

**BEFORE THE MINNESOTA OFFICE OF
ADMINISTRATIVE HEARINGS**

600 North Robert Street
P.O. Box 64620
St. Paul, MN 55101

**FOR THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF MINNESOTA**

121 Seventh Place East, Suite 350
St. Paul, MN 55101-2147

In the Matter of the Review of the July 2018-
December 2019 Annual Automatic Adjustment
Reports

OAH Docket No. 82-2500-37082
PUC Docket No. E-999/AA-20-171

**PROPOSED FINDINGS OF FACT AND RECOMMENDATIONS
SUBMITTED BY THE
LARGE POWER INTERVENORS**

STOEL RIVES LLP
Andrew P. Moratzka
Riley A. Conlin
33 South Sixth Street
Suite 4200
Minneapolis, MN 55402
Tele: (612) 373-8800
Fax: (612) 373-8881

Jessica L. Bayles
1150 18th Street NW, Suite 325
Washington, DC 20036
Tele: (202) 398-1795
Fax: (202) 621-6394

TABLE OF CONTENTS

	Page
STATEMENT OF THE ISSUE.....	1
SUMMARY OF CONCLUSIONS AND RECOMMENDATION.....	1
FINDINGS OF FACT.....	1
I. THE APPLICANT AND OTHER PARTIES.....	1
II. THE ANNUAL AUTOMATIC ADJUSTMENT REPORT AND RELATED PROCEDURAL BACKGROUND.....	2
III. ISSUES	4
IV. BURDEN OF PROOF	5
V. BOSWELL 3 FORCED OUTAGE	6
VI. BOSWELL 4 FORCED OUTAGE	8
RECOMMENDATIONS	10

The following appearances were made:

David Moeller, Senior Attorney and Director of Regulatory Compliance, Minnesota Power, and Elizabeth M. Brama, Kodi J. Verhalen and Matthew R. Brodin, Taft Stettinius & Hollister LLP appeared on behalf of the Applicant, Minnesota Power (also referred to herein as “MP” or the “Company”).

Katherine M. Hinderlie and Richard E.B. Dornfeld, Assistant Attorneys General, appeared on behalf of the Department of Commerce, Division of Energy Resources (the “Department”).

Andrew P. Moratzka, Sarah Johnson Phillips, Jessica L. Bayles, and Riley A. Conlin, Stoel Rives LLP, appeared on behalf of the Large Power Intervenors (LPI).

Jason Bonnett appeared on behalf of the Public Utilities Commission (the “Commission”) staff.

STATEMENT OF THE ISSUE

Has Minnesota Power met its burden to show that its forced outage costs were reasonably and prudently incurred, applying good utility practice?

SUMMARY OF CONCLUSIONS AND RECOMMENDATION

Minnesota Power’s burden in this matter requires a two-part showing. As applied to this proceeding, Minnesota Power must demonstrate that its maintenance practices associated with the forced outages comported with Good Utility Practice, and even if so, that its subsequent recovery of the associated replacement power costs from ratepayers is just and reasonable.¹

The Company fails to meet its heavy burden in this matter. The Company has not demonstrated that its maintenance practices were consistent with good utility practice. As a result, the Company’s replacement power costs were imprudently incurred.

Further, the Company fails to adduce additional evidence to satisfy its burden of proving that any change of rates must be consistent with the “just and reasonable” standard contained within Minn. Stat. § 216B.03.

FINDINGS OF FACT

I. The Applicant and Other Parties

1. Minnesota Power, the Applicant in this proceeding, is a utility based in Duluth, Minn., and is owned by Allete, Inc., a provider of energy services in the upper Midwest.

2. The Department of Commerce, Division of Energy Resources is a government agency that provides analysis and technical assistance to the Commission.

¹ See LPI Initial Br. at 6 (June 28, 2021) (eDocket No. 20216-175502-02) (“LPI Initial Br.”).

3. The Large Power Intervenor consists of Blandin Paper Company; Boise Paper, a Packaging Corporation of America company, formerly known as Boise, Inc.; Cleveland-Cliffs Minorca Mine Inc.; Enbridge Energy Limited Partnership; Gerdau Ameristeel US Inc.; Hibbing Taconite Company; Northern Foundry, LLC; Sappi Cloquet, LLC; USG Interiors, Inc; United States Steel Corporation (Keetac and Minntac Mines); and United Taconite, LLC.

II. The Annual Automatic Adjustment Report and Related Procedural Background

4. Pursuant to Minn. Stat. § 216B.16, subd. 7, utilities may automatically adjust charges related to the cost of fuel and other energy-related items.²

5. Under the process that existed during 2018-2019, utilities used a monthly fuel clause adjustment (“FCA”), followed by Annual Automatic Adjustment (“AAA”) reports.

6. The Commission previously recognized that this process creates a perverse incentive for utilities, because they are permitted to pass along energy-related charges through a rider while simultaneously reducing costs on budget items and still receiving the fully budgeted amount as approved in a previous ratemaking proceeding.³

7. Therefore, the Commission ultimately reformed the FCA process.⁴

8. The AAA reports filed in this proceeding represent the final reports considered under the previous AAA process.

9. In March 2020, Minnesota Power submitted its AAA report covering adjustments from July 1, 2018 to December 31, 2019 (the “Reporting Period”).⁵

10. In its review of Minnesota Power’s report, the Department found that Minnesota Power’s “significant underspending of generation maintenance expense in 2019 of \$12.4 million ... put ratepayers at risk of paying higher costs due to forced outages and in fact caused a significant increase in forced outage costs.”⁶

11. The Department concluded that Minnesota Power failed to show that it was reasonable for it to keep the excess maintenance funds allocated to it (and in turn provide

² *In the Matter of an Investigation into the Appropriateness of Continuing to Permit Electric Energy Cost Adjustments*, PUC Docket No. E-999/CI-03-802, Order Approving Additional Details of New Fuel Clause Adjustment Process at 1 (June 12, 2019) (“2019 FCA Order”).

³ Ex. 12 at 5:5-6:17 (Campbell Direct) (citing *In re 2006 Annual Automatic Adjustment of Charges for all Electric and Gas Utilities*, PUC Docket No. E,G-999/AA-06-1208, Order Acting on Electric Utilities’ Annual Reports at 5 (Feb. 6, 2008)).

⁴ *See In the Matter of an Investigation into the Appropriateness of Continuing to Permit Electric Energy Cost Adjustments*, PUC Docket No. E-999/CI-03-802.

⁵ Minnesota Power’s Annual Report 2018-2019 AAA Charges (Mar. 2, 2020) (eDocket No. 20203-160872-01) (“Initial Filing”).

⁶ Comment by the Department at 12-13 (May 29, 2020) (eDocket No. 20205-163578-01) (“Department May 2020 Comment”). A forced outage is a situation where a generating unit is removed from service (not operational) due to an emergency or component failure, requiring maintenance in excess of a utility’s planned maintenance or outages for that period. Additionally, a forced outage expense is the cost incurred by a utility when its own generation resources are not in service, including replacement power costs. *See* Ex. 12 at 6:19-7:8 (Campbell Direct).

shareholders a windfall of \$12.4 million) while passing along an additional \$7.4 million to ratepayers in the form of forced outage costs.⁷

12. The Department initially recommended that the Commission deny recovery of 50% of Minnesota Power's forced outage costs.⁸

13. Both Minnesota Power and the Department submitted additional comments on this issue.⁹

14. Comments identified three significant forced outages that remain the focus of this proceeding: (1) the Boswell Unit 4 hot reheat ("HRH") steam line outage caused by an HRH steam line longitudinal seam weld failure (the "Boswell 4 Forced Outage"); (2) the Boswell Unit 3 outage due to a hydrogen leak; and (3) the Boswell Unit 3 forced outage caused by a phase bushings failure (the "Boswell 3 Forced Outage" and collectively, the "Forced Outages").¹⁰

15. The Commission initially heard this matter on August 20, 2020.¹¹

16. The Commission determined there was "a genuine issue of material fact in dispute about whether [MP]'s forced outage costs ... were reasonable and prudent—and, if not, the amount of overcharges (plus interest) that should be returned to ratepayers through the FCA."¹²

17. The Commission's order was issued on September 16, 2020.

18. The matter was referred to the Minnesota Office of Administrative Hearings before an Administrative Law Judge ("ALJ").

19. On October 22, 2020, the ALJ issued the First Prehearing Order, recognizing Minnesota Power and the Department as named parties, granting LPI's petition to intervene, and granting Jessica L. Bayles' request to appear pro hac vice on behalf of LPI.¹³

20. On October 22, 2020, the ALJ issued a Protective Order to govern the proceedings.¹⁴

21. After a request by the Department,¹⁵ the ALJ issued the Second Prehearing Order, modifying the procedural schedule of the administrative proceedings.¹⁶

⁷ Department May 2020 Comment at 13.

⁸ *Id.*

⁹ See, e.g., Additional Comment by Minnesota Power (July 1, 2020) (eDocket No. 20207-164474-01); Additional Response Comment by the Department (July 24, 2020) (eDocket No. 20207-165268-01) ("Department Additional Response").

¹⁰ Department Additional Response at 6-7.

¹¹ Notice of Commission Meeting (Aug. 7, 2020) (eDocket No. 20208-165658-03).

¹² Order Accepting 2018-2019 Electric AAA Reports; Notice of and Order for Hearing at 4-5 (Sept. 16, 2020) (eDocket No. 20209-166630-01) (the "Referral Order") (emphasis added).

¹³ First Prehearing Order at 3 (Oct. 22, 2020) (eDocket No. 202010-167586-02).

¹⁴ Protective Order (Oct. 22, 2020) (eDocket No. 202010-167586-01).

¹⁵ Extension Variance Request by the Department (Dec. 7, 2020) (eDocket No. 202012-168840-01).

¹⁶ Second Prehearing Order (Dec. 17, 2020) (eDocket No. 202012-169108-01).

22. On January 26, 2021, Minnesota Power filed the Direct Testimony of Leann Oehlerking-Boes, William Poulter, Joshua G. Rostollan, Todd Z. Simmons, and Paul J. Undeland.

23. On April 19, 2021, the Department filed the Direct Testimony of Nancy A. Campbell and Richard A. Polich.

24. On May 12, 2021, the Department filed an Errata to the Direct Testimony of Richard A. Polich.

25. On May 24, 2021, Minnesota Power filed Rebuttal Testimony of Leann Oehlerking-Boes, Joshua G. Rostollan, and Paul J. Undeland.

26. On May 27, 2021, Minnesota Power filed an Errata to the Direct Testimony of Joshua G. Rostollan.

27. On May 28, 2021, the ALJ conducted a prehearing status conference via Microsoft Teams.

28. A remote evidentiary hearing was held before Administrative Law Judge Barbara J. Case on June 3, 2021, at 9:30 a.m. via Microsoft Teams.

29. On June 28, 2021, the Department filed its initial brief.

30. On June 28, 2021, Minnesota Power filed its initial brief.

31. On June 28, 2021, LPI filed its initial brief.

32. On July 12, 2021, reply briefs and proposed findings of fact were filed by the parties.

III. Issues

33. In its Referral Order, the Commission stated that there is a “genuine issue of material fact in dispute about whether Minnesota Power’s forced outage costs for the period were reasonable and prudent—and, if not, the amount of overcharges (plus interest) that should be returned to ratepayers through the FCA.”¹⁷

34. The Commission specified that at issue was whether “any or all of [Minnesota Power’s] forced outage costs were reasonably and prudently incurred, applying good utility practices.”¹⁸

¹⁷ Referral Order at 4.

¹⁸ *Id.*

IV. Burden of Proof

35. As noted by the Referral Order, “Minnesota Power...bears[s] the burden of proving that any or all of its forced outage costs were reasonably and prudently incurred, applying good utility practices.”¹⁹

36. The parties agree that Minnesota Power bears the burden of demonstrating good utility practices.²⁰

37. “Good Utility Practice” is defined as “the practices, methods, and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods, and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety, and expedition.”²¹

38. Minnesota Power must also satisfy the standard for utility recovery in the context of a change in rates proceeding.²²

39. Pursuant to Minn. Stat. § 216B.03, Minnesota Power must show that its proposed rate is just and reasonable, with any doubt being resolved in favor of ratepayers.²³

40. The Commission has explained that “[u]tilities seeking rate changes must...prove not only that the facts they present are accurate, but that the costs they seek to recover are rate-recoverable, that the rate recovery mechanisms they propose are permissible, and that the rate design they advocate is equitable, under the ‘just and reasonable’ standard.”²⁴

41. Minnesota Power must prove its case by a preponderance of the evidence.²⁵

42. A showing by a preponderance of the evidence in a ratemaking proceeding is different than in a civil case. The Minnesota Supreme Court has explained: “the ‘weighing’ by court in a civil case applying the ‘fair preponderance’ standard involves a determination by the court whether the proponent of the conclusion has produced sufficient credible evidence to sustain that conclusion. *In contrast*, the task of the MPUC is not so much concerned with the sufficiency and credibility of the evidence, as it is concerned with whether the evidence submitted, even if true, justifies the conclusion sought by the petitioning utility when considered together with the

¹⁹ *Id.*

²⁰ Evidentiary Hearing Transcript Volume 1 at 16:1-7 (Rostollan) (“Hearing Tr.”).

²¹ Ex. 10 at 6:19-7:2 (Polich Direct); *see* Ex. 14 at 8:10-13 (Undeland Rebuttal) (generally agreeing with the definition of the Good Utility Practice standard articulated by Mr. Polich).

²² Ex. 12 at 4:13-18 (Campbell Direct).

²³ Minn. Stat. § 216B.03.

²⁴ *In the Matter of the Application of CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Minnesota Gas for Authority to Increase Natural Gas Rates in Minnesota*, PUC Docket No. G-008/GR-15-424, Findings of Fact, Conclusions, and Order at 4-5 (June 3, 2016) (emphasis added).

²⁵ *Id.* (citing *In re Minn. Power & Light Co.*, 435 N.W.2d 550, 554 (Minn. App. 1989)).

Commission's statutory responsibility to enforce the state's public policy that retail consumers of utility services shall be furnished such services at reasonable rates."²⁶

43. At no point does the burden shift from Minnesota Power to other parties.²⁷

V. Boswell 3 Forced Outage

44. Boswell Unit 3 is a coal-fired generating unit that was commissioned in 1973. The generating capacity of Boswell 3 is 355 MW.²⁸

45. During the winter of 2018-2019, Boswell 3 experienced a leak in its hydrogen cooling system.²⁹ The hydrogen seal oil system is responsible for preventing leaks of this kind.³⁰

46. In an effort to resolve the hydrogen leak at Boswell Unit 3, Minnesota Power poured "several barrels" of oil into the seal oil system, which led to the discovery that the float trap valve in the seal oil system was leaking.³¹

47. Minnesota Power failed to record the amount of seal oil that had been used during the testing process, and the Company did not recover the oil or determine where it had flowed in the generator.³²

48. Minnesota Power should have removed the float valve to test it instead of overfilling the seal oil system, and it should have kept track of the amount of seal oil used in its testing process, tracked any leakage, and cleaned up any seal oil to protect against damage to other components of the generator.³³ Minnesota Power's failure to follow this basic good hygiene in its efforts to discover the cause of the hydrogen leak was unreasonable.

49. Minnesota Power failed to exercise Good Utility Practice in handling the seal oil.

50. In addition to failing to exercise Good Utility Practice with respect to the hydrogen leak at Boswell Unit 3, Minnesota Power's claim that its engineered solution mitigated the outage is not supported by credible evidence.

51. On July 8, 2019, approximately 18 days after the seal oil was dumped into the system to resolve the hydrogen leak, Minnesota Power discovered a phase bushing outage when a relay generator detected a ground fault, forcing the plant offline.³⁴

²⁶ *In re Petition of N. States Power Co.*, 416 N.W.2d 719, 722 (Minn. 1987) (emphasis added).

²⁷ *In the Matter of a Commission Investigation into Xcel Energy's Monticello Life Cycle Management/Extended Power Uprate Project and Request for Recovery of Cost Overruns*, PUC Docket No. E-002/CI-13-754, Order Finding Imprudence, Denying Return on Cost Overruns, and Establishing LCM/EPU Allocation for Ratemaking Purposes, at 12-13, & n.20 (May 8, 2015) (citing Minn. Stat. § 216B.16, subd. 6).

²⁸ Ex. 6 at 3:1-6 (Poulter Direct).

²⁹ Ex. 10 at 42:7-8 (Polich Direct).

³⁰ *Id.* at 41:13-42:5.

³¹ *Id.* at 43:4-16.

³² *Id.* at 43:13-16.

³³ *Id.* at 44:13-20.

³⁴ *Id.* at 43:20-21, 46:7-11.

52. The phase bushings were inspected during the spring of 2019 and passed all applicable tests.³⁵

53. Minnesota Power consulted with General Electric (“GE”) to further investigate the failure.³⁶

54. GE found that the insulation surrounding the phase bushings was soaked with oil and the bushings themselves were full of seal oil. GE pumped approximately five gallons out of each of the bushings, almost half a drum in total.³⁷

55. Under normal circumstances there is no seal oil in the bushings.³⁸

56. Minnesota Power admitted the oil in the bushings was the oil it had poured into the system during testing of the hydrogen cooling system.³⁹

57. Oil can block proper cooling of the bushings causing a failure.⁴⁰

58. Neither Minnesota Power nor GE was able to definitively determine the root cause of the phase bushing failure, but GE advised Minnesota Power that the seal oil could have caused the bushings to overheat and fail.⁴¹

59. The Department’s expert concluded that the oil in the bushings caused the bushings to overheat and fail, which I find credible.⁴²

60. The Department offered substantial evidence that the bushings failure was due to Minnesota Power’s failure to exercise Good Utility Practice with respect to the hydrogen leak.

61. Given that the phase bushings were recently inspected and the lack of another definitive cause of the Boswell 3 Forced Outage, the Company failed to affirmatively demonstrate that the replacement power costs associated with the Boswell 3 Forced Outage were reasonably and prudently incurred.

62. As a result of Minnesota Power’s failure to exercise Good Utility Practice, Boswell 3 was out of service for approximately two weeks⁴³ and MP incurred \$1,764,695 in replacement power costs.⁴⁴

³⁵ Hearing Tr. at 54:23-55:2 (Polich); Ex. 10 at 46:16 (Polich Direct).

³⁶ Ex. 10 at 46:7-11 (Polich Direct).

³⁷ *Id.* at 47:4-8; Hearing Tr. at 54:18-22.

³⁸ Hearing Tr. at 54:21-22.

³⁹ Ex. 10 at 46:16-21, 47:10-18.

⁴⁰ *Id.* at 46:23-24, 47:4-8; Hearing Tr. at 54:18-23 (Polich).

⁴¹ Minnesota Power Initial Br. at 52 (June 28, 2021) (eDocket No. 20216-175506-02); Ex. 10 RAP-16 at 3, 5 (Polich Direct).

⁴² *Id.* at 48:7-12.

⁴³ *Id.* at 48:4.

⁴⁴ Ex. 12 at 16, T2 (Campbell Direct).

63. The \$1,764,695 in replacement power costs for the Boswell 3 Forced Outage were not reasonably and prudently incurred and should be refunded to ratepayers.

VI. Boswell 4 Forced Outage

64. Boswell Unit 4 was constructed in 1980, and is Minnesota Power's largest baseload generator with a net generating capability of 585 MW.⁴⁵

65. The HRH steam line at Boswell 4 was built in 1980.⁴⁶

66. On February 6, 2019, a section of the HRH steam line at Boswell 4 experienced a longitudinal weld failure, causing steam to release.⁴⁷ Minnesota Power determined that the failure was due to creep.⁴⁸ Minnesota Power was forced to immediately take Boswell Unit 4 offline, due to the dangerous conditions created by the failure.⁴⁹ Boswell 4 was forced out of service for seven weeks while the weld failures were remedied.⁵⁰

67. Minnesota Power had not inspected the portion of the HRH steam line that failed since 2010.⁵¹

68. The cracks in the HRH line likely formed approximately 60,000 to 70,000 operating hours prior to the February 2019 failure, around 2011-2012.⁵²

69. Both the applicable Electric Power Research Institute ("EPRI") and the American Society of Mechanical Engineers ("ASME") guidelines dictate a five-year inspection schedule for HRH line piping.⁵³ EPRI also recommends the use of phased-array ultrasonic testing.⁵⁴

70. The Department introduced evidence that Good Utility Practice was 100% phased ultrasonic testing every five years. According to an EPRI survey, 50% of respondents used 100% phased ultrasonic testing every five years.⁵⁵

71. Minnesota Power's practice was to use non-ultrasonic testing on a ten-year basis.⁵⁶

72. Minnesota Power did not introduce evidence that its inspection procedure is followed by a large portion of the relevant industry or consistent with Good Utility Practice.

⁴⁵ Ex. 6 at 3:1-6 (Poulter Direct).

⁴⁶ Ex. 7 at 14:5-7 (Undeland Direct).

⁴⁷ *Id.* at 15:21-16:11. The HRH line is an insulated, 640-foot line, spanning 20 floors. Minnesota Power previously deemed the area of the failure to be "low stress" and characterized it as due for inspection every five to 10 years. *Id.* at 16:4-8.

⁴⁸ Ex. 10 at 31:2-13 (Polich Direct).

⁴⁹ Ex. 7 at 15:21-30 (Undeland Direct).

⁵⁰ *Id.* at 15:30-16:1.

⁵¹ *Id.* at 16:9-10.

⁵² Ex. 10 at 32, RAP-6 at 7 (Polich Direct) (Feb. 20, 2019 Thielsch Report).

⁵³ *Id.* at 22:9-11.

⁵⁴ Department Initial Br. at 13, *citing* Ex. 14 at 20 (Undeland Rebuttal).

⁵⁵ Ex. 14, PJU-1 at 33 (Undeland Rebuttal) (EPRI Guidelines).

⁵⁶ Ex. 10 at 25:22, 26:1-11 (Polich Direct).

73. In its testimony, Minnesota Power referenced an undocumented oral statement made by Thielsch Engineering, Inc (“Thielsch”), the engineering firm retained by the Company on issues such as the HRH line failure, that none of its 50 utility customers performed ultrasonic testing on 100% of their HEP system every five years.⁵⁷

74. Thielsch’s oral statement to Minnesota Power is insufficient to establish Good Utility Practice.

75. Furthermore, Thielsch’s purported statements represent hearsay, which the ALJ discounts based on its probative value compared to evidence submitted by the Department.⁵⁸

76. The Department’s reliance on ASME and EPRI is persuasive and establishes a baseline standard from which to benchmark.

77. Based on the guidelines articulated by both EPRI and ASME, Minnesota Power failed to employ Good Utility Practice by failing to implement a five-year testing schedule and by not using ultrasonic testing.

78. Had Minnesota Power followed EPRI guidelines and inspected the seam weld on a five-year basis, it would have discovered the creep in the HRH line and could have prevented the failure and outage.

79. Indeed, Structural Integrity Associates, Inc. (“SI”), which was also contracted by the Company to inspect piping at Boswell Unit 4 during the Boswell 4 Forced outage, explained that “it is difficult to understand how [the cracks] would not have been identified and reported previously.”⁵⁹

80. The Company also fails to satisfy the Good Utility Practice standard through a demonstration that its practices were reasonable in light of the facts known, considering safety, reliability, and cost.

81. The Company attempts to justify its HRH line inspection practices by claiming that EPRI’s guidelines would be cost-prohibitive.⁶⁰

82. Minnesota Power’s focus on the cost of more frequent and thorough testing ignores evidence of fundamental safety and reliability concerns in the record.

83. By 2017, EPRI had more than 42 studies on similar pipe failures.⁶¹

⁵⁷ Ex. 7 at 18-19 (Undeland Direct); Minnesota Power Initial Br. at 69.

⁵⁸ See Minn. R. 1400.7300, subp. 1; *see also* Department Initial Br. at 15.

⁵⁹ Ex. 10 at 34:5-6 (Polich Direct).

⁶⁰ Minnesota Power Initial Br. at 72.

⁶¹ Ex. 10 at 22:1-11 (Polich Direct).

84. The Department's expert testified that "this type of high-energy piping failure is extremely well-known in our industry, it's well documented, it's well understood, and it is preventable."⁶²

85. Such failures have resulted in catastrophic damage and death. For example, the Mohave Generation Station HRH pipe failure in 1985 caused six deaths and approximately \$155 million in damage.⁶³

86. Minnesota Power's 10-year inspection schedule was further unreasonable in light of the age of the HRH line. Thielsch found that the stress rupture life of the HRH piping was "basically exhausted."⁶⁴ SI found that nearly all welds exceeded their life fraction consumed values (meaning they had exceeded their usable life).⁶⁵

87. Minnesota Power's failure to consider the advanced age of the pipe and potential consequences of a piping failure and focus solely on the cost of implementing more rigorous testing was unreasonable.

88. Based on the Company's knowledge of HRH failures and the potential for catastrophic results, Minnesota Power failed to affirmatively show its 10-year inspection schedule was reasonable.

89. In sum, Minnesota Power fails to meet its heavy burden to demonstrate Good Utility Practice with respect to the Boswell 4 Forced Outage.

90. As a result of Minnesota Power's failure to exercise Good Utility Practice, Boswell 4 was out of service for approximately seven weeks⁶⁶ and MP incurred \$4,482,456 in replacement power costs.⁶⁷

91. The \$4,482,456 in replacement power costs for the Boswell 4 Forced Outage was not reasonably and prudently incurred and should be refunded to ratepayers.

RECOMMENDATIONS

Because the Company failed to meet its burden to show that its replacement power costs associated with the Forced Outages were reasonably and prudently incurred, Minnesota Power should refund ratepayers \$6,247,151 plus interest reflecting the revenue that was provisionally collected from ratepayers.

It would not be just and reasonable for ratepayers to shoulder the replacement power costs on top of the maintenance allowance already included in Minnesota Power's base rates.

⁶² *Id.*; Hearing Tr. at 53:22-25 (Polich).

⁶³ Ex. 10 at 22:7-9 (Polich Direct).

⁶⁴ *Id.* at 33:13-15.

⁶⁵ *Id.* at 33:25-34:12.

⁶⁶ *Id.* at 22:13-23:7; Ex. 7 at 15:28-16:1 (Undeland Direct).

⁶⁷ Ex. 12 at 16, T2 (Campbell Direct).

Dated: August 11, 2021

BARBARA J. CASE
Administrative Law Judge

111555206.3 0064591-00023