so, the Applicants misrepresented the status of the '343 Application because it contained new matter that was not contained in chain of applications leading up to the '163 Application from which '343 Application claimed priority.

951. In accordance with MPEP § 201.07, "[t]he disclosure presented in the continuation must not include any subject matter which would constitute new matter if submitted as an amendment to the parent application."

952. But the disclosure of Figure 1 in the '343 Application constituted new matter because it directly linked element 10 and element 50, which was not contained in any of the filings in this patent family prior to November 4, 2009.

953. The Examiner examining the '343 Application relied upon prosecution counsel's representations as to priority date, because Examiners do not making findings of priority as a matter of course during prosecution. *See* MPEP § 201.08.

954. Moreover, the Applicants added substantial amount of new matter to the specification of the '343 Application, which was not present in any intervening non-provisional parent application before 2018 (namely the '558 Application, the '270 Application, the '768 Application, the '665 Application, the '219 Application, the '595 Application or the '163 Application).

955. The Applicants did not advise the Examiner that a substantial amount of new matter was added to the specification of the '343 Application that was previously not present in the '558 Application, the '219 Application or each of the other applications leading up to the '163 Application filed on August 22, 2005.

956. 37 C.F.R. 1.121 requires patent applicants to expressly identify any matter added to the specification of the patent application. This provision states:

> (b) *Specification.* Amendments to the specification, other than the claims, "Large Tables" (§ **1.58(c)**), a "Computer Program Listing Appendix" (§ **1.96(c)(5) and (7)**), a "Sequence Listing" (§ **1.825**), or a "Sequence Listing XML" (§ **1.835**), must be made by adding, deleting, or replacing a paragraph; by replacing a section; or by providing a substitute specification, in the manner specified in this section.
>
> (b) (1) *Amendment to delete, replace, or add a paragraph*. Amendments to the specification, including amendment to a section heading or the title of the invention which are considered for amendment purposes to be an amendment of a paragraph, must be made by submitting:
>
> (i) ***An instruction, which unambiguously identifies the location, to*** delete one or more paragraphs of the specification, replace a paragraph with one or more replacement paragraphs, or ***add one or more paragraphs***;
>
> * * *
>
> (h) *Amendment sections*. ***Each section of an amendment document (e.g., amendment to the claims, amendment to the specification, replacement drawings, and remarks) must begin on a separate sheet***.

957. The Applicants' amendments to the specification on April 12, 2018 did not unambiguously identify the location of the amendment.

958. The Applicants' amendments to the specification on April 12, 2018 were made in a way to hide the fact that an amendment was being made.

959. The Applicants' amendments to the specification on April 12, 2018 failed to comply with the requirements of 37 C.F.R. 1.121 because it did not include "an instruction, which unambiguously identifies the location, to … add one or more paragraphs."

960. The Applicants' amendments to the specification on April 12, 2018 failed to comply with the requirements of 37 C.F.R. 1.121 because "[e]ach section of [the] amendment document . . . [did not] begin on a separate sheet."

961. The Applicants knew that had they drawn attention to the significant amendments made in the specification on April 12, 2018, the Examiner would have rejected the amendment, rejected any entitlement to an earlier filing date, and rejected the claims on the basis of additional prior art dated between August 2004 and the filing date of the '343 Application. To avoid drawing the Examiner's attention to the substantial new matter added to the specification, the Applicants intentionally did not comply with the requirements of 37 C.F.R. 1.121.

962. The MPEP explains how patent applicants can address inadvertently omitted subject matter. Specifically, MPEP 217 explains that an "application must be amended to include the inadvertently omitted portion of the specification or drawing(s) within any time period set by the Office, but in no case later than the close of prosecution as defined in 37 CFR 1.114(b), or the abandonment of the application, whichever occurs earlier."

963. MPEP 217 also provides examples to show how an applicant must amend the specification to add any inadvertently omitted text from the specification. Example 3 in MPEP 217 states:

> Example 3:
>
> Applicant filed a (third) application that includes a claim under 37 CFR 1.78 for the benefit of a (second) prior-filed application and a (first) prior-filed application. The second application was a continuation application of the first application and the second application was abandoned after the filing of the third application. Subsequently, the applicant discovered the last page of the specification was inadvertently omitted from the third application and the second application.
>
> If the benefit of the filing date of first application for the omitted subject matter is required (for example, the omitted material is required to provide support for the claimed subject matter of the third application and there is an intervening reference that has a prior art date prior to the filing date of the third application, but after the filing date of the first application), applicant must amend the specification of the second application and the specification of the third application to include the inadvertently omitted material in compliance with 37 CFR 1.57(b) (note: the second and third applications must be filed on or after September 21, 2004. Since the second

> application is abandoned, applicant must file a petition to revive under 37 CFR 1.137 in the second application only for the purpose of correcting the specification under 37 CFR 1.57(b) along with the amendment in compliance with 37 CFR 1.57(b).

964. The Applicants did not amend any of the non-provisional applications leading to the ’970 Application to add the omitted subject matter that was added in the ’970 Application or the ’343 Application. This was a violation of MPEP 217 and 37 C.F.R. 1.57(b).

965. The Applicants did not file a petition to revive the ’219 Application, or any of the other patent applications leading to the ’970 Application—namely U.S. Patent Application No. 13/427,665, U.S. Patent Application No. 13/966,768, U.S. Patent Application No. 14/318,270 or U.S. Patent Application No. 14/712,558. Applicants’ failure to amend the specification of the interim applications, while simultaneously adding new matter to the ’343 Application, was a violation of MPEP 217 and 37 C.F.R. 1.57(b).

966. The Examiner examining the ’343 Application (Amber Orlando) did not independently determine the priority date of the claims of the ’343 Application.

967. Figure 1 of the ’343 Application was identical to the replacement Figure 1 submitted in the ’219 Application on November 4, 2019.

968. The ’343 Application ultimately issued as the ’430 patent on June 2, 2020.

969. The claims of the ’430 patent are directed at the two step process of adding some type of bromine compound to the coal followed by adding activated carbon to the mercury-containing gas.

970. Had the Applicants explained the changes to replacement Figure 1 in detail during prosecution of the ’219 Application, as required by 37 C.F.R. § 1.121(d), the Examiner examining the ’430 patent would have determined that any claims directed at adding activated carbon directly to the mercury-containing gas independently and separately from any halide promoter are entitled

to a priority date of no earlier than November 4, 2009,[128] and that certain references (including but not limited to U.S. Patent Pub. No. 2006/0048646) are invalidating prior art references are prior art to any claims directed at adding activated carbon directly to the mercury-containing gas, separately from any halide promoter.

971. Had the Applicants disclosed the Mercury Information Clearinghouse and explained the changes to replacement Figure 1 in detail, as required by 37 C.F.R. § 1.121(d), the Examiner would have determined that claims directed at adding activated carbon directly to the mercury-containing gas independently and separately from any halide promoter are invalid in view of the Mercury Information Clearinghouse.

972. But for the Applicants' intentional omission of any explanation of the changes in replacement Figure 1 during the '219 Application, the Examiner would have determined the correct priority date for the claims of the '430 patent.

973. But for the Applicants' intentional omission of any explanation of the changes in replacement Figure 1 during the '219 Application, the claims of the '430 patent directed at the two step process would have been found invalid in light of at least the above-referenced prior art references and the claims of the '430 patent would not have issued.

The '517 Patent Is Not Entitled To A Priority Date Earlier Than November 4, 2009

974. The priority date of the '147 patent was material to the determination of the priority date of the '225 patent, '370 patent, '430 patent, '517 patent, and '218 patent, by its respective examiners because each of these patents claim priority to the '147 patent.

[128] The priority dates for the Patents-in-Suit are actually in 2018 given the substantial amount of new matter added in 2018.

975. The application leading to the ’517 patent (U.S. Patent Application No. 15/997,091 or the ’091 Application) was filed on June 4, 2018.

976. On June 4, 2018, the named inventors (through their prosecution counsel) informed the Patent Office that the ’091 Application was a “Continuation” of the preceding applications without any break in priority dating back to US Provisional Patent Application No. 60,605,640 filed on August 30, 2004, as shown below[129]:

[129] File History of U.S. Patent No. 10,596,517, Application Data Sheet, 06/04/2018 at 4.

Modified PTO/AIA/14 (12-13)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	4820.001US10
	Application Number	Unknown
Title of Invention	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78(a)(2) or CFR 1.78(a)(4), and need not otherwise be made part of the specification.

Prior Application Status	Pending		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
This application	continuation of	15/974,343	2018-05-08
Prior Application Status	Pending		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
15/974,343	continuation of	15/951,970	2018-04-12
Prior Application Status	Pending		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
15/951,970	continuation of	14/712,558	2015-05-14
Prior Application Status	Patented		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
14/712,558	continuation of	14/318,270	2014-06-27
Prior Application Status	Patented		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
14/318,270	continuation of	13/966,768	2013-08-14
Prior Application Status	Patented		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
13/966,768	continuation of	13/427,665	2012-03-22
Prior Application Status	Patented		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
13/427,665	continuation of	12/419,219	2009-04-06

Prior Application Status	Abandoned		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
12/419,219	continuation of	12/201,595	2008-08-29
Prior Application Status	Patented		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
12/201,595	division of	11/209,163	2005-08-22
Prior Application Status	Expired		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
11/209,163	Claims benefit of provisional	60/605,640	2004-08-30

977. The Applicants sought the benefit of the earlier-filed applications under 35 U.S.C. § 120. In doing so, the Applicants misrepresented the status of the ’091 Application because it contained new matter that was not contained in chain of applications leading up to the ’163 Application from which ’091 Application claimed priority.

978. In accordance with MPEP § 201.07, "[t]he disclosure presented in the continuation must not include any subject matter which would constitute new matter if submitted as an amendment to the parent application."

979. But the disclosure of Figure 1 in the '091 Application constituted new matter because it directly linked element 10 and element 50, which was not contained in any of the filings in this patent family prior to November 4, 2009.

980. The Examiner examining the '091 Application relied upon prosecution counsel's representations as to priority date, because Examiners do not making findings of priority as a matter of course during prosecution. *See* MPEP § 201.08.

981. Moreover, the Applicants added substantial amount of new matter to the specification of the '091 Application, which was not present in any intervening non-provisional parent application before 2018 (namely the '558 Application, the '270 Application, the '768 Application, the '665 Application, the '219 Application, the '595 Application or the '163 Application)..

982. The Applicants did not advise the Examiner that a substantial amount of new matter was added to the specification of the '091 Application that was previously not present in the '558 Application, the '219 Application or each of the other applications leading up to the '163 Application filed on August 22, 2005.

983. 37 C.F.R. 1.121 requires patent applicants to expressly identify any matter added to the specification of the patent application. This provision states:

> (b) *Specification.* Amendments to the specification, other than the claims, "Large Tables" (§ **1.58(c)**), a "Computer Program Listing Appendix" (§ **1.96(c)(5) and (7)**), a "Sequence Listing" (§ **1.825**), or a "Sequence Listing XML" (§ **1.835**), must be made by adding, deleting, or replacing a paragraph; by replacing a section; or by providing a substitute specification, in the manner specified in this section.

> (b) (1) *Amendment to delete, replace, or add a paragraph*. Amendments to the specification, including amendment to a section heading or the title of the invention which are considered for amendment purposes to be an amendment of a paragraph, must be made by submitting:
>
> > (i) ***An instruction, which unambiguously identifies the location, to*** delete one or more paragraphs of the specification, replace a paragraph with one or more replacement paragraphs, or ***add one or more paragraphs***;
> >
> > * * *
>
> (h) *Amendment sections*. ***Each section of an amendment document (e.g., amendment to the claims, amendment to the specification, replacement drawings, and remarks) must begin on a separate sheet***.

984. The Applicants' amendments to the specification on April 12, 2018 did not unambiguously identify the location of the amendment.

985. The Applicants' amendments to the specification on April 12, 2018 were made in a way to hide the fact that an amendment was being made.

986. The Applicants' amendments to the specification on April 12, 2018 failed to comply with the requirements of 37 C.F.R. 1.121 because it did not include "an instruction, which unambiguously identifies the location, to … add one or more paragraphs."

987. The Applicants' amendments to the specification on April 12, 2018 failed to comply with the requirements of 37 C.F.R. 1.121 because "[e]ach section of [the] amendment document … [did not] begin on a separate sheet."

988. The Applicants knew that had they drawn attention to the significant amendments made in the specification on April 12, 2018, the Examiner would have rejected the amendment, rejected any entitlement to an earlier filing date, and rejected the claims on the basis of additional prior art dated between August 2004 and the filing date of the '091 Application. To avoid drawing

the Examiner's attention to the substantial new matter added to the specification, the Applicants intentionally did not comply with the requirements of 37 C.F.R. 1.121.

989. The MPEP explains how patent applicants must amend the specification to add any inadvertently omitted subject matter. Specifically, MPEP 217 explains that an "application must be amended to include the inadvertently omitted portion of the specification or drawing(s) within any time period set by the Office, but in no case later than the close of prosecution as defined in 37 CFR 1.114(b), or the abandonment of the application, whichever occurs earlier."

990. MPEP 217 also provides examples to show how an applicant must amend the specification to add any inadvertently omitted text from the specification. Example 3 in MPEP 217 states:

> Example 3:
>
> Applicant filed a (third) application that includes a claim under 37 CFR 1.78 for the benefit of a (second) prior-filed application and a (first) prior-filed application. The second application was a continuation application of the first application and the second application was abandoned after the filing of the third application. Subsequently, the applicant discovered the last page of the specification was inadvertently omitted from the third application and the second application.
>
> If the benefit of the filing date of first application for the omitted subject matter is required (for example, the omitted material is required to provide support for the claimed subject matter of the third application and there is an intervening reference that has a prior art date prior to the filing date of the third application, but after the filing date of the first application), applicant must amend the specification of the second application and the specification of the third application to include the inadvertently omitted material in compliance with 37 CFR 1.57(b) (note: the second and third applications must be filed on or after September 21, 2004. Since the second application is abandoned, applicant must file a petition to revive under 37 CFR 1.137 in the second application only for the purpose of correcting the specification under 37 CFR 1.57(b) along with the amendment in compliance with 37 CFR 1.57(b).

991. The Applicants did not amend any of the non-provisional applications leading to the ’970 Application to add the omitted subject matter that was added in the ’970 Application or the ’091 Application. This was a violation of MPEP 217 and 37 C.F.R. 1.57(b).

992. The Applicants did not file a petition to revive the ’219 Application, or any of the other patent applications leading to the ’970 Application—namely U.S. Patent Application No. 13/427,665, U.S. Patent Application No. 13/966,768, U.S. Patent Application No. 14/318,270 or U.S. Patent Application No. 14/712,558. Applicants’ failure to amend the specification of the interim applications, while simultaneously adding new matter to the ’091 Application, was a violation of MPEP 217 and 37 C.F.R. 1.57(b).

993. The Examiner examining the ’091 Application (Amber Orlando) did not independently determine the priority date of the claims of the ’091 Application.

994. Figure 1 of the ’091 Application was identical to the replacement Figure 1 submitted in the ’219 Application on November 4, 2019.

995. The ’091 Application ultimately issued as the ’517 patent on March 24, 2020.

996. The claims of the ’517 patent are directed at the two step process of adding some type of bromine compound to the coal followed by adding activated carbon to the mercury-containing gas.

997. Had the Applicants explained the changes to replacement Figure 1 in detail during prosecution of the ’219 Application, as required by 37 C.F.R. § 1.121(d), the Examiner examining the ’517 patent would have determined that any claims directed at adding activated carbon directly to the mercury-containing gas independently and separately from any halide promoter are entitled

to a priority date of no earlier than November 4, 2009,[130] and that certain references (including but not limited to U.S. Patent Pub. No. 2006/0048646) are invalidating prior art references are prior art to any claims directed at adding activated carbon directly to the mercury-containing gas, separately from any halide promoter.

998. Had the Applicants disclosed the Mercury Information Clearinghouse and explained the changes to replacement Figure 1 in detail, as required by 37 C.F.R. § 1.121(d), the Examiner would have determined that claims directed at adding activated carbon directly to the mercury-containing gas independently and separately from any halide promoter are invalid in view of the Mercury Information Clearinghouse.

999. But for the Applicants' intentional omission of any explanation of the changes in replacement Figure 1 during the '219 Application, the Examiner would have determined the correct priority date for the claims of the '517 patent.

1000. But for the Applicants' intentional omission of any explanation of the changes in replacement Figure 1 during the '219 Application, the claims of the '517 patent directed at the two step process would have been found invalid in light of at least the above-referenced prior art references and the claims of the '517 patent would not have issued.

The '218 Patent Is Not Entitled To A Priority Date Earlier Than November 4, 2009

1001. The priority date of the '147 patent was material to the determination of the priority date of the '225 patent, '370 patent, '430 patent, '517 patent, and '218 patent, by its respective examiners because each of these patents claim priority to the '147 patent.

[130] The priority dates for the Patents-in-Suit are actually in 2018 given the substantial amount of new matter added in 2018.

1002. The application leading to the ’218 patent (U.S. Patent Application No. 16/509,071 or the ’071 Application) was filed on July 11, 2019.

1003. On July 11, 2019, the named inventors (through their prosecution counsel) informed the Patent Office that the ’071 Application was a “Continuation” of the preceding applications without any break in priority dating back to US Provisional Patent Application No. 60,605,640 filed on August 30, 2004, as shown below[131]:

Modified PTO/AIA/14 (12-13)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	4820.001U11
	Application Number	Unknown
Title of Invention	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Prior Application Status	Pending		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
15/974,343	continuation of	15/951,970	2018-04-12
Prior Application Status	Pending		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
15/951,970	continuation of	14/712,558	2015-05-14
Prior Application Status	Patented		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
14/712,558	continuation of	14/318,270	2014-06-27
Prior Application Status	Patented		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
14/318,270	continuation of	13/966,768	2013-08-14
Prior Application Status	Patented		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
13/966,768	continuation of	13/427,665	2012-03-22
Prior Application Status	Patented		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
13/427,665	continuation of	12/419,219	2009-04-06
Prior Application Status	Abandoned		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
12/419,219	continuation of	12/201,595	2008-08-29
Prior Application Status	Patented		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
12/201,595	division of	11/209,163	2005-08-22
Prior Application Status	Expired		
Application Number	**Continuity Type**	**Prior Application Number**	**Filing or 371(c) Date (YYYY-MM-DD)**
11/209,163	Claims benefit of provisional	60/605,640	2004-08-30

[131] File History of U.S. Patent No. 10,926,218, Application Data Sheet, 07/11/2019 at 4.

REDACTED PUBLIC VERSION

1004. The Applicants sought the benefit of the earlier-filed applications under 35 U.S.C. § 120. In doing so, the Applicants misrepresented the status of the '071 Application because it contained new matter that was not contained in chain of applications leading up to the '163 Application from which '071 Application claimed priority.

1005. In accordance with MPEP § 201.07, "[t]he disclosure presented in the continuation must not include any subject matter which would constitute new matter if submitted as an amendment to the parent application."

1006. But the disclosure of Figure 1 in the '071 Application constituted new matter because it directly linked element 10 and element 50, which was not contained in any of the filings in this patent family prior to November 4, 2009.

1007. The Examiner examining the '071 Application relied upon prosecution counsel's representations as to priority date, because Examiners do not making findings of priority as a matter of course during prosecution. *See* MPEP § 201.08.

1008. Moreover, the Applicants added substantial amount of new matter to the specification of the '071 Application, which was not present in any intervening non-provisional parent application before 2018 (namely the '558 Application, the '270 Application, the '768 Application, the '665 Application, the '219 Application, the '595 Application or the '163 Application).

1009. The Applicants did not advise the Examiner that a substantial amount of new matter was added to the specification of the '071 Application that was previously not present in the '558 Application, the '219 Application or each of the other applications leading up to the '163 Application filed on August 22, 2005.

1010. 37 C.F.R. 1.121 requires patent applicants to expressly identify any matter added to the specification of the patent application. This provision states:

> (b) *Specification.* Amendments to the specification, other than the claims, "Large Tables" (§ **1.58(c)**), a "Computer Program Listing Appendix" (§ **1.96(c)(5) and (7)**), a "Sequence Listing" (§ **1.825**), or a "Sequence Listing XML" (§ **1.835**), must be made by adding, deleting, or replacing a paragraph; by replacing a section; or by providing a substitute specification, in the manner specified in this section.
>
> (b) (1) *Amendment to delete, replace, or add a paragraph*. Amendments to the specification, including amendment to a section heading or the title of the invention which are considered for amendment purposes to be an amendment of a paragraph, must be made by submitting:
>
> (i) ***An instruction, which unambiguously identifies the location, to*** delete one or more paragraphs of the specification, replace a paragraph with one or more replacement paragraphs, or ***add one or more paragraphs***;
>
> * * *
>
> (h) *Amendment sections*. ***Each section of an amendment document (e.g., amendment to the claims, amendment to the specification, replacement drawings, and remarks) must begin on a separate sheet***.

1011. The Applicants' amendments to the specification on April 12, 2018 did not unambiguously identify the location of the amendment.

1012. The Applicants' amendments to the specification on April 12, 2018 were made in a way to hide the fact that an amendment was being made.

1013. The Applicants' amendments to the specification on April 12, 2018 failed to comply with the requirements of 37 C.F.R. 1.121 because it did not include "an instruction, which unambiguously identifies the location, to … add one or more paragraphs."

1014. The Applicants' amendments to the specification on April 12, 2018 failed to comply with the requirements of 37 C.F.R. 1.121 because "[e]ach section of [the] amendment document … [did not] begin on a separate sheet."

1015. The Applicants knew that had they drawn attention to the significant amendments made in the specification on April 12, 2018, the Examiner would have rejected the amendment, rejected any entitlement to an earlier filing date, and rejected the claims on the basis of additional prior art dated between August 2004 and the filing date of the '071 Application. To avoid drawing the Examiner's attention to the substantial new matter added to the specification, the Applicants intentionally did not comply with the requirements of 37 C.F.R. 1.121.

1016. The MPEP explains how patent applicants must amend the specification to add any inadvertently omitted subject matter. Specifically, MPEP 217 explains that an "application must be amended to include the inadvertently omitted portion of the specification or drawing(s) within any time period set by the Office, but in no case later than the close of prosecution as defined in 37 CFR 1.114(b), or the abandonment of the application, whichever occurs earlier."

1017. MPEP 217 also provides examples to show how an applicant must amend the specification to add any inadvertently omitted text from the specification. Example 3 in MPEP 217 states:

> Example 3:
>
> Applicant filed a (third) application that includes a claim under 37 CFR 1.78 for the benefit of a (second) prior-filed application and a (first) prior-filed application. The second application was a continuation application of the first application and the second application was abandoned after the filing of the third application. Subsequently, the applicant discovered the last page of the specification was inadvertently omitted from the third application and the second application.
>
> If the benefit of the filing date of first application for the omitted subject matter is required (for example, the omitted material is required to provide support for the claimed subject matter of the third application and there is

> an intervening reference that has a prior art date prior to the filing date of the third application, but after the filing date of the first application), applicant must amend the specification of the second application and the specification of the third application to include the inadvertently omitted material in compliance with 37 CFR 1.57(b) (note: the second and third applications must be filed on or after September 21, 2004. Since the second application is abandoned, applicant must file a petition to revive under 37 CFR 1.137 in the second application only for the purpose of correcting the specification under 37 CFR 1.57(b) along with the amendment in compliance with 37 CFR 1.57(b).

1018. The Applicants did not amend any of the non-provisional applications leading to the ’970 Application to add the omitted subject matter that was added in the ’970 Application or the ’091 Application. This was a violation of MPEP 217 and 37 C.F.R. 1.57(b).

1019. The Applicants did not file a petition to revive the ’219 Application, or any of the other patent applications leading to the ’970 Application—namely U.S. Patent Application No. 13/427,665, U.S. Patent Application No. 13/966,768, U.S. Patent Application No. 14/318,270 or U.S. Patent Application No. 14/712,558. Applicants’ failure to amend the specification of the interim applications, while simultaneously adding new matter to the ’091 Application, was a violation of MPEP 217 and 37 C.F.R. 1.57(b).

1020. The Examiner examining the ’071 Application (Frank M. Lawrence Jr.) did not independently determine the priority date of the claims of the ’071 Application.

1021. Figure 1 of the ’071 Application was identical to the replacement Figure 1 submitted in the ’219 Application on November 4, 2019.

1022. The ’071 Application ultimately issued as the ’218 patent on February 23, 2021.

1023. The claims of the ’218 patent are directed at the two step process of adding some type of iodine compound to the coal followed by adding activated carbon to the mercury-containing gas.

1024. Had the Applicants explained the changes to replacement Figure 1 in detail during prosecution of the '219 Application, as required by 37 C.F.R. § 1.121(d), the Examiner examining the '218 patent would have determined that any claims directed at adding activated carbon directly to the mercury-containing gas independently and separately from any halide promoter are entitled to a priority date of no earlier than November 4, 2009,[132] and that certain references (including but not limited to U.S. Patent Pub. No. 2006/0048646) are invalidating prior art references are prior art to any claims directed at adding activated carbon directly to the mercury-containing gas, separately from any halide promoter.

1025. Had the Applicants disclosed the Mercury Information Clearinghouse and explained the changes to replacement Figure 1 in detail, as required by 37 C.F.R. § 1.121(d), the Examiner would have determined that claims directed at adding activated carbon directly to the mercury-containing gas independently and separately from any halide promoter are invalid in view of the Mercury Information Clearinghouse.

1026. But for the Applicants' intentional omission of any explanation of the changes in replacement Figure 1 during the '219 Application, the Examiner would have determined the correct priority date for the claims of the '218 patent.

1027. But for the Applicants' intentional omission of any explanation of the changes in replacement Figure 1 during the '219 Application, the claims of the '218 patent directed at the two step process would have been found invalid in light of at least the above-referenced prior art references and the claims of the '218 patent would not have issued.

[132] The priority dates for the Patents-in-Suit are actually in 2018 given the substantial amount of new matter added in 2018.

The '114 Patent Is Not Entitled To A Priority Date Earlier Than April 23, 2009

1028. The application leading to U.S. Patent No. 10,343,114 (U.S. Patent Application No. 15/978,760 or the '760 Application) was filed on May 14, 2018.

1029. The '760 Application is a continuation-in-part of U.S. Patent Application No. 15/295,594 (the '594 Application), which was filed on October 17, 2016.

1030. The '594 Application is a continuation of U.S. Patent Application No. 14/102,896 ('896 Application), filed on December 11, 2013.

1031. The '896 Application issued as U.S. Patent No. 9,468,886, on October 18, 2016.

1032. The '896 Application is a continuation of U.S. Patent Application No. 12/429,058 ('058 Application), which was filed on April 23, 2009.

1033. The '058 Application issued as U.S. Patent No. 8,652,235, on February 18, 2014.

1034. The '058 Application is a continuation-in-part of U.S. Patent Application No. 12/201,595 ('595 Application), which was filed on August 29, 2008.

1035. The Applicants added new matter in the '760 Application that was not present in the '594 Application.

1036. The Applicants added new matter in the '058 Application that was not present in the '595 Application.

1037. All claims of the '114 patent rely on the new matter added in the '760 Application that was not present in the '594 Application.

1038. All claims of the '114 patent rely on the new matter added in the '058 Application that was not present in the '595 Application.

1039. Figure 1 in the '595 Application, as shown below,[133] did not include a line directly connecting element 10 to element 50 when the '595 Application was submitted on August 29, 2008.

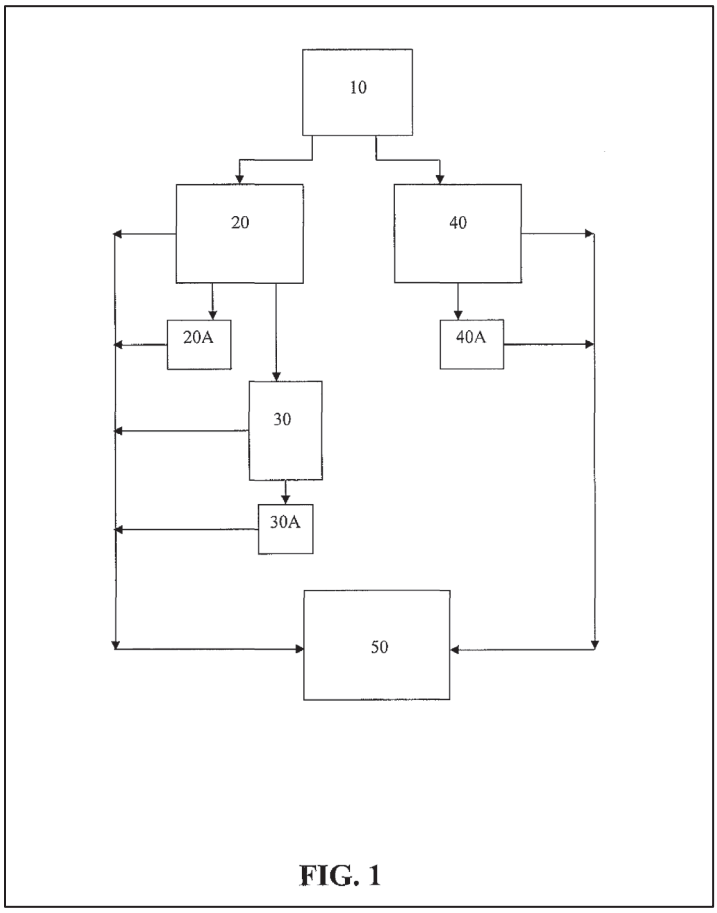


FIG. 1

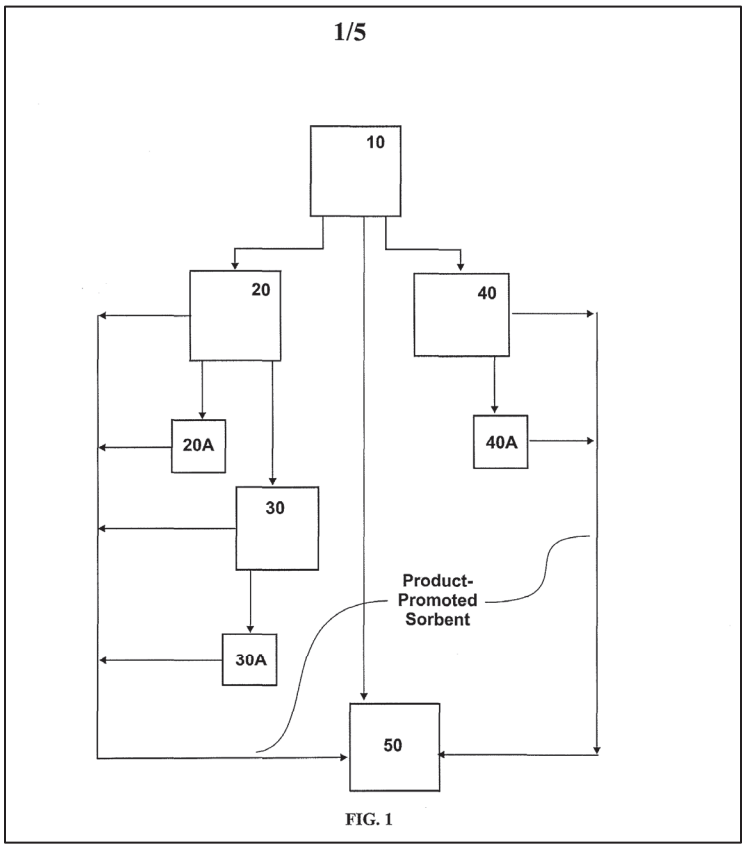
1040. On November 14, 2008, Applicants submitted a replacement Figure 1 in the '595 Application.

1041. The replacement Figure 1 submitted in the '595 Application also did not include a line directly connecting element 10 to element 50.

1042. On April 23, 2009, the Applicants submitted the '058 Application.

[133] File History of U.S. Patent Application No. 12/201,595, Drawings, 08/29/2008 at 1.

1043. Figure 1 of the '058 Application included a line directly connecting element 10 to element 50, as shown below[134]:



1044. The claims of the '114 patent directed at adding bromine directly on the coal are not entitled to a priority date earlier April 23, 2009.[135]

[134] File History of U.S. Patent No. 8,652,235, Drawings, 04/23/2009 at 1.

[135] The priority dates for the Patents-in-Suit are actually in 2018 given the substantial amount of new matter added in 2018.

The Contents Of Mercury Information Clearinghouse And Named Inventors' Admissions Contained Within It Are But-For Material To The Patents-in-Suit

1045. As described above, the Mercury Information Clearinghouse discloses that the two-step process of using bromine and activated carbon sorbents was known and used by others well before November 4, 2009, when the Applicants amended the '219 Application.

Mercury Information Clearinghouse Discloses Methods For Treating A Mercury-Containing Gas

1046. Mercury Information Clearinghouse discloses methods for reducing mercury in a mercury-containing gas.

1047. Mercury Information Clearinghouse discloses methods for treating a mercury-containing gas.

1048. Mercury Information Clearinghouse discloses methods for separating mercury from a mercury-containing gas.

Mercury Information Clearinghouse Discloses Combusting Coal In A Combustion Chamber With Additives

1049. Mercury Information Clearinghouse discloses combusting coal in a combustion chamber.

1050. Mercury Information Clearinghouse discloses that combusting coal in a combustion chamber results in the creation of a mercury-containing gas.

1051. Mercury Information Clearinghouse discloses that combusting coal in a combustion chamber results in the creation of a mercury-containing gas that could include halogen or halide promoter.

1052. Mercury Information Clearinghouse discloses that combusting coal in a combustion chamber results in the creation of a mercury-containing gas that could include halogen or halide promoter comprising HBr, Br-, or a combination thereof.

1053. Mercury Information Clearinghouse discloses combusting a mixture comprising coal, pyrolysis char, and an additive to form a mercury-containing gas.

1054. Mercury Information Clearinghouse discloses combusting a mixture comprising coal, pyrolysis char, and an additive comprising HBr, a bromide compound, or a combination thereof to form a mercury-containing gas.

1055. Mercury Information Clearinghouse discloses combusting coal in a combustor and adding within the combustor a pyrolysis char.

1056. Mercury Information Clearinghouse discloses combusting coal in a combustor and adding within the combustor a pyrolysis char promoted by an additive.

1057. Mercury Information Clearinghouse discloses combusting coal in a combustor and adding within the combustor a pyrolysis char promoted by an additive comprising HBr, a bromide compound, or a combination thereof.

1058. Mercury Information Clearinghouse discloses combusting coal in a combustor and adding within the combustor a pyrolysis char promoted by an additive comprising HBr, a bromide compound, or a combination thereof to form a mercury-containing gas.

1059. Mercury Information Clearinghouse discloses combusting coal in a combustion chamber, wherein the coal comprises added Br_2, HBr, bromide compound, or a combination thereof, added to the coal before the coal enters the combustion chamber.

1060. Mercury Information Clearinghouse discloses combusting coal in a combustion chamber, wherein the combustion chamber comprises added Br_2, HBr, bromide compound, or a combination thereof.

1061. Mercury Information Clearinghouse discloses combusting coal in a combustion chamber, to provide a mercury-containing gas, wherein the mercury-containing gas comprises a halogen or halide promoter.

1062. Mercury Information Clearinghouse discloses combusting coal in a combustion chamber, to provide a mercury-containing gas, wherein the mercury-containing gas comprises a halogen or halide promoter comprising HBr, Br-, or a combination thereof.

1063. Mercury Information Clearinghouse discloses combusting coal in a combustion chamber, to provide a mercury-containing gas, wherein the coal comprises added HI, an iodide salt, or a combination thereof.

1064. Mercury Information Clearinghouse discloses combusting coal in a combustion chamber, to provide a mercury-containing gas, wherein the coal comprises added HI, an iodide salt, or a combination thereof, added to the coal before the coal enters the combustion chamber.

1065. Mercury Information Clearinghouse discloses combusting coal in a combustion chamber, to provide a mercury-containing gas, wherein the combustion chamber comprises added HI, an iodide salt, or a combination thereof.

1066. Mercury Information Clearinghouse discloses adding Br_2, HBr, or Br- to the coal upstream of the combustion chamber.

1067. Mercury Information Clearinghouse discloses adding Br_2, HBr, or Br- to the combustion chamber.

Mercury Information Clearinghouse Discloses Injecting Activated Carbon Sorbent

1068. Mercury Information Clearinghouse discloses injecting a sorbent material into the mercury-containing gas.

1069. Mercury Information Clearinghouse discloses injecting a sorbent material into the mercury-containing gas downstream of the combustion chamber.

1070. Mercury Information Clearinghouse discloses injecting a sorbent material comprising activated carbon into the mercury-containing gas.

1071. Mercury Information Clearinghouse discloses injecting a sorbent material comprising activated carbon into the mercury-containing gas downstream of the combustion chamber.

1072. Mercury Information Clearinghouse discloses injecting a sorbent material comprising activated carbon into the mercury-containing gas downstream of the combustion chamber, such that the activated carbon reacts with the halogen or halide promoter in the mercury-containing gas to form a promoted sorbent.

1073. Mercury Information Clearinghouse discloses adding a particulate sorbent material into the mercury-containing gas.

1074. Mercury Information Clearinghouse discloses adding a particulate sorbent material, comprising activated carbon, into the mercury-containing gas.

1075. Mercury Information Clearinghouse discloses collecting mercury in the mercury-containing gas with a sorbent added to the mercury-containing gas.

1076. Mercury Information Clearinghouse discloses collecting mercury in the mercury-containing gas with a sorbent added to the mercury-containing gas, the sorbent comprising activated carbon.

1077. Mercury Information Clearinghouse discloses contacting mercury in a mercury-containing gas with a sorbent.

1078. Mercury Information Clearinghouse discloses contacting mercury in a mercury-containing gas with a sorbent to form a mercury/sorbent composition.

1079. Mercury Information Clearinghouse discloses contacting mercury in a mercury-containing gas with a promoted sorbent to form a mercury/sorbent composition.

1080. Mercury Information Clearinghouse discloses separating a mercury/sorbent composition from a mercury-containing gas.

1081. Mercury Information Clearinghouse discloses separating the sorbent contacted with the mercury from the mercury-containing gas.

1082. Mercury Information Clearinghouse discloses monitoring the mercury content of the cleaned gas.

1083. Mercury Information Clearinghouse discloses controlling the injection rate of the sorbent into the mercury-containing gas.

1084. Mercury Information Clearinghouse discloses controlling the sorbent composition.

1085. Mercury Information Clearinghouse discloses modifying, in response to the measured mercury content of the mercury-containing gas, an injection rate of injecting the sorbent into the mercury-containing gas.

1086. Mercury Information Clearinghouse discloses modifying, in response to the measured mercury content of the mercury-containing gas, an amount of the Br2, HBr, bromide compound, or a combination thereof, added to the coal or the combustion chamber, or a combination thereof.

The Named Inventors Committed Inequitable Conduct During Prosecution Of Each Of The Patents-in-Suit

1087. The named inventors, namely Edwin Olson, Michael Holmes, and John Pavlish, each knew about the contents and disclosures of the Mercury Information Clearinghouse.

1088. The named inventors, namely Edwin Olson, Michael Holmes, and John Pavlish, each knew that they could not add new matter into the replacement Figure 1 when they submitted this Figure on November 4, 2009, without providing an explanation of the changes to the patent examiner.

1089. The named inventors, namely Edwin Olson, Michael Holmes, and John Pavlish, each knew that they could not add new matter into the replacement Figure 1 while still claiming priority to U.S. Patent Application No. 11/209,163, filed on August 22, 2005, or earlier applications.

1090. To preserve their claim of priority to U.S. Patent Application No. 11/209,163, filed on August 22, 2005, the Applicants intentionally withheld any explanation of any changes to replacement Figure 1 when they submitted this Figure on November 4, 2009.

1091. The named inventors, namely Edwin Olson, Michael Holmes, and John Pavlish, each knew that they could not claim that each subsequent patent application[136] was a "Continuation" of the '219 Application when they filed such subsequent patent applications.[137]

[136] Namely U.S. Patent Application No. 14/712,558; U.S. Patent Application No. 15/951,970; U.S. Patent Application No.15/984,343; U.S. Patent Application No.15/997,091; and U.S. Patent Application No. 16/509,071 (referenced herein as "subsequent patent application").

[137] On November 21, 2005, all three Applicants signed a declaration under 37 C.F.R. § 1.63 where they acknowledged their duty to disclose information material to patentability to the USPTO which specifically stated their duty to disclose material information for "continuation-in-part applications … which became available between the filing date of the prior application and the national or PCT International filing date of the continuation-in-part application." *See* File History of U.S. Patent No. 7,435,286, Declaration, 11/22/2005 at 1. A similar declaration was signed by the Applicants in 2008. File History of U.S. Patent No. 8,168,147, Declaration, 04/06/2009 at 1 (signed in 2008). The Applicants could not have made this declaration if they did not understand what a "continuation-in-part application" is.

1092. The named inventors, namely Edwin Olson, Michael Holmes, and John Pavlish, each misrepresented the status of each subsequent patent application a "Continuation" of the '219 Application when they filed such subsequent patent applications.

1093. Named inventor Edwin Olson knew about the contents and disclosures of the Mercury Information Clearinghouse at the time it was published.

1094. Named inventor Michael Holmes knew about the contents and disclosures of the Mercury Information Clearinghouse at the time it was published.

1095. Named inventor John Pavlish knew about the contents and disclosures of the Mercury Information Clearinghouse at the time it was published.

1096. The decision to withhold the Mercury Information Clearinghouse was part of a pattern of intentional withholding of material prior art, as further alleged below, with intent to deceive during prosecution of the Patents-in-Suit.

1097. The decision to withhold the Mercury Information Clearinghouse by the named inventors was not due to any misperception about the priority date of the alleged inventions in the Patents-in-Suit. This decision was driven by the named inventors' intent to deceive the USPTO to issue claims without having the benefit of material invalidating prior art, including the Mercury Information Clearinghouse. This is evident from the fact that, while the named inventors disclosed numerous post-2005 references to the USPTO during prosecution of the Patents-in-Suit, they did not disclose the Mercury Information Clearinghouse during the prosecution of the Patents-in-Suit. The laundry list of post-2005 references that were submitted to the USPTO during prosecution of the Patents-in-Suit include (but not limited to) the following: U.S. Patent Publication No. 2014/0224121 (Mimna), U.S. Patent Publication No. 2013/0157845 (Nalepa), U.S. Patent Publication No. 2012/0100053 (Durham), U.S. Patent Publication No. 2011/0168018

(Mohamadalizadeh), U.S. Patent Publication No. 2011/0076210 (Pollack), U.S. Patent Publication No. 2010/0024642 (Fukumoto), U.S. Patent Publication No. 2009/0320678 (Chang), U.S. Patent Publication No. 2009/0235848 (Eiteneer), U.S. Patent Publication No. 2009/0136401 (Yang), U.S. Patent Publication No. 2009/0021708 (Boxmeer), among many others.

1098. Given the named inventors' and the prosecution counsel's submission of numerous post-2005 references to the USPTO during prosecution of the Patents-in-Suit (as shown above), the named inventors and the prosecution counsel knew that the claims of the Patents-in-Suit would not be entitled to the filing date of the '640 Provisional Application, the '163 Application, or the '219 Application. If the named inventors truly believed that the claims of the Patents-in-Suit were entitled to the filing date of the '640 Provisional Application and the '163 Application without a break in priority, there would have been no need for them to bury the USPTO examiner with numerous post-2005 references.

1099. The named inventors submitted the numerous post-2005 references[138] because they knew the claims of the Patents-in-Suit were not entitled to the August 2004 or the August 2005 priority date.

1100. The single most reasonable inference that can be drawn from the decision of each of Edwin Olson, Michael Holmes, and John Pavlish to withhold the Mercury Information Clearinghouse from the USPTO during prosecution of the Patents-in-Suit, is that they acted with

[138] *See e.g.*, U.S. Patent Publication No. 2014/0224121 (Mimna), U.S. Patent Publication No. 2013/0157845 (Nalepa), U.S. Patent Publication No. 2012/0100053 (Durham), U.S. Patent Publication No. 2011/0168018 (Mohamadalizadeh), U.S. Patent Publication No. 2011/0076210 (Pollack), U.S. Patent Publication No. 2010/0024642 (Fukumoto), U.S. Patent Publication No. 2009/0320678 (Chang), U.S. Patent Publication No. 2009/0235848 (Eiteneer), U.S. Patent Publication No. 2009/0136401 (Yang), U.S. Patent Publication No. 2009/0021708 (Boxmeer), among many others.

specific intent to deceive the USPTO in order to obtain issuance of the ’147 patent and each of the Patents-in-Suit.

1101. The named inventors withheld Mercury Information Clearinghouse from the patent examiners and acted with an intent to deceive the USPTO into issuing the Patents-in-Suit.

1102. The Applicants withheld the explanation of changes in replacement Figure 1 from the patent examiners and acted with an intent to deceive the USPTO into issuing the Patents-in-Suit.

1103. But for the named inventors intentional withholding of the Mercury Information Clearinghouse, the examiners examining the Patents-in-Suit would not have allowed the claims in the Patents-in-Suit.

1104. For the foregoing reasons, each of the Patents-in-Suit is unenforceable due to the Applicants’ inequitable conduct.

1105. Defendant is entitled to a judicial declaration that the claims of the Patents-in-Suit are unenforceable due to the Applicants’ inequitable conduct and unclean hands.

COUNT 15 (INEQUITABLE CONDUCT FOR FAILING TO DISCLOSE PTAB INSTITUTION DECISIONS AND PRIOR ART CITED IN INTER PARTES REVIEW PETITIONS)

1106. On April 21, 2020, certain entities challenged claims 1-9 and 12-30 of the ’114 patent in an *inter partes* review proceeding before the PTAB. *See* IPR2020-00832 and IPR2020-00834 (collectively ’114 IPR Petitions).

1107. The ’114 IPR Petitions were served on the law firm of Schwegman Lundberg & Woessner, P.A., which was counsel of record for the named inventors during prosecution of the ’370 patent and the ’218 patent.

1108. The ’114 IPR Petitions were served on the law firm of Caldwell, Cassady & Curry, during prosecution of the ’370 patent, ’430 patent and the ’218 patent.

1109. On information and belief, attorneys at Caldwell, Cassady & Curry advised ME2C with respect to the prosecution of the ’370 patent, ’430 patent, and the ’218 patent.

1110. The Manual of Patent Examining Procedure (“MPEP”) requires attorneys practicing before the Patent Office to call the Examiner’s attention to ay litigation materials from *inter partes* review of related patents that would be material to any pending applications.

1111. The MPEP states

> In particular, material information that is raised in trial proceedings that is relevant to related applications undergoing examination should be submitted on an Information Disclosure Statement for the examiner’s consideration. Examples of such material information include evidence of possible prior public use or sales, questions of inventorship, prior art, allegations of “fraud,” “inequitable conduct,” and “violation of duty of disclosure.” Another example of such material information is any assertion that is made during litigation and/or trial proceeding which is contradictory to assertions made to the examiner. *Environ Prods., Inc. v. Total Containment, Inc*., 43 USPQ2d 1288, 1291 (E.D. Pa. 1997). Such information might arise during litigation and/or trial proceeding in, for example, pleadings, admissions, discovery including interrogatories, depositions, and other documents and testimony.

MPEP 2001.06(c).

1112. The ’114 IPR Petitions alleged invalidity of the ’114 patent based on prior art. Thus, under MPEP §2001.06(c), the ’114 IPR Petitions should have been submitted via Information Disclosure Statement in the prosecution of any then-pending related patent.

1113. The named inventors were aware of the ’114 IPR Petitions at least as early as July 27, 2020. *See* IPR2020-00834, Exhibit 2024 (Declarations of John Pavlish, Edwin Olson, Michael Holmes). At this time, the named inventors were prosecuting the ’370 patent, ’430 patent, and the ’218 patent before the USPTO.

1114. The ’370 patent, ’430 patent, and the ’218 patent are related patents to the ’114 patent.

1115. The named inventors, Plaintiff, and their counsel (including attorneys at Schwegman Lundberg & Woessner, P.A. and Caldwell, Cassady & Curry) had a duty to disclose the existence of IPR proceedings and all other material information to the examiners examining the '370 patent, '430 patent, and the '218 patent. *See* M.P.E.P. §2001.06(c).

1116. On May 27, 2020, certain entities challenged claims 1, 2, 4-6, and 9-24 of the '147 patent in an *inter partes* review proceeding before the Patent Trial and Appeals Board (PTAB). *See* IPR2020-00926 and IPR2020-00928 (collectively, '147 IPR Petitions).

1117. The '147 IPR Petitions alleged invalidity of the '147 patent based on prior art. Thus, under MPEP §2001.06(c), the '147 IPR Petitions should have been submitted via Information Disclosure Statement in the prosecution of any then-pending related patent.

1118. The '147 IPR Petitions were served on the law firm of Schwegman Lundberg & Woessner, P.A., which was counsel of record for the named inventors during prosecution of the '370 patent, '430 patent, and the '218 patent.

1119. The '370 patent and the '218 patent are related patents to the '147 patent.

1120. The '430 patent is also related to the '147 patent.

1121. The '147 IPR Petitions were served on the law firm of Caldwell, Cassady & Curry, during prosecution of the '370 patent, '430 patent, and the '218 patent.

1122. On information and belief, attorneys at Caldwell, Cassady & Curry advised ME2C with respect to the prosecution of the '370 patent, '430 patent, and the '218 patent.

1123. The named inventors were aware of the '147 IPR Petitions at least as early as July 27, 2020. *See* IPR2020-00925, Exhibit 2024 (Declarations of John Pavlish, Edwin Olson, Michael Holmes). At this time, the named inventors were prosecuting the '370 patent, '430 patent, and the '218 patent before the USPTO.

1124. The named inventors, Plaintiff, and their counsel (including attorneys at Schwegman Lundberg & Woessner, P.A. and Caldwell, Cassady & Curry) had a duty to disclose the existence of IPR proceedings and all other material information to the examiners examining the '370 patent and the '218 patent. *See* M.P.E.P. §2001.06(c). This includes, for example, the following publications:

> S. Sjostrom, *Full Scale Evaluations of Mercury Control Technologies with PRB Coals*, Electric Utilities Environmental Conference (January 2005) (Sjostrom PRB Article)
>
> 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 Article)

1125. The named inventors, Plaintiff, and their counsel (including attorneys at Schwegman Lundberg & Woessner, P.A. and Caldwell, Cassady & Curry) also had a duty to disclose the existence of IPR proceedings, and specifically the '147 IPR Petitions and the '114 IPR Petitions and all other material information to the examiners examining the '430 patent. *See* M.P.E.P. §2001.06(c). This includes, for example, the Sjostrom PRB Article and the Eckberg Article.

1126. The Sjostrom PRB Article was material and non-cumulative prior art because none of the references before the USPTO during prosecution of the '370 patent contain the same disclosure that invalidates the claims of the '370 patent in the same way.

1127. The Eckberg Article was material and non-cumulative prior art because none of the references before the USPTO during prosecution of the '370 patent contain the same disclosure that invalidates the claims of the '370 patent in the same way.

1128. The Sjostrom PRB Article was material and non-cumulative prior art because none of the references before the USPTO during prosecution of the ’218 patent contain the same disclosure that invalidates the claims of the ’218 patent in the same way.

1129. The Eckberg Article was material and non-cumulative prior art because none of the references before the USPTO during prosecution of the ’218 patent contain the same disclosure that invalidates the claims of the ’218 patent in the same way.

1130. The Sjostrom PRB Article was material and non-cumulative prior art because none of the references before the USPTO during prosecution of the ’430 patent contain the same disclosure that invalidates the claims of the ’430 patent in the same way.

1131. The Eckberg Article was material and non-cumulative prior art because none of the references before the USPTO during prosecution of the ’430 patent contain the same disclosure that invalidates the claims of the ’430 patent in the same way.

1132. The named inventors, Plaintiff, and their counsel (including attorneys at Schwegman Lundberg & Woessner, P.A. and Caldwell, Cassady & Curry) understood the materiality of the ’114 IPR Petitions and the ’147 IPR Petitions during the prosecution of the ’370 patent and the ’218 patent, including, for example, the priority issues addressed in those petitions.

1133. The named inventors, Plaintiff, and their counsel (including attorneys at Schwegman Lundberg & Woessner, P.A. and Caldwell, Cassady & Curry) understood the materiality of the Sjostrom PRB Article and Eckberg Article during the prosecution of the ’370 patent and the ’218 patent.

1134. On October 26, 2020, the PTAB found that the ’114 IPR Petitions had raised a substantial question of patentability with respect to at least one challenged claim of the ’114 patent.

See IPR2020-00832, Paper 17 and IPR2020-00834, Paper 18 (collectively, '114 Institution Decisions).

1135. On December 2, 2020, the PTAB found that the '147 IPR Petitions had raised a substantial question of patentability with respect to at least one challenged claim of the '147 patent. *See* IPR2020-00926, Paper 19 and IPR2020-00928, Paper 17 (collectively, '147 Institution Decisions).

1136. On information and belief, the named inventors learned about the '114 Institution Decisions on or about October 26, 2020. At this time, the named inventors were prosecuting the '370 patent and the '218 patent before the USPTO, and the named inventors, Plaintiff, and their counsel (including attorneys at Schwegman Lundberg & Woessner, P.A. and Caldwell, Cassady & Curry) had a duty to disclose the existence of IPR proceedings and all other material information to the examiners examining the '370 patent, '430 patent, and the '218 patent. *See* M.P.E.P. §2001.06(c).

1137. In its Institution Decision in IPR2020-00834, the PTAB found regarding the '114 patent that:

> "Petitioner's arguments and evidence are sufficient to show a reasonable likelihood Petitioner would prevail in proving unpatentability of claims 23, 25–27, and 30" of the '114 Patent based on U.S. Patent Publication No. 2008/0107579 to Downs et al. (published May 8, 2008) ("Downs-Boiler").
>
> "Petitioner has demonstrated a reasonable likelihood of prevailing on its assertion that claims 1–7, 12–28, and 30 of the '114 Patent are unpatentable over Downs-Boiler."
>
> "Petitioner's argument and evidence is sufficient to show a reasonable likelihood Petitioner would prevail in proving unpatentability of dependent claims 4–7, 12, and 15–22" based on Downs-Boiler and "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").

> "Petitioner's argument and evidence is sufficient to show a reasonable likelihood Petitioner would prevail in proving unpatentability of claim 18" based on Downs-Boiler and U.S. Patent No. 6,953,494 to Nelson, (filed May 6, 2003) ("Nelson").

1138. In its Institution Decision in IPR2020-00832, the PTAB found that:

> "we determine that Petitioner has demonstrated a reasonable likelihood that one or more of the applications in the priority chain for the '114 Patent lacks written description support for the challenged claims."
>
> "Petitioner has demonstrated that one or more of the applications in the priority chain for the '114 Patent lacks written description support for the challenged claims. Patent Owner, on this record, has not presented persuasive arguments or evidence that the '114 Patent is entitled to a priority date earlier than the May 14, 2018 filing date of the '760 application."
>
> "Petitioner's arguments and evidence are sufficient to show a reasonable likelihood Petitioner would prevail in proving unpatentability of claims 1, 2, 4–9, 12–28, and 30" of the '114 Patent based on "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") and "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").
>
> "Petitioner's arguments and evidence are sufficient to show a reasonable likelihood Petitioner would prevail in proving unpatentability of claims 1–4, 6–9, 14, 19–22, and 24–30" of the '114 Patent based on Sjostrom and U.S. Patent Pub. No. 2006/0048646 to Olson et al. (published Mar. 9, 2006) ("Olson-646")

1139. As part of its analysis, the PTAB also considered ME2C's arguments relating to the priority dates of the '147 patent and the '114 patent and whether the applications leading up to these patents had adequate written description to support any claims directed at the two-step process of adding bromine and adding activated carbon to reduce mercury emissions.

1140. Specifically, the PTAB also reviewed the file histories of the patents in the family of Asserted Patents and confirmed that the '640 Provisional Application does not disclose the alleged invention of a two-step process for reducing mercury emissions.

1141. The PTAB has also confirmed that the chain of non-provisional applications filed after the ’640 Provisional Application also fail to disclose the alleged invention of a two-step process for reducing mercury emissions.

1142. The ’147 patent is a parent to the ’225 patent, ’370 patent, ’430 patent, ’517 patent, and ’218 patent.

1143. The ’114 patent is related to the ’225 patent, ’370 patent, ’430 patent, ’517 patent, and ’218 patent, and belongs to the same family of patents. The ’114 patent is a continuation-in-part of a continuation-in-part and traces its filing to U.S. Patent Application No. 12/201,595. The ’225 patent, ’370 patent, ’430 patent, ’517 patent, and ’218 patent are continuations that trace their filing to the same U.S. Patent Application No. 12/201,595. Thus, the ’114 patent is related to the ’225 patent, ’370 patent, ’430 patent, ’517 patent, and ’218 patent.

1144. In its decision instituting *inter partes* review of the ’147 patent, the PTAB determined that the ’147 patent failed to disclose the two-step process of adding bromine and activated carbon separately into a mercury-containing gas. *See* IPR2020-00928, Paper 17 at 29 (“There is ***no suggestion that bromine and the activated carbon are separately injected*** into mercury-containing flue gas line 15 through “multiple injection points.””) (emphasis added).

1145. Specifically, even though ME2C[139] argued that the ’640 Provisional Application disclosed separate addition of bromine to coal and the addition of activated carbon,[140] the PTAB disagreed and held that “one or more of the applications in the priority chain for the ’147 patent

[139] Plaintiff ME2C participated in the IPR2020-00928 proceeding in its capacity as the patent owner.

[140] This is the same argument that Plaintiff recently advanced in this proceeding. *See* ECF 57-1 at 9-11.

lacks written description from the '640 provisional application to support the challenged claims." *See* IPR2020-00928, Paper 17 at 21.

1146. The PTAB went on to note that "Here, Figure 2 of the '640 provisional application and its corresponding written description are entirely missing from the intervening applications. *Compare* Ex. 1020, 12, Fig. 2, *with* Ex. 1021 ¶¶ 52–53, Fig. 2. Therefore, even if the '640 provisional application was found to provide support for challenged claims 18 and 19 of the '147 patent, at least the '163 application and the '595 application do not include that written description from the '640 provisional application. Thus, there is a break in the priority chain." *See* IPR2020-00928, Paper 17 at 21-22.

1147. The PTAB made the same finding in IPR2020-00832. *See* IPR2020-00832, Paper 17 at 26 ("Even if the provisional application and/or the '760 application were found to provide support for the challenged claims of the '114 patent, at least the '163 application and the '595 application do not provide written description support for the challenged claims."). The PTAB also noted that "Although Figure 6 of the '760 application corresponds to Figure 2 of the provisional application, that drawing is absent from the '595 and '163 applications. Ex. 1026, 62; Ex. 1020, 16; Ex 1020, 41–47; Ex. 1022, 40–46." *See* IPR2020-00832, Paper 17 at 27.

1148. The PTAB further noted that there was no teaching of an in-flight reaction of bromine and activated carbon in the combustion chamber or within the mercury-containing gas in the combustion chamber. The PTAB specifically noted that "With respect to Figure 2, it is unclear whether the term "additive injection" in Figure 2 includes bromine or is limited to Group I or Group II elements, as Petitioner suggests, and further, whether an in-flight reaction occurs *in* the mercury-containing gas even assuming the "additive injection" includes bromine. For example, the '640 provisional application refers to "additives" as "Ca, Na, and others" as separate from the

"additional substances," including bromine. *See e.g.*, Ex. 1020, Abstract, 3–4. The '640 provisional application further states that bromine may be reacted with the activated carbon in-flight and *within* "the duct through which the carbon is transported from a reservoir *to* the flue gas duct." *Id.* at 3 (emphasis added); *see also id.* 10–11 ("the sorbent can be readily treated with any combination of bromine and the second component in-flight using vapors of the these components contacting the very fine carbon particles dispersed in air or other gas stream that *conveys the particles to the flue gas duct*." (emphasis added)). ***Thus, the only teaching of an in-flight reaction between bromine and activated carbon occurs in the duct work before being introduced into the mercury containing gas***." *See* IPR2020-00928, Paper 17 at 22 (emphasis added).

1149. During the IPR2020-00928 proceeding, Plaintiff ME2C also argued that the '640 Provisional Application was "incorporated by reference" into the subsequent non-provisional patent applications, including U.S. Patent Application No. 12/419,219. But the PTAB disagreed and did not allow ME2C to claim the filing date of the '640 Provisional Application as its priority date for the claims in the '147 patent.

1150. With regards to Plaintiff's argument about the '640 Provisional Application being "incorporated by reference," the PTAB stated that "37 C.F.R. § 1.57(c) (2005) permits incorporation by reference of essential material, which includes material necessary to provide a written description of the claimed invention, ***but it is critical to note that it limits such incorporations to U.S. patents and U.S. patent application publications***. 37 C.F.R. § 1.57(c) (2005)). Patent Owner [ME2C] does not dispute this point. *See generally* Prelim. Resp.; Sur-reply; *cf*. *Ex parte Maziere*, 27 USPQ2d 1705, 1706–07 (BPAI 1993) (holding that if "essential material" is included in the application at issue, incorporation by reference in the parent application was sufficient to claim priority and to satisfy the written description requirement, but not discussing

provisional applications). ***Therefore, to the extent the provisional application provides support for the challenged claims, incorporation by reference of the provisional application by the '595 and '163 applications cannot cure the deficiencies discussed above***." *See* IPR2020-00928, Paper 17 at 23-24 (emphasis added). The PTAB made the same finding in IPR2020-00832. *See* IPR2020-00832, Paper 17 at 29-30 ("Therefore, to the extent the provisional application provides support for the challenged claims, the incorporation by reference of the provisional application by the '595 and '163 applications cannot cure the deficiencies discussed above.").

1151. The PTAB further noted that "although we have only analyzed the '595 and '163 applications, we also look to the incorporation statements in the other applications in the chain leading to the '219 application. The '219 application provides that it "is a continuation of U.S. patent application 12/201,595 . . . which is a division of U.S. patent application 11/209,163 . . . which claims priority *to the extent appropriate* from provisional application 60/604,640." Ex. 1019, 54. The '219 application then states that "Application Serial Numbers 12/201,595; 11/209,163; and 60/604,640 are incorporated herein by reference." *Id*. "To incorporate material by reference, the host document must identify with *detailed particularity* what specific material it incorporates and *clearly indicate where* that material is found in the various documents." *Zenon Envtl., Inc. v. U.S. Filter Corp.*, 506 F.3d 1370, 1378, 1379 (Fed. Cir. 2007) (quoting *Cook Biotech Inc. v. Acell, Inc.*, 460 F.3d 1365, 1376 (Fed. Cir. 2006)). It is unclear to us what "to the extent appropriate" means in this context. The '219 application claims priority "to the extent appropriate" and fails to identify with detailed particularity the specific material incorporated and fails to clearly indicate where that material is found in the various documents. *See also* MPEP 211.02 ("In view of this requirement for a specific reference in the later-filed application, the right to rely on a prior art application may be waived by an applicant if a proper reference to the prior application is not

included in the later-filed application."). This ambiguity creates an additional concern regarding the chain of priority for the '219 application. In view of the present record, … one or more of the applications in the priority chain for the '147 patent lack written description support for challenged claims 18 and 19. Patent Owner, on this record, has not presented persuasive arguments or evidence that claims 18 and 19 of the '147 patent are entitled to a priority date earlier than April 6, 2009, the filing date of the '219 patent." *See* IPR2020-00928, Paper 17 at 31-32 (emphasis in original).

1152. The PTAB made similar findings in IPR2020-00832 where it stated that "one or more of the applications in the priority chain for the '114 patent lacks written description support for the [] claims. Conversely, Patent Owner's arguments are insufficient to establish that the applications in question provide written description support." *See* IPR2020-00832, Paper 17 at 25. The PTAB concluded that "one or more of the applications in the priority chain for the '114 Patent lacks written description support for the challenged claims. [ME2C], on this record, has not presented persuasive arguments or evidence that the '114 Patent is entitled to a priority date earlier than the May 14, 2018 filing date of the '760 application." *See* IPR2020-00832, Paper 17 at 31.

1153. Thus, the PTAB expressly rejected ME2C's theory that the claims directed at the two-step process of adding bromine and separately adding activated carbon were entitled to the priority date of the '640 Provisional Application (August 30, 2004).

1154. The PTAB expressly rejected ME2C's theory that the claims directed at the two-step process of adding bromine and separately adding activated carbon were entitled to the priority date of the '163 Application (August 22, 2005).

1155. The PTAB expressly rejected ME2C's theory that the claims directed at the two-step process of adding bromine and separately adding activated carbon were entitled to the priority date of the '595 Application (August 29, 2008).

1156. The named inventors knew that any claim directed at the two-step process of adding bromine and separately adding activated carbon could not possibly be entitled to the priority date of the '640 Provisional Application (August 30, 2004), or the priority date of the '163 Application (August 22, 2005), or the priority date of the '595 Application (August 29, 2008) in light of the MPEP's strict requirements. *See e.g.*, MPEP §§ 201.07, 211.

1157. And, indeed, ME2C knows that any claim directed at the two-step process of adding bromine and separately adding activated carbon could not possibly be entitled to the priority date of the '640 Provisional Application (August 30, 2004), or the priority date of the '163 Application (August 22, 2005), or the priority date of the '595 Application (August 29, 2008) in light of the PTAB's orders in IPR2020-00832 and IPR2020-00928.

1158. During the *inter partes* review proceedings concerning the '147 patent in IPR2020-00926, ME2C also relied on the inventors' "testing logbooks, and post-testing reports" to support its argument that the inventors conceived their invention and reduced it to practice prior to filing the '640 Provisional Application. ME2C made a similar argument in the *inter partes* review proceeding concerning the '114 patent in IPR2020-00834. *See* IPR2020-00834, Paper 18 at 29-30 (relying on "logbooks … to support its argument that the inventors reduced the invention to practice 'through pilot scale testing conducted in September 2003, December 2003, and February 2004.'").

1159. The "testing logbooks" are based on the same set of documents that ME2C relied on in its motion for preliminary injunction filed in this proceeding. *See* Case No. 24-CV-243, ECF 138-07 and 138-08.

1160. But the PTAB did not find ME2C's evidence to be sufficient, as it rejected its claim for entitlement to an earlier conception date based on ME2C's "testing logbooks." *See* IPR2020-00926, Paper 19 at 28-33 (rejecting argument for an earlier conception date to overcome prior art and determining that "for purposes of this Decision, Nelson, Olson-Paper, Lissianski, and Downs-Halogenation constitute prior art under 35 U.S.C. § 102, and, as such, it is proper to rely on them in the grounds presented under 35 U.S.C. § 103."); *see also* IPR2020-00934, Paper 18 at 33 (rejecting argument for an earlier conception date to overcome prior art and stating that "we 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. Most importantly, [ME2C] does not explain in sufficient detail how the proffered testimony and documents disclose every feature of the subject matter challenged. It is also unclear, without further explanation, what the documents that purport to show conception and reduction to practice actually demonstrate, and how they are related specifically to the limitations of the challenged claims. Accordingly, based on the preliminary record, we determine that, for purposes of this Decision, Vosteen and Downs-Boiler constitute prior art under 35 U.S.C. § 102.").

1161. Thus, the PTAB expressly rejected ME2C's theory that the claims directed at the two-step process of adding bromine and separately adding activated carbon would be entitled to an earlier conception date based on any pre-filing testing logbooks or any other pre-filing activity by the inventors.

1162. On information and belief, the named inventors learned about the '147 Institution Decisions on or about December 2, 2020. On or about December 2, 2020 the named inventors also learned (yet again) that they would not be entitled to the August 30, 2004 filing date of the '640 Provisional Application or the August 22, 2005 filing date of the '163 Application as the priority date for any claims directed at the two-step process for reducing mercury emissions.[141] At this time, the named inventors were prosecuting the '370 patent and the '218 patent before the USPTO, and the named inventors, Plaintiff, and their counsel (including attorneys at Schwegman Lundberg & Woessner, P.A. and Caldwell, Cassady & Curry) had a duty to disclose the existence of IPR proceedings and all other had a duty to disclose all material information to the examiners examining the '370 patent and the '218 patent. *See* M.P.E.P. §2001.06(c).

1163. The PTAB's decision on the priority date of the claims directed at the two-step process were material to the patentability of claims in the '370 patent and the '218 patent.

1164. In its Institution Decision in IPR2020-00926, the PTAB found that:

> "Petitioner has established a reasonable likelihood of prevailing on its obviousness challenge of claim 17 based on the combined teachings of Nelson, Olson-Paper, and Lissianski."
>
> "Petitioner has established a reasonable likelihood of prevailing on its challenge to claim 17 as obvious over the combination of Downs and Olson-Paper."

1165. In its Institution Decision in IPR2020-00926, the PTAB found that:

[141] The PTAB's Institution Decisions were at least the 8th and 9th instances where the Applicants were put on notice that their claims directed at the two-step process for reducing mercury emissions would not be entitled to the August 30, 2004 or August 22, 2005 filing dates and instead would be entitled to much later filing dates. *See* File History of U.S. Patent No. 10,589,225, Non-Final Reject, 7/6/2017; *see id.* at Final Rejection, 12/6/2017; *see id.* at Advisory Action, 2/12/2018; *see id.* at Examiner Interview Summary, 3/5/2018; *see id.* at Non-Final Rejection, 7/2/2018; *see id.* at Examiner Interview Summary, 7/2/2018; *see* File History of U.S. Patent No. 10,668,430, Non-Final Rejection, 12/2/2019.

> "we determine that Petitioner has demonstrated a reasonable likelihood that one or more of the applications in the priority chain for the '147 patent lacks written description from the '640 provisional application to support the challenged claims."
>
> "we determine that Petitioner has demonstrated a reasonable likelihood that one or more of the non-provisional applications in the priority chain for the '147 patent lack the written description necessary to support claims 18 and 19 of the '147 patent."
>
> "Petitioner has demonstrated that one or more of the applications in the priority chain for the '147 patent lack written description support for challenged claims 18 and 19. Patent Owner, on this record, has not presented persuasive arguments or evidence that claims 18 and 19 of the '147 patent are entitled to a priority date earlier than April 6, 2009, the filing date of the '219 patent."
>
> "we determine that Petitioner's arguments and evidence are sufficient to show each limitation of claims 18 and 19 is present in the combination of Lissianski-Presentation and Olson. Because we determined above (supra Section II.D.) that claims 18 and 19 of the '147 patent are not entitled to a date of invention prior to the filing of date of the '147 patent, i.e., April 6, 2009, we determine that Petitioner has established a reasonable likelihood of prevailing on its challenge to claims 18 and 19 as obvious over the combination of Lissianski-Presentation and Olson."
>
> "we determine that Petitioner has established a reasonable likelihood of prevailing on its challenge to claims 18 and 19 as obvious over the combination of Sjostrom and Olson."

1166. The named inventors intentionally withheld the PTAB's decision on the priority dates within the '114 Institution Decisions and the '147 Institution Decisions from the examiner(s) examining the '370 patent and the '218 patent.

1167. The claims of the '114 patent were patentably indistinct from the claims of the '370 patent. The claims of the '114 patent found to be likely invalid by the PTAB required the application of bromine on coal as well as the use of activated carbon to reduce mercury emissions, just as the claims of the '370 patent.

1168. The claims of the '114 patent were similar to the claims of the '218 patent. The claims of the '114 patent found to be likely invalid by the PTAB required the application of a

halogen (in this case bromine based) on coal as well as the use of activated carbon to reduce mercury emissions, just as the claims of the ’218 patent (where the halogen was iodine based).

1169. The named inventors, Plaintiff, and their counsel (including attorneys at Schwegman Lundberg & Woessner, P.A. and Caldwell, Cassady & Curry) understood the materiality of the ’114 Institution Decisions and the ’147 Institution Decisions during the prosecution of the ’370 patent and the ’218 patent, including, for example, the priority issues and the materiality of the following references:

> 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 PRB Article)
>
> 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 Article)
>
> Vitali Lissianski, “Integrated Approach to Multi-Pollutant Control,” Track B, Session B3 (Mercury – Control), Presentation B3.5, EUEC: 9TH ELECTRIC UTILITIES ENVIRONMENTAL CONFERENCE (Tucson, Arizona: January 24, 2006) (Lissianski-Presentation)
>
> 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)

1170. This is at least because the ’114 Institution Decisions and the ’147 Institution Decisions specifically rejected named inventors, Plaintiff, and their counsel’s priority arguments, including as set forth in the paragraphs above. The rejection of Plaintiff, and their counsel’s priority arguments rendered Sjostrom PRB Article, Eckberg Article, Lissianski-Presentation and EPA-Proposal material, non-cumulative, invalidating prior art.

1171. The named inventors, Plaintiff, and their counsel understood none of the IPR proceedings, the ’114 Institution Decisions, the ’147 Institution Decisions, ’114 IPR Petitions, the ’147 IPR Petitions had been considered by the Examiner(s) during the prosecution of the ’370 patent and the ’218 patent, including because none of these were identified by the examiner(s) as having been considered.

1172. Additionally, many of the references instituted upon had not been identified as considered by the Examiner(s) during the prosecution of the ’370 patent or the ’218 patent.

1173. The named inventors intentionally withheld and failed to disclose the IPR2020-00832, IPR2020-00834, IPR2020-00926, and IPR2020-00928 proceedings, as well as the prior art and documents cited therein, from the examiner(s) examining the ’370 patent and the ’218 patent. Indeed, the IPR2020-00832, IPR2020-00834, IPR2020-00926, and IPR2020-00928 proceedings, or any papers filed in these proceedings, are not cited on the face of the ’370 patent or the ’218 patent.

1174. The named inventors intentionally withheld the ’114 Institution Decisions and the ’147 Institution Decisions, and the references cited therein (including, for example, the Sjostrom reference, which the PTAB noted ME2C did not dispute the public availability of, and the EPA-Proposal, which the PTAB noted ME2C did not respond to on the merits) from the examiner(s) examining the ’370 patent and the ’218 patent for the purpose of obtaining the ’218 patent.

1175. On information and belief, named inventors, ME2C, and its counsel knew neither the ’370 patent nor the ’218 patent would issue if the Examiner had the Institution Decisions and the references cited therein, during prosecution of the ’370 patent or the ’218 patent.

1176. The named inventors intentionally withheld the ’114 IPR Petitions and the ’147 IPR Petitions, and the references therein, from the Examiner(s) examining the ’370 patent and the ’218 patent.

1177. The named inventors intentionally withheld the ’114 IPR Petitions and the ’147 IPR Petitions, and the references therein, from the Examiner(s) examining the ’430 patent.

1178. On information and belief, named inventors, ME2C, and its counsel knew neither the ’370 patent nor the ’218 patent would issue if the Examiner had the IPR Petitions and the references cited therein.

1179. On information and belief, named inventors, ME2C, and its counsel knew the ’430 patent would not issue if the Examiner had the IPR Petitions and the references cited therein.

1180. The Examiner examining the ’370 patent did not consider the ’114 IPR Petitions or the ’114 Institution Decisions during prosecution of the ’370 patent.

1181. The Examiner examining the ’370 patent did not consider the ’147 IPR Petitions or the ’147 Institution Decisions during prosecution of the ’370 patent.

1182. The Examiner examining the ’218 patent did not consider the ’114 IPR Petitions or the ’114 Institution Decisions during prosecution of the ’218 patent.

1183. The Examiner examining the ’218 patent did not consider the ’147 IPR Petitions or the ’147 Institution Decisions during prosecution of the ’218 patent.

1184. The Examiner examining the ’430 patent did not consider the ’114 IPR Petitions during prosecution of the ’430 patent.

1185. The Examiner examining the ’430 patent did not consider the ’147 IPR Petitions during prosecution of the ’430 patent.

1186. The prosecution history of the ’370 patent contains no reference to any related PTAB post-grant proceeding that would indicate that the Examiner was aware of the ’114 IPR Petitions or the ’114 Institution Decisions or the ’147 IPR Petitions or the ’147 Institution Decisions during prosecution of the ’370 patent.

1187. The prosecution history of the ’218 patent contains no reference to any related PTAB post-grant proceeding that would indicate that the Examiner was aware of the ’114 IPR Petitions or the ’114 Institution Decisions or the ’147 IPR Petitions or the ’147 Institution Decisions during prosecution of the ’218 patent.

1188. The prosecution history of the ’430 patent contains no reference to any related PTAB post-grant proceeding that would indicate that the Examiner was aware of the ’114 IPR Petitions or the ’147 IPR Petitions during prosecution of the ’430 patent.

1189. As detailed above, the information contained within the ’114 IPR Petitions or the ’114 Institution Decisions or the ’147 IPR Petitions or the ’147 Institution Decisions was material and non-cumulative because none of the references before the USPTO during prosecution of the ’370 patent contain the same disclosure that invalidates the claims of the ’370 patent in the same way.

1190. As detailed above, the information contained within the ’114 IPR Petitions or the ’114 Institution Decisions or the ’147 IPR Petitions or the ’147 Institution Decisions was material and non-cumulative because none of the references before the USPTO during prosecution of the ’218 patent contain the same disclosure that invalidates the claims of the ’218 patent in the same way.

1191. As detailed above, the information contained within the ’114 IPR Petitions or the ’147 IPR Petitions was material and non-cumulative because none of the references before the

USPTO during prosecution of the ’430 patent contain the same disclosure that invalidates the claims of the ’430 patent in the same way.

1192. Had the Examiner examining the ’370 patent considered the ’114 IPR Petitions or the ’114 Institution Decisions or the ’147 IPR Petitions or the ’147 Institution Decisions during prosecution of the ’370 patent, the Examiner would have “annotate[d] the search notes indicating the review was completed” or “document[ed] the search” as required under MPEP 904.04. Given that the file history of the ’370 patent contains no reference to the ’114 IPR Petitions or the ’114 Institution Decisions or the ’147 IPR Petitions or the ’147 Institution Decisions, or any other indication that these documents were considered or searched, the Examiner did not consider these IPR petitions or Institution Decisions.

1193. Had the Examiner examining the ’218 patent considered the ’114 IPR Petitions or the ’114 Institution Decisions or the ’147 IPR Petitions or the ’147 Institution Decisions during prosecution of the ’218 patent, the Examiner would have “annotate[d] the search notes indicating the review was completed” or “document[ed] the search” as required under MPEP 904.04. Given that the file history of the ’218 patent contains no reference to the ’114 IPR Petitions or the ’114 Institution Decisions or the ’147 IPR Petitions or the ’147 Institution Decisions, or any other indication that these documents were considered or searched, the Examiner did not consider these IPR petitions or Institution Decisions.

1194. Had the Examiner examining the ’430 patent considered the ’114 IPR Petitions or the ’147 IPR Petitions during prosecution of the ’430 patent, the Examiner would have “annotate[d] the search notes indicating the review was completed” or “document[ed] the search” as required under MPEP 904.04. Given that the file history of the ’430 patent contains no reference to the ’114 IPR Petitions or the ’147 IPR Petitions, or any other indication that these documents

were considered or searched, the Examiner did not consider these IPR petitions or Institution Decisions.

1195. While understanding the materiality and intentionally withholding the IPR proceedings and specific documents noted above, the named inventors, Plaintiff, and their counsel did not file a terminal disclaimer for the ’370 patent and further applied for patent term adjustment, such that the ’370 patent allegedly has additional patent term beyond the other related patents, including term beyond all other patents asserted in this case.

1196. On information and belief, named inventors, Plaintiff, and their counsel withheld the IPR proceedings and specific documents noted above so that the ’370 patent’s improper priority claim would be left undisturbed, and that patent could have additional patent term beyond the other related patents.

1197. But for the Applicants’ intentional withholding of the ’114 Institution Decisions, the ’147 Institution Decisions, the ’114 IPR Petitions and the ’147 IPR Petitions, the examiner examining the ’370 patent would not have issued the claims of the ’370 patent because the claims of the ’370 patent disclose the same two-step process for reducing mercury emissions as disclosed in the challenged claims of the ’114 patent and the ’147 patent that were found to have a substantial question of patentability in the ’114 Institution Decisions and the ’147 Institution Decisions.

1198. But for the Applicants’ intentional withholding of the PTAB’s priority date analysis in the ’114 Institution Decisions, the ’147 Institution Decisions, the ’114 IPR Petitions and the ’147 IPR Petitions, the examiner examining the ’370 patent would not have issued the claims of the ’370 patent because the claims of the ’370 patent would have been held to a later priority date and the Examiner would have applied additional material prior art dated post-August 2004 that

would have invalidated the claims of the ’370 patent. This prior art includes at least: Sjostrom PRB Article, Eckberg Article, Lissianski-Presentation and EPA-Proposal.

1199. Even after the issuance of the ’370 patent, the Applicants had an opportunity to submit the ’114 Institution Decisions, the ’147 Institution Decisions, the ’114 IPR Petitions and the ’147 IPR Petitions to the Examiner, but they withheld this information from the Examiner. On November 3, 2021, the Applicants (through prosecution counsel Nicholas Lanzatella) submitted a request for a Certificate of Correction and identified several mistakes in the issued ’370 patent.[142] These corrections included corrections to the “Related U.S. Application Data” section of the ’370 patent where the Applicants claimed priority to the filing date of earlier related applications. Even when seeking corrections to the issued ’370 patent, the Applicants did not disclose the ’114 Institution Decisions, the ’147 Institution Decisions, the ’114 IPR Petitions and the ’147 IPR Petitions to the Examiner or advise the Examiner that the PTAB found the Applicants’ claim to an earlier priority date to be incorrect. The Applicants could have disclosed the’114 Institution Decisions, the ’147 Institution Decisions, the ’114 IPR Petitions and the ’147 IPR Petitions to the Examiner while seeking the Certificate of Correction or through a request for Supplemental Examination under 35 U.S.C. 257, but they did not do so. Instead, the Applicants continued to withhold material invalidating information from the Examiner at every juncture and did so with an intent to deceive the Examiner to keep the claims of the ’370 patent intact.

1200. But for the Applicants’ intentional withholding of the ’114 Institution Decisions and the ’147 Institution Decisions, the ’114 IPR Petitions and the ’147 IPR Petitions, the examiner examining the ’218 patent would not have issued the claims of the ’218 patent because the claims

[142] *See* File History of U.S. Patent No. 10,933,370, Request for Certificate of Correction, 11/3/2021.

of the ’218 patent disclose a substantially similar process for reducing mercury emissions as disclosed in the challenged claims of the ’114 patent and the ’147 patent that were found to have a substantial question of patentability in the ’114 Institution Decisions and the ’147 Institution Decisions.

1201. But for the Applicants’ intentional withholding of the PTAB’s priority date analysis in the ’114 Institution Decisions, the ’147 Institution Decisions, the ’114 IPR Petitions and the ’147 IPR Petitions, the examiner examining the ’218 patent would not have issued the claims of the ’218 patent because the claims of the ’218 patent would have been held to a later priority date and the examiner would have applied additional material prior art dated post-August 2004 that would have invalidated the claims of the ’218 patent. This prior art includes at least: Sjostrom PRB Article, Eckberg Article, Lissianski-Presentation and EPA-Proposal.

1202. But for the Applicants’ intentional withholding of the ’114 IPR Petitions and the ’147 IPR Petitions, the examiner examining the ’430 patent would not have issued the claims of the ’430 patent because the claims of the ’430 patent disclose a substantially similar process for reducing mercury emissions as disclosed in the challenged claims of the ’114 patent and the ’147 patent that were shown to have a substantial question of patentability in the ’114 IPR Petitions and the ’147 IPR Petitions.

1203. The ’114 Institution Decisions and the ’147 Institution Decisions are but-for material to the patentability of the claims in the ’370 patent and the ’218 patent.

1204. The ’114 IPR Petitions and the ’147 IPR Petitions are but-for material to the patentability of the claims in the ’370 patent and the ’218 patent.

1205. The ’114 IPR Petitions and the ’147 IPR Petitions are but-for material to the patentability of the claims in the ’430 patent.

1206. In failing to disclose the ’114 Institution Decisions, the ’147 Institution Decisions, the ’114 IPR Petitions and the ’147 IPR Petitions, the named inventors and their prosecution counsel acted with an intent to deceive the USPTO examiners into issuing the ’370 and ’218 patents.

1207. In failing to disclose the ’114 IPR Petitions and the ’147 IPR Petitions, the named inventors and their prosecution counsel acted with an intent to deceive the USPTO examiners into issuing the ’430 patent.

1208. Defendant is entitled to a judicial declaration that the claims of the ’370 patent and the ’218 patent are unenforceable due to the Applicants’ inequitable conduct and unclean hands.

1209. Defendant is entitled to a judicial declaration that the claims of the ’430 patent are unenforceable due to the Applicants’ inequitable conduct and unclean hands.

1210. On September 4, 2020, ME2C filed its Patent Owner Preliminary Response (POPR) in IPR2020-00926, which was an inter partes review of U.S. Patent No. 8,168,147. The ‘225, ‘370, ‘430, ‘517, and ‘218 patents all claim priority to the ‘147 patent.

1211. In their Patent Owner Preliminary Response filed in IPR2020-00926, ME2C stated that the claimed ratio of 1-30 grams of promoter per 100 grams of sorbent was entitled to no patentable weight. See IPR2020-00926, Paper 13 at 34 (“Petitioners assert a prior art date for Lissianski-Patent of January 6, 2004. As explained above, by September 2003, the inventors reduced all aspects of the ’147 patent claims to practice except for the claimed ratio of 1-30 grams of promoter per 100 grams of sorbent (i.e., a 1%-30% ratio). This ratio was used during the February 2004 testing. This is confirmed by testimony from all three inventors (Ex. 2024), and corroborated by non-inventor testimony (Ex. 2016), logbook entries (Ex. 2016), and DOE reports (Exs. 2011-2013). Thus, the prior art status of this reference depends on whether Patent Owner

can swear back before the February 2004 testing. Patent Owner can do so because this range limitation is entitled to no patentable weight, and because the inventors conceived of the full range of bromine to carbon ratios at least by September 2003.") (emphasis added).

1212. They further stated to the PTAB that the reason that the 1-30% limitation "is not entitled to any patentable weight" is that the "range presented nothing more than optimization of result-effective variables that would have been obvious to a POSITA." See IPR2020-00926, Paper 13 at 35. The Patent Owner Preliminary Response stated: "Here, Petitioners' expert testified—and ME2C does not dispute—that the 1%-30% range limitation is not entitled to any patentable weight. See Ex. 1003 at ¶ 369 ("Through routine process optimization and routine experimentation, a POSITA would have adjusted the rate of addition of the promoter and/or the rate of addition of the sorbent material to achieve a range from about 1 g to about 30 g of promoter per 100 grams of the sorbent material . . . The range presented nothing more than optimization of result-effective variables that would have been obvious to a POSITA."). Thus, under MPEP § 715.02, Patent Owner is not required to submit evidence that this limitation was conceived or reduced to practice prior to an asserted prior art reference. Because the September 2003 testing reduced to practice all aspects of the '147 claims except this non-inventive range limitation, the reduction to practice date for these claims is September 2003. No further consideration of conception or diligence is necessary." See IPR2020-00926, Paper 13 at 35.

1213. This Patent Owner Preliminary Response in IPR2020-00926 was signed by counsel for ME2C, Hamad Hamad. Also on the pleading was ME2C's litigation counsel, Justin Nemunaitis.

1214. The Patent Owner Preliminary Response in IPR2020-00926 was supported by a signed declaration from named inventor John Pavlish. See IPR2020-00926, Paper 13 at Exhibit 2024.

1215. At the time ME2C submitted its Patent Owner Preliminary Response in IPR2020-00926, named inventor John Pavlish was Senior Vice President and Chief Technology Officer at ME2C. See https://www.linkedin.com/in/john-pavlish-923a2921/.

1216. The Patent Owner Preliminary Response in IPR2020-00926 was supported by a signed declaration from named inventor Edwin Olson.

1217. The Patent Owner Preliminary Response in IPR2020-00926 was supported by a signed declaration from named inventor Michael Holmes.

1218. On information and belief, at least named inventor John Pavlish reviewed and approved the September 4, 2020 POPR before ME2C filed the POPR with the PTAB.

1219. On information and belief, the named inventors knew that ME2C had informed the PTAB that the claim limitation relating to a weight ratio of the promoter to the sorbent in the range of 1:100 to 30:100 would have no patentable weight.

1220. On information and belief, the named inventors knew that the claim limitation relating to a weight ratio of the promoter to the sorbent in the range of 1:100 to 30:100 would have no patentable weight.

1221. On information and belief, ME2C provided and/or served its Patent Owner Preliminary Response to its prosecution counsel, including Nicholas Lanzatella, on or around September 4, 2020.

1222. On November 25, 2020, Applicants filed an amendment to claim 1 in the ’970 Application.

1223. This claim amendment amended claim 1 of the '970 Application to recite "wherein a weight ratio of I-, I2, Br-, Br2, Cl-, Cl2, or a combination thereof in the additive fed to the combustion chamber to an amount of the sorbent material added to the mercury-containing gas is from 1: 100 to 30: 100 ...." File History of U.S. Patent No. 10,933,370, Response to Non-Final Rejection, 11/25/2020.

1224. Applicants argued that prior art references (e.g., Felsvang and Vosteen) did not disclose this weight ratio, and that their claims were patentable because of the ratio added via amendment. File History of U.S. Patent No. 10,933,370, Response to Non-Final Rejection, 11/25/2020.

1225. Specifically, the Applicants stated "Vosteen fails to mention any specific amount of activated carbon in the emission control system and therefore fails to describe or suggest any specific ratio of any halogen species added to the amount of activated carbon." File History of U.S. Patent No. 10,933,370, Response to Non-Final Rejection, 11/25/2020. This was a false, misleading and a material misrepresentation, because the 1-30 weight ratio should have been given no patentable weight.

1226. Applicants also stated "Felsvang mentions a range of the weight of HCl in the flue gas to the weight of activated carbon injected into the flue gas of from 65: 100 to 14200: 100. Therefore, Felsvang fails to describe or suggest a weight ratio of I-, I2, Br-, Br2, Cl-, Cl2, or a combination thereof in the additive fed to the combustion chamber to an amount of the sorbent material added to the mercury-containing gas of from 1 • 100 to 30: 100." File History of U.S. Patent No. 10,933,370, Response to Non-Final Rejection, 11/25/2020. This was a false, misleading and a material misrepresentation, because the 1-30 weight ratio should have been given no patentable weight.

1227. Applicants, specifically named inventor John Pavlish and prosecution counsel Nicholas Lanzatella, did not inform the Examiner that the claim limitation relating to a weight ratio of the promoter to the sorbent in the range of 1:100 to 30:100 would have no patentable weight.

1228. Applicants, specifically named inventor John Pavlish and prosecution counsel Nicholas Lanzatella, did not inform the Examiner that the claim limitation relating to a weight ratio of the promoter to the sorbent in the range of 1:100 to 30:100 "presented nothing more than optimization of result-effective variables that would have been obvious to a POSITA," as ME2C had argued to the PTAB less than 3 months earlier.

1229. During prosecution of the '970 Application, Applicants did not provide the Examiner with the POPR they had filed less than 3 months earlier, in which they asserted that the 1-30 weight ratio had no patentable weight.

1230. On November 25, 2020, Applicants made a similar amendment to claims 1 and 29 of the '071 Application.

1231. The claim amendment amended claim 1 of the '071 Application to recite "wherein a weight ratio of I- in the added HI, iodide salt, or the combination thereof entering the combustion chamber to an amount of the sorbent injected into the mercury-containing gas is from 1:100 to 30:100." File History of U.S. Patent No. 10,926,218, Response to Non-Final Rejection, 11/25/2020.

1232. The claim amendment amended claim 29 of the '071 Application to recite "wherein a weight ratio of I- in the added HI, iodide salt, or the combination thereof entering the combustion chamber to an amount of the sorbent injected into the mercury-containing gas is from 1:100 to

30:100." File History of U.S. Patent No. 10,926,218, Response to Non-Final Rejection, 11/25/2020.

1233. In their corresponding arguments, Applicants told the Examiner as follows: "Applicant wishes to bring to the attention of the Examiner related U.S. patent no. 10,828,596, with claim 1 reciting " ... wherein the Br-, HBr, HI, I-, or the combination thereof is 0.1 wt% to 30 wt% of the activated carbon sorbent in the mercury-containing gas stream." File History of U.S. Patent No. 10,926,218, Response to Non-Final Rejection, 11/25/2020. This was a false, misleading and a material misrepresentation, because the 1-30 weight ratio should have been given no patentable weight.

1234. But the Applicants did not inform the Examiner of the previous statements made to the PTAB that the claim limitation relating to a weight ratio of the promoter to the sorbent in the range of 1:100 to 30:100 would have no patentable weight.

1235. In their corresponding arguments, Applicants distinguished the prior art and told the Examiner as follows: "As explained herein at I(A), the cited references fail to describe or suggest a weight ratio of I- added to the coal and/or combustion chamber to injected sorbent of from 1: 100 to 30: 100. As explained herein at I(B), it would be surprising to a person of ordinary skill in the art in view of the cited references that using a weight ratio of I- added to the coal and/or combustion chamber to an amount of the injected sorbent of from 1:100 to 30:100 could generate an effective concentration of iodine and/or iodide on the injected activated carbon. As explained herein at I(C), there would be no motivation to combine the cited references as alleged. As explained herein at I(D), the presently claimed invention has advantages that could not reasonably be predicted from the cited references." File History of U.S. Patent No. 10,926,218, Response to

Non-Final Rejection, 11/25/2020 (emphasis added). This was a false, misleading and a material misrepresentation, because the 1-30 weight ratio should have been given no patentable weight.

1236. On January 6, 2021, the Examiner examining the ’071 Application issued a Notice of Allowance.

1237. The Examiner’s Notice of Allowance stated: “The following is an examiner's statement of reasons for allowance: The examiner agrees with applicant's characterization of how the amended claims distinguish over the prior art of record, which fails to disclose or suggest a motivation for using a weight ratio of HI or iodide salt added to the coal and/or combustion chamber, to an amount of injected sorbent is from about 1:100 to about 30:100, in combination with the other recited process steps.” File History of U.S. Patent No. 10,926,218, Notice of Allowance, 1/6/20201.

1238. But for Applicants amending the claims to include the 1-30 weight ratio, the Examiner would not have allowed the ’071 Application to issue.

1239. But for Applicants withholding the September 4, 2020 POPR, the Examiner would not have allowed the ’071 Application to issue.

1240. On January 12, 2021, the Examiner examining the ’970 Application issued a Notice of Allowance.

1241. The Examiner’s Notice of Allowance stated: “The examiner agrees with applicant's characterization of how the amended claims distinguish over the prior art of record, which fails to disclose or suggest a motivation for using a weight ratio of additive added to the coal and/or combustion chamber, to an amount of injected sorbent is from about 1:100 to about 30:100, in combination with the other recited process steps.” File History of U.S. Patent No. 10,933,370, Notice of Allowance, 1/12/2021.

1242. But for Applicants amending the claims to include the 1-30 weight ratio, the Examiner would not have allowed the ’970 Application to issue.

1243. But for Applicants withholding the September 4, 2020 POPR, the Examiner would not have allowed the ’970 Application to issue.

1244. On January 14, 2021, the Applicants responded to the Examiner’s reasons for allowance.

1245. In their response to the Examiner’s reasons for allowance, the Applicants stated: “In the Notice of Allowance dated January 12, 2021 the Examiner has set forth ‘Reasons for Allowance.’ Applicant agrees that the claims are patentable over the references of record, but does not necessarily agree with the reasons provided in the allowance, which are the Examiner’s reasons rather than Applicant’s and are in no way to be interpreted as admitted by Applicant. Applicant respectfully submits that the subject matter of each of the allowed claims is patentable for its respective recitation of the claimed combination as a whole. That is, the patentability of each claim rests on the combination of recited elements and limitations. As such, Applicant submits that no one element or limitation in particular should be deemed to impart or be required for patentability of the claims. Furthermore, Applicant submits that the dependent claims are allowable not only for their dependence from the allowed independent claims, but also for the additional subject matter recited in each of those dependent claims.” File History of U.S. Patent No. 10,933,370, Notice of Allowance, 1/14/2021.

1246. Despite making this response to the Examiner’s reasons for allowance, the Applicants did not inform the Examiner of ME2C’s earlier statement to the PTAB (dated September 4, 2020) or that Applicants’ last claim amendment to overcome prior art added a limitation that should be given “no patentable weight.”

1247. Applicants, specifically named inventor John Pavlish and prosecution counsel Nicholas Lanzatella, did not inform the Examiner that the claim limitation relating to a weight ratio of the promoter to the sorbent in the range of 1:100 to 30:100 would have no patentable weight.

1248. Claim 1 of the ’971 Application issued as claim 1 of the ’370 patent.

1249. Claim 1 of the ’071 Application issued as claim 1 of the ’218 patent.

1250. Claim 29 of the ’071 Application issued as claim 26 of the ’218 patent.

1251. Applicants, specifically named inventor John Pavlish and prosecution counsel Nicholas Lanzatella, intended to deceive the Patent Office by intentionally withholding ME2C’s earlier material admission to the PTAB that the claim limitation relating to a weight ratio of the promoter to the sorbent in the range of 1:100 to 30:100 would have no patentable weight, while simultaneously distinguishing prior art based on this claim limitation during prosecution of the ’970 Application.

1252. Applicants, specifically named inventor John Pavlish and prosecution counsel Nicholas Lanzatella, intended to deceive the Patent Office by intentionally withholding ME2C’s earlier material representation to the PTAB that the claim limitation relating to a weight ratio of the promoter to the sorbent in the range of 1:100 to 30:100 would have no patentable weight, while simultaneously distinguishing prior art based on this claim limitation during prosecution of the ’071 Application.

1253. Applicants’ material representant and material omission during prosecution of the ’970 Application was made with deceptive intent.

1254. Applicants’ material representant and material omission during prosecution of the ’071 Application was made with deceptive intent.

REDACTED PUBLIC VERSION

1255. But for the Applicants' material omission made with deceptive intent, the independent claims of the '370 patent and '218 patent would not have issued.

1256. In failing to disclose the '147 POPR filed on September 4, 2020 to the examiners examining the '970 Application or the '071 Application, the named inventors (specifically John Pavlish) and their prosecution counsel (specifically Nicholas Lanzatella) acted with an intent to deceive the USPTO examiners into issuing the '370 Patent and the '218 Patent.

1257. Defendant is entitled to a judicial declaration that the claims of the '370 patent and the '218 patent are unenforceable due to the Applicants' inequitable conduct and unclean hands.

RESERVATION OF RIGHTS

1258. MidAmerican hereby reserves the right to supplement with additional claims or defenses as discovery proceeds in this matter.

JURY DEMAND

MidAmerican hereby demands a trial by jury on all issues so triable.

PRAYER FOR RELIEF

WHEREFORE MidAmerican asks this Court for an order granting the following relief:

A. An order dismissing all of Plaintiff's claims with prejudice and denying all relief requested by Plaintiff;

B. A declaration that MidAmerican does not infringe, directly or indirectly, literally or under the doctrine of equivalents, or willfully, any asserted claim of the Patents-in-Suit, to the extent any such claims were not dismissed by the court;

C. A declaration that each asserted claim of each Patent-in-Suit is invalid and unenforceable;

D. A declaration that Plaintiff violated and breached the Talen Agreement by filing and maintaining the instant suit against MidAmerican;

E. An award of attorney fees and costs pursuant to 35 U.S.C. § 285; and

F. Any such further relief at law or in equity as the Court deems just and proper, including but not limited to costs, fees, expenses and attorney fees.

REDACTED PUBLIC VERSION

Respectfully submitted,

Dated: March 21, 2025

/s/ Thomas M. Patton

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CERTIFICATE OF SERVICE

I hereby certify that on March 21, 2025, I electronically filed the foregoing *Defendant MidAmerican Energy Company's First Amended Answers, Affirmative Defenses and Counterclaims to Plaintiff's First Amended Complaint* with the Clerk of the Court using the CM/ECF system, which will serve a notice of electronic filing to all counsel of record registered with CM/ECF.

/s/ Christina Laage
Christina Laage

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