

Identification of sources selected to complete a four-factor analysis

In the first planning period (Round 1), the focus of the Regional Haze Rule was on establishing Best Available Retrofit Technology (BART) for certain older sources and reasonable progress towards national visibility goals. In second planning period (Round 2), there are no BART requirements; therefore, the focus is on making reasonable progress. The U.S. Environmental Protection agency has defined the methodology that states must use to determine what measures are necessary to make reasonable progress in 40 CFR § 51.308(f)(2). At minimum, the reasonable progress analysis must use the four factors identified in 40 CFR § 51.308(f)(2)(i) to evaluate and determine the emission reduction measures necessary to make reasonable progress. The four factors are:

1. The costs of compliance.
2. The time necessary for compliance.
3. The energy and non-air quality environmental impacts of compliance.
4. The remaining useful life of the source.

The regional haze rules also require that states identify the criteria used to determine which sources or groups of sources were evaluated. Specifically, 40 CFR § 51.308(f)(2)(i) states, "... The State must include in its implementation plan a description of the criteria it used to determine which sources or groups of sources it evaluated..."

To identify the sources selected for analysis, the Minnesota Pollution Control Agency (MPCA) evaluated the emission totals from facilities to determine which sources would be requested to conduct a four-factor analysis. In lieu of conducting an air quality modeling analysis, the MPCA used a surrogate analysis of emissions divided by distance (Q/d Analysis) to screen emission source impacts at Class I areas. The Q/d Analysis uses a facility's emissions (Q) in tons per year divided by the distance in kilometers (d) from the Class I areas.

MPCA relied on the Q/d results created by the Lake Michigan Air Directors Consortium (LADCO) for industrial point sources using 2016 emissions inventory data with revisions made to account for certain facilities that were idled or operating at reduced capacity in 2016. The emissions inventory data identified emissions of nitrogen oxides (NO_x), sulfur dioxide (SO₂), particulate matter (PM), ammonia (NH₃), and volatile organic compounds (VOCs). LADCO completed the Q/d calculations in March 2018 using the best available inventories at that time.

Ultimately, the MPCA selected sources with emission units that represent roughly the top 80% of sources that may impact visibility based on the Q/d Analysis. The MPCA chose to use 80% as the cutoff based on it being the recommended threshold in EPA's draft guidance for regional haze implementation plans for the second implementation period. For Minnesota sources, this initial screening represents emission units at taconite processing facilities, pulp/paper mills, sugar manufacturing facilities, and electric power generation facilities.

To identify which emission units were requested to conduct a four-factor analysis, the MPCA relied on the annual emissions data broken up into the process level emissions for each facility. Generally, sources were categorized as high, medium, or low priority based on their process specific Q/d values, where high priority is Q/d greater than four, medium priority is Q/d between four and one, and low priority is Q/d less than one. As a region, the LADCO states decided to focus on sources within the high and medium priority categories for gathering control information and possibly requesting a four-factor analysis. The sources selected for Minnesota include Q/d values as low as 1.3 to account for emission units that have emissions broken up into multiple process IDs (e.g., one facility might have eight process IDs for their emission unit).

On January 29, 2020, the MPCA sent a Request for Information (RFI) letter to 13 facilities requesting that they conduct a four-factor analysis. After further consultation with the federal land managers (FLMs), the MPCA sent a revised RFI letter to one of the original 13 facilities and RFI letters to four additional facilities that were identified as facilities of interest for the FLMs on February 14, 2020. The table below summarizes which facilities and emission units that the MPCA requested to conduct a four-factor analysis.

Table 1. MPCA four-factor analyses requested

Facility Name	Emission Unit	Emission Unit ID		Pollutants
		(Tempo)	(Delta)	
American Crystal Sugar - Crookston	Boiler #1	EQUI 14	EU 001	NO _x , SO ₂
	Boiler #2	EQUI 15	EU 002	NO _x , SO ₂
	Boiler #3	EQUI 16	EU 003	NO _x , SO ₂
American Crystal Sugar - East Grand Forks	Boiler #1	EQUI 18	EU 001	NO _x , SO ₂
	Boiler #2	EQUI 19	EU 002	NO _x , SO ₂
ArcelorMittal Minnoria Mine Inc.	Indurating Machine	EQUI 38	EU 026	NO _x , SO ₂
Boise White Paper	Recovery Furnace	EQUI 9	EU 320	NO _x , SO ₂
	Boiler #1	EQUI 15	EU 420	NO _x
	Boiler #2	EQUI 16	EU 430	NO _x , SO ₂
	Boiler No. 1A	EQUI 1	EU 001	NO _x , SO ₂
Hibbing Public Utilities Commission	Boiler No. 3A	EQUI 3	EU 003	NO _x , SO ₂
	Wood Fired Boiler	EQUI 7	EU 007	NO _x
Hibbing Taconite Company	Indurating Furnace Line 1	EQUI 95	EU 020	NO _x , SO ₂
	Indurating Furnace Line 2	EQUI 96	EU 021	NO _x , SO ₂
	Indurating Furnace Line 3	EQUI 97	EU 022	NO _x , SO ₂
	Unit 1 - Wall fired dry bottom	EQUI 82	EU 001	NO _x , SO ₂
	Unit 2 - Wall fired dry bottom	EQUI 83	EU 002	NO _x , SO ₂
	Unit 3 - Tangential fired	EQUI 100	EU 003	NO _x , SO ₂
Minnesota Power - Boswell Energy Center	Unit 4 - Tangential fired	EQUI 85	EU 004	NO _x , SO ₂
Minnesota Power - Taconite Harbor Energy	Boiler No. 1	EQUI 64	EU 001	NO _x , SO ₂
	Boiler No. 2	EQUI 5	EU 002	NO _x , SO ₂
	Power Boiler 1	EQUI 14	EU 001	NO _x , SO ₂
	Power Boiler 2	EQUI 15	EU 002	NO _x , SO ₂
Northshore Mining - Silver Bay	Furnace 11	EQUI 126 & 127	EU 100 & 104	NO _x , SO ₂
	Furnace 12	EQUI 128 & 129	EU 110 & 114	NO _x , SO ₂
Sappi Cloquet LLC	Power Boiler #9	EQUI 4	EU 004	NO _x , SO ₂
	Recovery Boiler #10	EQUI 53	EU 005	NO _x
Southern Minnesota Beet Sugar Coop	Boiler No. 1	EQUI 17	EU 001	NO _x , SO ₂
United Taconite LLC - Fairlane Plant	Line 1 Pellet Induration	EQUI 45	EU 040	NO _x , SO ₂
	Line 2 Pellet Induration	EQUI 47	EU 042	NO _x , SO ₂

Facility Name	Emission Unit	Emission Unit ID		Pollutants
		(Tempo)	(Delta)	
US Steel Corporation - Keetac	Grate Kiln	EQUI 97	EU 030	NO _x , SO ₂
	Line 3 Rotary Kiln	EQUI 146	EU 225	NO _x , SO ₂
	Line 4 Rotary Kiln	EQUI 279	EU 261	NO _x , SO ₂
	Line 5 Rotary Kiln	EQUI 280	EU 282	NO _x , SO ₂
US Steel Corporation - Minntac	Line 6 Rotary Kiln	EQUI 3	EU 315	NO _x , SO ₂
	Line 7 Rotary Kiln	EQUI 179	EU 334	NO _x , SO ₂
Virginia Department of Public Utilities	Boiler #9	EQUI 3	EU 003	NO _x , SO ₂
	Boiler #11	EQUI 16	EU 006	NO _x
Xcel Energy - Allen S. King	Boiler 1	EQUI 68	EU 001	NO _x , SO ₂
	Tangential - Fired Coal Burner 1	EQUI 72	EU 001	NO _x , SO ₂
	Tangential - Fired Coal Burner 2	EQUI 74	EU 002	NO _x , SO ₂
Xcel Energy - Sherburne	Opposed - Fired Coal Burner 3	EQUI 73	EU 003	NO _x , SO ₂

February 14, 2020

Douglas Emerson, Environmental Affairs Manager
American Crystal Sugar - Crookston
1201 Highway 75 South
Crookston, MN 56716

RE: Request for Information - Regional Haze Rule, Reasonable Progress, Four Factor Analysis

Dear Mr. Emerson:

The Minnesota Pollution Control Agency (MPCA) is currently preparing information for the second planning period (Round 2) comprehensive update to Minnesota's Regional Haze State Implementation Plan (SIP) as required by the Regional Haze Rule (40 CFR § 51.308). States are responsible for developing a Regional Haze SIP that addresses regional haze in each Class I area located within the state and in each Class I area located outside the state which may be affected by emissions from sources within the state. The Regional Haze SIP is required to identify existing facilities that cause or contribute to visibility impairment; analyze, identify, and apply federally-enforceable control strategies for those sources; and periodically demonstrate reasonable progress toward reaching visibility goals. States are also responsible for periodic comprehensive updates to their Regional Haze SIP that address these same topics. Minnesota's Round 2 Regional Haze SIP must be submitted to the U.S. Environmental Protection Agency (U.S. EPA) by July 31, 2021.

Minnesota has two Class I areas within its borders, the Boundary Waters Canoe Area Wilderness (BWCA) and Voyageurs National Park (Voyageurs). Other nearby Class I areas include Isle Royale National Park in Michigan. Therefore, Minnesota must prepare a Regional Haze SIP that identifies sources that cause or contribute to visibility impairment in these areas. To meet the core requirements for regional haze for these areas, Minnesota must submit a SIP that contains the plan elements and supporting documentation for all required analyses identified in 40 CFR § 51.308(f).

In the first planning period (Round 1), the focus of the Regional Haze Rule was on establishing Best Available Retrofit Technology (BART) for certain older sources and reasonable progress towards national visibility goals. In Round 2, there are no BART requirements; therefore, the focus is on making reasonable progress. The U.S. Environmental Protection agency has defined the methodology that states must use to determine what measures are necessary to make reasonable progress in 40 CFR § 51.308(f)(2). At minimum, the reasonable progress analysis must use the four factors identified in 40 CFR § 51.308(f)(2)(i) to evaluate and determine the emission reduction measures necessary to make reasonable progress. The four factors are:

1. The costs of compliance.
2. The time necessary for compliance.
3. The energy and non-air quality environmental impacts of compliance.
4. The remaining useful life of the source.

Data from the IMPROVE monitoring sites at BWCA and Voyageurs indicate that sulfates and nitrates continue to be the largest contributors to visibility impairment in these areas. The primary precursors of sulfates and nitrates are emissions of sulfur dioxide (SO₂) and nitrogen oxides (NO_x).

Mr. Douglas Emerson

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February 14, 2020

You are receiving this letter because your facility was identified as a significant source of NO_x and SO₂ and is located close enough to the BWCA or Voyageurs to potentially cause or contribute to visibility impairment in these Class I areas. Therefore, the MPCA requests that you prepare a "Four Factor Analysis" for the following emission units:

1. Boiler #1 (EQUI 14 / EU 001) that addresses emissions of NO_x and SO₂
2. Boiler #2 (EQUI 15 / EU 002) that addresses emissions of NO_x and SO₂
3. Boiler #3 (EQUI 16 / EU 003) that addresses emissions of NO_x and SO₂

The analysis should be prepared using the U.S. Environmental Protection Agency guidance¹ that provides recommendations for how each of the factors should be determined.

Preparation of the comprehensive update to Minnesota's Regional Haze SIP will require extensive planning and review of sources in Minnesota. The MPCA is working with the Lake Michigan Air Directors Consortium (LADCO) to prepare the Regional Haze SIP. The MPCA expects air quality modeling of potential regional emissions reductions will be conducted beginning in spring 2020. I appreciate your attention to this matter and request that you **submit the Four Factor Analysis by July 31, 2020.**

If you have any questions regarding this matter, or would like to request a meeting to further discuss the contents of this letter, please contact me by phone at 651-757-2653 or by email at Hassan.Bouchareb@state.mn.us.

Sincerely,

Hassan Bouchareb

This document has been electronically signed.

Hassan M. Bouchareb

Engineer

Environmental Analysis and Outcomes Division

Cc: Deepa de Alwis, MPCA
Cory Boeck, MPCA
Frank Kohlasch, MPCA
Agency Interest ID 2381

Address questions and submittals requested above to:

Hassan M. Bouchareb
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194
(651) 757-2653
Hassan.Bouchareb@state.mn.us

¹ **U.S. Environmental Protection Agency.** *Guidance on Regional Haze State Implementation Plans for the Second Implementation Period*, August 20, 2019, https://www.epa.gov/sites/production/files/2019-08/documents/8-20-2019_-_regional_haze_guidance_final_guidance.pdf.

February 14, 2020

Douglas Emerson, Environmental Affairs Manager
American Crystal Sugar - East Grand Forks
1020 Business Highway 2
East Grand Forks, MN 56721

RE: Request for Information - Regional Haze Rule, Reasonable Progress, Four Factor Analysis

Dear Mr. Emerson:

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Mr. Douglas Emerson

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February 14, 2020

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1. Boiler #1 (EQUI 18 / EU 001) that addresses emissions of NO_x and SO₂
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Engineer
Environmental Analysis and Outcomes Division

Cc: Deepa de Alwis, MPCA
Cory Boeck, MPCA
Frank Kohlasch, MPCA
Agency Interest ID 2382

Address questions and submittals requested above to:

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January 29, 2020

Jaime L. Johnson, Manager - Environmental
ArcelorMittal Minorca Mine Inc.
5950 Old Highway 53 N
Virginia, MN 55792

RE: Request for Information - Regional Haze Rule, Reasonable Progress, Four Factor Analysis

Dear Ms. Johnson:

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Ms. Jaime Johnson

Page 2

January 29, 2020

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1. Indurating Machine (EQUI 38 / EU 026) that addresses emissions of NO_x and SO₂

The analysis should be prepared using the U.S. Environmental Protection Agency guidance¹ that provides recommendations for how each of the factors should be determined.

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Hassan M. Bouchareb

Engineer

Environmental Analysis and Outcomes Division

Cc: Deepa de Alwis, MPCA
Cory Boeck, MPCA
Frank Kohlasch, MPCA
Agency Interest ID 699

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January 29, 2020

Mike Wagner, Owner
Boise White Paper LLC
400 2nd Street
International Falls, MN 56649

RE: Request for Information - Regional Haze Rule, Reasonable Progress, Four Factor Analysis

Dear Mr. Wagner:

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Mr. Mike Wagner

Page 2

January 29, 2020

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1. Recovery Furnace (EQUI 9 / EU 320) that addresses emissions of NO_x
2. Boiler #1 (EQUI 15 / EU 420) that addresses emissions of NO_x
3. Boiler #2 (EQUI 16 / EU 430) that addresses emissions of NO_x and SO₂

The analysis should be prepared using the U.S. Environmental Protection Agency guidance¹ that provides recommendations for how each of the factors should be determined.

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Hassan M. Bouchareb

Engineer

Environmental Analysis and Outcomes Division

Cc: Kara Huziak, Boise White Paper LLC
Deepa de Alwis, MPCA
Cory Boeck, MPCA
Frank Kohlasch, MPCA
Agency Interest ID 443

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February 14, 2020

Peter Karakash, Environmental Health and Safety Administrator
Hibbing Public Utilities Commission
1902 6th Avenue East
Hibbing, MN 55746

RE: Request for Information - Regional Haze Rule, Reasonable Progress, Four Factor Analysis

Dear Mr. Karakash:

The Minnesota Pollution Control Agency (MPCA) is currently preparing information for the second planning period (Round 2) comprehensive update to Minnesota's Regional Haze State Implementation Plan (SIP) as required by the Regional Haze Rule (40 CFR § 51.308). States are responsible for developing a Regional Haze SIP that addresses regional haze in each Class I area located within the state and in each Class I area located outside the state which may be affected by emissions from sources within the state. The Regional Haze SIP is required to identify existing facilities that cause or contribute to visibility impairment; analyze, identify, and apply federally-enforceable control strategies for those sources; and periodically demonstrate reasonable progress toward reaching visibility goals. States are also responsible for periodic comprehensive updates to their Regional Haze SIP that address these same topics. Minnesota's Round 2 Regional Haze SIP must be submitted to the U.S. Environmental Protection Agency (U.S. EPA) by July 31, 2021.

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Mr. Peter Karakash

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February 14, 2020

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1. Boiler No. 1A (EQUI 1 / EU 001) that addresses emissions of NO_x and SO₂
2. Boiler No. 3A (EQUI 3 / EU 003) that addresses emissions of NO_x and SO₂
3. Wood Fired Boiler (EQUI 7 / EU 007) that addresses emissions of NO_x

The analysis should be prepared using the U.S. Environmental Protection Agency guidance¹ that provides recommendations for how each of the factors should be determined.

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Hassan M. Bouchareb

Engineer

Environmental Analysis and Outcomes Division

Cc: Deepa de Alwis, MPCA
Cory Boeck, MPCA
Frank Kohlasch, MPCA
Agency Interest ID 1145

Address questions and submittals requested above to:

Hassan M. Bouchareb
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194
(651) 757-2653
Hassan.Bouchareb@state.mn.us

¹ **U.S. Environmental Protection Agency.** *Guidance on Regional Haze State Implementation Plans for the Second Implementation Period*, August 20, 2019, https://www.epa.gov/sites/production/files/2019-08/documents/8-20-2019_-_regional_haze_guidance_final_guidance.pdf.

January 29, 2020

Julie Lucas, Environmental Manager
Hibbing Taconite Company
4950 County Highway 5 N
Hibbing, MN 55476

RE: Request for Information - Regional Haze Rule, Reasonable Progress, Four Factor Analysis

Dear Ms. Lucas:

The Minnesota Pollution Control Agency (MPCA) is currently preparing information for the second planning period (Round 2) comprehensive update to Minnesota's Regional Haze State Implementation Plan (SIP) as required by the Regional Haze Rule (40 CFR § 51.308). States are responsible for developing a Regional Haze SIP that addresses regional haze in each Class I area located within the state and in each Class I area located outside the state which may be affected by emissions from sources within the state. The Regional Haze SIP is required to identify existing facilities that cause or contribute to visibility impairment; analyze, identify, and apply federally-enforceable control strategies for those sources; and periodically demonstrate reasonable progress toward reaching visibility goals. States are also responsible for periodic comprehensive updates to their Regional Haze SIP that address these same topics. Minnesota's Round 2 Regional Haze SIP must be submitted to the U.S. Environmental Protection Agency (U.S. EPA) by July 31, 2021.

Minnesota has two Class I areas within its borders, the Boundary Waters Canoe Area Wilderness (BWCA) and Voyageurs National Park (Voyageurs). Other nearby Class I areas include Isle Royale National Park in Michigan. Therefore, Minnesota must prepare a Regional Haze SIP that identifies sources that cause or contribute to visibility impairment in these areas. To meet the core requirements for regional haze for these areas, Minnesota must submit a SIP that contains the plan elements and supporting documentation for all required analyses identified in 40 CFR § 51.308(f).

In the first planning period (Round 1), the focus of the Regional Haze Rule was on establishing Best Available Retrofit Technology (BART) for certain older sources and reasonable progress towards national visibility goals. In Round 2, there are no BART requirements; therefore, the focus is on making reasonable progress. The U.S. Environmental Protection agency has defined the methodology that states must use to determine what measures are necessary to make reasonable progress in 40 CFR § 51.308(f)(2). At minimum, the reasonable progress analysis must use the four factors identified in 40 CFR § 51.308(f)(2)(i) to evaluate and determine the emission reduction measures necessary to make reasonable progress. The four factors are:

1. The costs of compliance.
2. The time necessary for compliance.
3. The energy and non-air quality environmental impacts of compliance.
4. The remaining useful life of the source.

Data from the IMPROVE monitoring sites at BWCA and Voyageurs indicate that sulfates and nitrates continue to be the largest contributors to visibility impairment in these areas. The primary precursors of sulfates and nitrates are emissions of sulfur dioxide (SO₂) and nitrogen oxides (NO_x).

You are receiving this letter because your facility was identified as a significant source of NO_x and SO₂ and is located close enough to the BWCA or Voyageurs to potentially cause or contribute to visibility impairment in these Class I areas. Therefore, the MPCA requests that you prepare a "Four Factor Analysis" for the following emission units:

1. Pellet Indurating Furnace Line No 1 (EQUI 95 / EU 020) that addresses emissions of NO_x and SO₂
2. Pellet Indurating Furnace Line No 2 (EQUI 96 / EU 021) that addresses emissions of NO_x and SO₂
3. Pellet Indurating Furnace Line No 3 (EQUI 97 / EU 022) that addresses emissions of NO_x and SO₂

The analysis should be prepared using the U.S. Environmental Protection Agency guidance¹ that provides recommendations for how each of the factors should be determined.

Preparation of the comprehensive update to Minnesota's Regional Haze SIP will require extensive planning and review of sources in Minnesota. The MPCA is working with the Lake Michigan Air Directors Consortium (LADCO) to prepare the Regional Haze SIP. The MPCA expects air quality modeling of potential regional emissions reductions will be conducted beginning in spring 2020. I appreciate your attention to this matter and request that you **submit the Four Factor Analysis by July 31, 2020.**

If you have any questions regarding this matter, or would like to request a meeting to further discuss the contents of this letter, please contact me by phone at 651-757-2653 or by email at Hassan.Bouchareb@state.mn.us.

Sincerely,

Hassan Bouchareb

This document has been electronically signed.

Hassan M. Bouchareb
Engineer
Environmental Analysis and Outcomes Division

Cc: Tasha Niemi, Hibbing Taconite
Deepa de Alwis, MPCA
Cory Boeck, MPCA
Frank Kohlasch, MPCA
Agency Interest ID 1146

Address questions and submittals requested above to:

Hassan M. Bouchareb
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194
(651) 757-2653
Hassan.Bouchareb@state.mn.us

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January 29, 2020

Melissa Weglarz
Minnesota Power - Boswell Energy Center
1210 3rd Street NW
Cohasset, MN 55721

RE: Request for Information - Regional Haze Rule, Reasonable Progress, Four Factor Analysis

Dear Ms. Weglarz:

The Minnesota Pollution Control Agency (MPCA) is currently preparing information for the second planning period (Round 2) comprehensive update to Minnesota's Regional Haze State Implementation Plan (SIP) as required by the Regional Haze Rule (40 CFR § 51.308). States are responsible for developing a Regional Haze SIP that addresses regional haze in each Class I area located within the state and in each Class I area located outside the state which may be affected by emissions from sources within the state. The Regional Haze SIP is required to identify existing facilities that cause or contribute to visibility impairment; analyze, identify, and apply federally-enforceable control strategies for those sources; and periodically demonstrate reasonable progress toward reaching visibility goals. States are also responsible for periodic comprehensive updates to their Regional Haze SIP that address these same topics. Minnesota's Round 2 Regional Haze SIP must be submitted to the U.S. Environmental Protection Agency (U.S. EPA) by July 31, 2021.

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1. The costs of compliance.
2. The time necessary for compliance.
3. The energy and non-air quality environmental impacts of compliance.
4. The remaining useful life of the source.

Data from the IMPROVE monitoring sites at BWCA and Voyageurs indicate that sulfates and nitrates continue to be the largest contributors to visibility impairment in these areas. The primary precursors of sulfates and nitrates are emissions of sulfur dioxide (SO₂) and nitrogen oxides (NO_x).

January 29, 2020

You are receiving this letter because your facility was identified as a significant source of NO_x and SO₂ and is located close enough to the BWCA or Voyageurs to potentially cause or contribute to visibility impairment in these Class I areas. Therefore, the MPCA requests that you prepare a "Four Factor Analysis" for the following emission units:

1. Unit 1 - Wall fired dry bottom (EQUI 82 / EU 001) that addresses emissions of NO_x and SO₂
2. Unit 2 - Wall fired dry bottom (EQUI 83 / EU 002) that addresses emissions of NO_x and SO₂
3. Unit 3 - Tangential fired (EQUI 100 / EU 003) that addresses emissions of NO_x and SO₂
4. Unit 4 - Tangential fired (EQUI 85 / EU 004) that addresses emissions of NO_x and SO₂

The analysis should be prepared using the U.S. Environmental Protection Agency guidance¹ that provides recommendations for how each of the factors should be determined.

Preparation of the comprehensive update to Minnesota's Regional Haze SIP will require extensive planning and review of sources in Minnesota. The MPCA is working with the Lake Michigan Air Directors Consortium (LADCO) to prepare the Regional Haze SIP. The MPCA expects air quality modeling of potential regional emissions reductions will be conducted beginning in spring 2020. I appreciate your attention to this matter and request that you **submit the Four Factor Analysis by July 31, 2020.**

If you have any questions regarding this matter, or would like to request a meeting to further discuss the contents of this letter, please contact me by phone at 651-757-2653 or by email at

Hassan.Bouchareb@state.mn.us.

Sincerely,

Hassan Bouchareb

This document has been electronically signed.

Hassan M. Bouchareb

Engineer

Environmental Analysis and Outcomes Division

Cc: Kurt Anderson, Minnesota Power
Crystal Tokarczyk, Minnesota Power
Deepa de Alwis, MPCA
Cory Boeck, MPCA
Frank Kohlasch, MPCA
Agency Interest ID 2493

¹ **U.S. Environmental Protection Agency.** *Guidance on Regional Haze State Implementation Plans for the Second Implementation Period*, August 20, 2019, https://www.epa.gov/sites/production/files/2019-08/documents/8-20-2019_-_regional_haze_guidance_final_guidance.pdf.

Ms. Melissa Weglarz

Page 3

January 29, 2020

Address questions and submittals requested above to:

Hassan M. Bouchareb

Minnesota Pollution Control Agency

520 Lafayette Road North

St. Paul, MN 55155-4194

(651) 757-2653

Hassan.Bouchareb@state.mn.us

January 29, 2020

Melissa Weglarz
Minnesota Power - Taconite Harbor Energy Center
8124 W Highway 61
Schroeder, MN 55613

RE: Request for Information - Regional Haze Rule, Reasonable Progress, Four Factor Analysis

Dear Ms. Weglarz:

The Minnesota Pollution Control Agency (MPCA) is currently preparing information for the second planning period (Round 2) comprehensive update to Minnesota's Regional Haze State Implementation Plan (SIP) as required by the Regional Haze Rule (40 CFR § 51.308). States are responsible for developing a Regional Haze SIP that addresses regional haze in each Class I area located within the state and in each Class I area located outside the state which may be affected by emissions from sources within the state. The Regional Haze SIP is required to identify existing facilities that cause or contribute to visibility impairment; analyze, identify, and apply federally-enforceable control strategies for those sources; and periodically demonstrate reasonable progress toward reaching visibility goals. States are also responsible for periodic comprehensive updates to their Regional Haze SIP that address these same topics. Minnesota's Round 2 Regional Haze SIP must be submitted to the U.S. Environmental Protection Agency (U.S. EPA) by July 31, 2021.

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In the first planning period (Round 1), the focus of the Regional Haze Rule was on establishing Best Available Retrofit Technology (BART) for certain older sources and reasonable progress towards national visibility goals. In Round 2, there are no BART requirements; therefore, the focus is on making reasonable progress. The U.S. Environmental Protection agency has defined the methodology that states must use to determine what measures are necessary to make reasonable progress in 40 CFR § 51.308(f)(2). At minimum, the reasonable progress analysis must use the four factors identified in 40 CFR § 51.308(f)(2)(i) to evaluate and determine the emission reduction measures necessary to make reasonable progress. The four factors are:

1. The costs of compliance.
2. The time necessary for compliance.
3. The energy and non-air quality environmental impacts of compliance.
4. The remaining useful life of the source.

Data from the IMPROVE monitoring sites at BWCA and Voyageurs indicate that sulfates and nitrates continue to be the largest contributors to visibility impairment in these areas. The primary precursors of sulfates and nitrates are emissions of sulfur dioxide (SO₂) and nitrogen oxides (NO_x).

January 29, 2020

You are receiving this letter because your facility was identified as a significant source of NO_x and SO₂ and is located close enough to the BWCA or Voyageurs to potentially cause or contribute to visibility impairment in these Class I areas. Therefore, the MPCA requests that you prepare a "Four Factor Analysis" for the following emission units:

1. Boiler No. 1 (EQUI 64 / EU 001) that addresses emissions of NO_x and SO₂
2. Boiler No. 2 (EQUI 5 / EU 002) that addresses emissions of NO_x and SO₂

The analysis should be prepared using the U.S. Environmental Protection Agency guidance¹ that provides recommendations for how each of the factors should be determined.

Preparation of the comprehensive update to Minnesota's Regional Haze SIP will require extensive planning and review of sources in Minnesota. The MPCA is working with the Lake Michigan Air Directors Consortium (LADCO) to prepare the Regional Haze SIP. The MPCA expects air quality modeling of potential regional emissions reductions will be conducted beginning in spring 2020. I appreciate your attention to this matter and request that you **submit the Four Factor Analysis by July 31, 2020.**

If you have any questions regarding this matter, or would like to request a meeting to further discuss the contents of this letter, please contact me by phone at 651-757-2653 or by email at Hassan.Bouchareb@state.mn.us.

Sincerely,

Hassan Bouchareb

This document has been electronically signed.

Hassan M. Bouchareb
Engineer
Environmental Analysis and Outcomes Division

Cc: Kurt Anderson, Minnesota Power
Cherese Johnson, Minnesota Power
Deepa de Alwis, MPCA
Cory Boeck, MPCA
Frank Kohlasch, MPCA
Agency Interest ID 1425

Address questions and submittals requested above to:

Hassan M. Bouchareb
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194
(651) 757-2653
Hassan.Bouchareb@state.mn.us

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January 29, 2020

Andrea Hayden, Environmental Manager
Northshore Mining Company
10 Outer Drive
Silver Bay, MN 55614

RE: Request for Information - Regional Haze Rule, Reasonable Progress, Four Factor Analysis

Dear Ms. Hayden:

The Minnesota Pollution Control Agency (MPCA) is currently preparing information for the second planning period (Round 2) comprehensive update to Minnesota's Regional Haze State Implementation Plan (SIP) as required by the Regional Haze Rule (40 CFR § 51.308). States are responsible for developing a Regional Haze SIP that addresses regional haze in each Class I area located within the state and in each Class I area located outside the state which may be affected by emissions from sources within the state. The Regional Haze SIP is required to identify existing facilities that cause or contribute to visibility impairment; analyze, identify, and apply federally-enforceable control strategies for those sources; and periodically demonstrate reasonable progress toward reaching visibility goals. States are also responsible for periodic comprehensive updates to their Regional Haze SIP that address these same topics. Minnesota's Round 2 Regional Haze SIP must be submitted to the U.S. Environmental Protection Agency (U.S. EPA) by July 31, 2021.

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Data from the IMPROVE monitoring sites at BWCA and Voyageurs indicate that sulfates and nitrates continue to be the largest contributors to visibility impairment in these areas. The primary precursors of sulfates and nitrates are emissions of sulfur dioxide (SO₂) and nitrogen oxides (NO_x).

You are receiving this letter because your facility was identified as a significant source of NO_x and SO₂ and is located close enough to the BWCA or Voyageurs to potentially cause or contribute to visibility impairment in these Class I areas. Therefore, the MPCA requests that you prepare a "Four Factor Analysis" for the following emission units:

1. Power Boiler 1 (EQUI 14 / EU 001) that addresses emissions of NO_x and SO₂
2. Power Boiler 2 (EQUI 15 / EU 002) that addresses emissions of NO_x and SO₂

The analysis should be prepared using the U.S. Environmental Protection Agency guidance¹ that provides recommendations for how each of the factors should be determined.

Preparation of the comprehensive update to Minnesota's Regional Haze SIP will require extensive planning and review of sources in Minnesota. The MPCA is working with the Lake Michigan Air Directors Consortium (LADCO) to prepare the Regional Haze SIP. The MPCA expects air quality modeling of potential regional emissions reductions will be conducted beginning in spring 2020. I appreciate your attention to this matter and request that you **submit the Four Factor Analysis by July 31, 2020.**

If you have any questions regarding this matter, or would like to request a meeting to further discuss the contents of this letter, please contact me by phone at 651-757-2653 or by email at Hassan.Bouchareb@state.mn.us.

Sincerely,

Hassan Bouchareb

This document has been electronically signed.

Hassan M. Bouchareb

Engineer

Environmental Analysis and Outcomes Division

Cc: Paul Carlson, Northshore Mining Company
Jennifer Ramsdell, Northshore Mining Company
Jason Aagenes, Cleveland-Cliffs Inc.
Scott Gischia, Cleveland-Cliffs Inc.
Deepa de Alwis, MPCA
Cory Boeck, MPCA
Frank Kohlasch, MPCA
Agency Interest ID 1875

¹ **U.S. Environmental Protection Agency.** *Guidance on Regional Haze State Implementation Plans for the Second Implementation Period*, August 20, 2019, https://www.epa.gov/sites/production/files/2019-08/documents/8-20-2019_-_regional_haze_guidance_final_guidance.pdf.

Ms. Andrea Hayden

Page 3

January 29, 2020

Address questions and submittals requested above to:

Hassan M. Bouchareb

Minnesota Pollution Control Agency

520 Lafayette Road North

St. Paul, MN 55155-4194

(651) 757-2653

Hassan.Bouchareb@state.mn.us

February 24, 2020

Andrea Hayden, Environmental Manager
Northshore Mining Company
10 Outer Drive
Silver Bay, MN 55614

RE: Request for Information - Regional Haze Rule, Reasonable Progress, Four Factor Analysis

Dear Ms. Hayden:

The Minnesota Pollution Control Agency (MPCA) is currently preparing information for the second planning period (Round 2) comprehensive update to Minnesota's Regional Haze State Implementation Plan (SIP) as required by the Regional Haze Rule (40 CFR § 51.308). States are responsible for developing a Regional Haze SIP that addresses regional haze in each Class I area located within the state and in each Class I area located outside the state which may be affected by emissions from sources within the state. The Regional Haze SIP is required to identify existing facilities that cause or contribute to visibility impairment; analyze, identify, and apply federally-enforceable control strategies for those sources; and periodically demonstrate reasonable progress toward reaching visibility goals. States are also responsible for periodic comprehensive updates to their Regional Haze SIP that address these same topics. Minnesota's Round 2 Regional Haze SIP must be submitted to the U.S. Environmental Protection Agency (U.S. EPA) by July 31, 2021.

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You are receiving this letter because your facility was identified as a significant source of NO_x and SO₂ and is located close enough to the BWCA or Voyageurs to potentially cause or contribute to visibility impairment in these Class I areas. Therefore, the MPCA requests that you prepare a "Four Factor Analysis" for the following emission units:

1. Power Boiler 1 (EQUI 14 / EU 001) that addresses emissions of NO_x and SO₂
2. Power Boiler 2 (EQUI 15 / EU 002) that addresses emissions of NO_x and SO₂
3. Furnace 11 (EQUI 126 & 127 / EU 100 & 104) that addresses emissions of NO_x and SO₂
4. Furnace 12 (EQUI 128 & 129 / EU 110 & 114) that addresses emissions of NO_x and SO₂

The analysis should be prepared using the U.S. Environmental Protection Agency guidance¹ that provides recommendations for how each of the factors should be determined.

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Sincerely,

Hassan Bouchareb

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Hassan M. Bouchareb

Engineer

Environmental Analysis and Outcomes Division

Cc: Paul Carlson, Northshore Mining Company
Jennifer Ramsdell, Northshore Mining Company
Jason Aagenes, Cleveland-Cliffs Inc.
Scott Gischia, Cleveland-Cliffs Inc.
Deepa de Alwis, MPCA
Cory Boeck, MPCA
Frank Kohlasch, MPCA
Agency Interest ID 1875

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Ms. Andrea Hayden

Page 3

February 24, 2020

Address questions and submittals requested above to:

Hassan M. Bouchareb

Minnesota Pollution Control Agency

520 Lafayette Road North

St. Paul, MN 55155-4194

(651) 757-2653

Hassan.Bouchareb@state.mn.us

January 29, 2020

Robert Schilling, Manager
Sappi Cloquet LLC
2201 Avenue B
Cloquet, MN 55720

RE: Request for Information - Regional Haze Rule, Reasonable Progress, Four Factor Analysis

Dear Mr. Schilling:

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Mr. Robert Schilling

Page 2

January 29, 2020

You are receiving this letter because your facility was identified as a significant source of NO_x and SO₂ and is located close enough to the BWCA or Voyageurs to potentially cause or contribute to visibility impairment in these Class I areas. Therefore, the MPCA requests that you prepare a "Four Factor Analysis" for the following emission units:

1. Power Boiler #9 (EQUI 4 / EU 004) that addresses emissions of NO_x and SO₂
2. Recovery Boiler #10 (EQUI 53 / EU 005) that addresses emissions of NO_x

The analysis should be prepared using the U.S. Environmental Protection Agency guidance¹ that provides recommendations for how each of the factors should be determined.

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Sincerely,

Hassan Bouchareb

This document has been electronically signed.

Hassan M. Bouchareb
Engineer
Environmental Analysis and Outcomes Division

Cc: Michael Schultz, Sappi Cloquet LLC
Deepa de Alwis, MPCA
Cory Boeck, MPCA
Frank Kohlasch, MPCA
Agency Interest ID 2309

Address questions and submittals requested above to:

Hassan M. Bouchareb
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194
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February 14, 2020

Derwood Brady, Vice President
Southern Minnesota Beet Sugar Coop
83550 County Road 21
Renville, MN 56284

RE: Request for Information - Regional Haze Rule, Reasonable Progress, Four Factor Analysis

Dear Mr. Brady:

The Minnesota Pollution Control Agency (MPCA) is currently preparing information for the second planning period (Round 2) comprehensive update to Minnesota's Regional Haze State Implementation Plan (SIP) as required by the Regional Haze Rule (40 CFR § 51.308). States are responsible for developing a Regional Haze SIP that addresses regional haze in each Class I area located within the state and in each Class I area located outside the state which may be affected by emissions from sources within the state. The Regional Haze SIP is required to identify existing facilities that cause or contribute to visibility impairment; analyze, identify, and apply federally-enforceable control strategies for those sources; and periodically demonstrate reasonable progress toward reaching visibility goals. States are also responsible for periodic comprehensive updates to their Regional Haze SIP that address these same topics. Minnesota's Round 2 Regional Haze SIP must be submitted to the U.S. Environmental Protection Agency (U.S. EPA) by July 31, 2021.

Minnesota has two Class I areas within its borders, the Boundary Waters Canoe Area Wilderness (BWCA) and Voyageurs National Park (Voyageurs). Other nearby Class I areas include Isle Royale National Park in Michigan. Therefore, Minnesota must prepare a Regional Haze SIP that identifies sources that cause or contribute to visibility impairment in these areas. To meet the core requirements for regional haze for these areas, Minnesota must submit a SIP that contains the plan elements and supporting documentation for all required analyses identified in 40 CFR § 51.308(f).

In the first planning period (Round 1), the focus of the Regional Haze Rule was on establishing Best Available Retrofit Technology (BART) for certain older sources and reasonable progress towards national visibility goals. In Round 2, there are no BART requirements; therefore, the focus is on making reasonable progress. The U.S. Environmental Protection agency has defined the methodology that states must use to determine what measures are necessary to make reasonable progress in 40 CFR § 51.308(f)(2). At minimum, the reasonable progress analysis must use the four factors identified in 40 CFR § 51.308(f)(2)(i) to evaluate and determine the emission reduction measures necessary to make reasonable progress. The four factors are:

1. The costs of compliance.
2. The time necessary for compliance.
3. The energy and non-air quality environmental impacts of compliance.
4. The remaining useful life of the source.

Data from the IMPROVE monitoring sites at BWCA and Voyageurs indicate that sulfates and nitrates continue to be the largest contributors to visibility impairment in these areas. The primary precursors of sulfates and nitrates are emissions of sulfur dioxide (SO₂) and nitrogen oxides (NO_x).

Mr. Derwood Brady

Page 2

February 14, 2020

You are receiving this letter because your facility was identified as a significant source of NO_x and SO₂ and is located close enough to the BWCA or Voyageurs to potentially cause or contribute to visibility impairment in these Class I areas. Therefore, the MPCA requests that you prepare a "Four Factor Analysis" for the following emission units:

1. Boiler No. 1 (EQUI 17 / EU 001) that addresses emissions of NO_x and SO₂

The analysis should be prepared using the U.S. Environmental Protection Agency guidance¹ that provides recommendations for how each of the factors should be determined.

Preparation of the comprehensive update to Minnesota's Regional Haze SIP will require extensive planning and review of sources in Minnesota. The MPCA is working with the Lake Michigan Air Directors Consortium (LADCO) to prepare the Regional Haze SIP. The MPCA expects air quality modeling of potential regional emissions reductions will be conducted beginning in spring 2020. I appreciate your attention to this matter and request that you **submit the Four Factor Analysis by July 31, 2020.**

If you have any questions regarding this matter, or would like to request a meeting to further discuss the contents of this letter, please contact me by phone at 651-757-2653 or by email at Hassan.Bouchareb@state.mn.us.

Sincerely,

Hassan Bouchareb

This document has been electronically signed.

Hassan M. Bouchareb

Engineer

Environmental Analysis and Outcomes Division

Cc: Deepa de Alwis, MPCA
Cory Boeck, MPCA
Frank Kohlasch, MPCA
Agency Interest ID 1682

Address questions and submittals requested above to:

Hassan M. Bouchareb
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194
(651) 757-2653
Hassan.Bouchareb@state.mn.us

¹ **U.S. Environmental Protection Agency.** *Guidance on Regional Haze State Implementation Plans for the Second Implementation Period*, August 20, 2019, https://www.epa.gov/sites/production/files/2019-08/documents/8-20-2019_-_regional_haze_guidance_final_guidance.pdf.

January 29, 2020

Candice Maxwell, Area Manager - Environmental Affairs
United Taconite LLC - Fairlane Plant
1200 Highway 16
Forbes, MN 55738

RE: Request for Information - Regional Haze Rule, Reasonable Progress, Four Factor Analysis

Dear Ms. Maxwell:

The Minnesota Pollution Control Agency (MPCA) is currently preparing information for the second planning period (Round 2) comprehensive update to Minnesota's Regional Haze State Implementation Plan (SIP) as required by the Regional Haze Rule (40 CFR § 51.308). States are responsible for developing a Regional Haze SIP that addresses regional haze in each Class I area located within the state and in each Class I area located outside the state which may be affected by emissions from sources within the state. The Regional Haze SIP is required to identify existing facilities that cause or contribute to visibility impairment; analyze, identify, and apply federally-enforceable control strategies for those sources; and periodically demonstrate reasonable progress toward reaching visibility goals. States are also responsible for periodic comprehensive updates to their Regional Haze SIP that address these same topics. Minnesota's Round 2 Regional Haze SIP must be submitted to the U.S. Environmental Protection Agency (U.S. EPA) by July 31, 2021.

Minnesota has two Class I areas within its borders, the Boundary Waters Canoe Area Wilderness (BWCA) and Voyageurs National Park (Voyageurs). Other nearby Class I areas include Isle Royale National Park in Michigan. Therefore, Minnesota must prepare a Regional Haze SIP that identifies sources that cause or contribute to visibility impairment in these areas. To meet the core requirements for regional haze for these areas, Minnesota must submit a SIP that contains the plan elements and supporting documentation for all required analyses identified in 40 CFR § 51.308(f).

In the first planning period (Round 1), the focus of the Regional Haze Rule was on establishing Best Available Retrofit Technology (BART) for certain older sources and reasonable progress towards national visibility goals. In Round 2, there are no BART requirements; therefore, the focus is on making reasonable progress. The U.S. Environmental Protection agency has defined the methodology that states must use to determine what measures are necessary to make reasonable progress in 40 CFR § 51.308(f)(2). At minimum, the reasonable progress analysis must use the four factors identified in 40 CFR § 51.308(f)(2)(i) to evaluate and determine the emission reduction measures necessary to make reasonable progress. The four factors are:

1. The costs of compliance.
2. The time necessary for compliance.
3. The energy and non-air quality environmental impacts of compliance.
4. The remaining useful life of the source.

Data from the IMPROVE monitoring sites at BWCA and Voyageurs indicate that sulfates and nitrates continue to be the largest contributors to visibility impairment in these areas. The primary precursors of sulfates and nitrates are emissions of sulfur dioxide (SO₂) and nitrogen oxides (NO_x).

January 29, 2020

You are receiving this letter because your facility was identified as a significant source of NO_x and SO₂ and is located close enough to the BWCA or Voyageurs to potentially cause or contribute to visibility impairment in these Class I areas. Therefore, the MPCA requests that you prepare a "Four Factor Analysis" for the following emission units:

1. Line 1 Pellet Induration (EQUI 45 / EU 040) that addresses emissions of NO_x and SO₂
2. Line 2 Pellet Induration (EQUI 47 / EU 042) that addresses emissions of NO_x and SO₂

The analysis should be prepared using the U.S. Environmental Protection Agency guidance¹ that provides recommendations for how each of the factors should be determined.

Preparation of the comprehensive update to Minnesota's Regional Haze SIP will require extensive planning and review of sources in Minnesota. The MPCA is working with the Lake Michigan Air Directors Consortium (LADCO) to prepare the Regional Haze SIP. The MPCA expects air quality modeling of potential regional emissions reductions will be conducted beginning in spring 2020. I appreciate your attention to this matter and request that you **submit the Four Factor Analysis by July 31, 2020.**

If you have any questions regarding this matter, or would like to request a meeting to further discuss the contents of this letter, please contact me by phone at 651-757-2653 or by email at Hassan.Bouchareb@state.mn.us.

Sincerely,

Hassan Bouchareb

This document has been electronically signed.

Hassan M. Bouchareb
Engineer
Environmental Analysis and Outcomes Division

Cc: Chad Asgaard, United Taconite Company LLC
Jason Aagenes, Cleveland-Cliffs Inc.
Deepa de Alwis, MPCA
Cory Boeck, MPCA
Frank Kohlasch, MPCA
Agency Interest ID 140099

Address questions and submittals requested above to:

Hassan M. Bouchareb
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194
(651) 757-2653
Hassan.Bouchareb@state.mn.us

¹ **U.S. Environmental Protection Agency.** *Guidance on Regional Haze State Implementation Plans for the Second Implementation Period*, August 20, 2019, https://www.epa.gov/sites/production/files/2019-08/documents/8-20-2019_-_regional_haze_guidance_final_guidance.pdf.

January 29, 2020

Chrissy Bartovich, Environmental Health and Safety Administrator
U.S. Steel Corporation - Keetac
1 Mine Road
Keewatin, MN 55753

RE: Request for Information - Regional Haze Rule, Reasonable Progress, Four Factor Analysis

Dear Ms. Bartovich:

The Minnesota Pollution Control Agency (MPCA) is currently preparing information for the second planning period (Round 2) comprehensive update to Minnesota's Regional Haze State Implementation Plan (SIP) as required by the Regional Haze Rule (40 CFR § 51.308). States are responsible for developing a Regional Haze SIP that addresses regional haze in each Class I area located within the state and in each Class I area located outside the state which may be affected by emissions from sources within the state. The Regional Haze SIP is required to identify existing facilities that cause or contribute to visibility impairment; analyze, identify, and apply federally-enforceable control strategies for those sources; and periodically demonstrate reasonable progress toward reaching visibility goals. States are also responsible for periodic comprehensive updates to their Regional Haze SIP that address these same topics. Minnesota's Round 2 Regional Haze SIP must be submitted to the U.S. Environmental Protection Agency (U.S. EPA) by July 31, 2021.

Minnesota has two Class I areas within its borders, the Boundary Waters Canoe Area Wilderness (BWCA) and Voyageurs National Park (Voyageurs). Other nearby Class I areas include Isle Royale National Park in Michigan. Therefore, Minnesota must prepare a Regional Haze SIP that identifies sources that cause or contribute to visibility impairment in these areas. To meet the core requirements for regional haze for these areas, Minnesota must submit a SIP that contains the plan elements and supporting documentation for all required analyses identified in 40 CFR § 51.308(f).

In the first planning period (Round 1), the focus of the Regional Haze Rule was on establishing Best Available Retrofit Technology (BART) for certain older sources and reasonable progress towards national visibility goals. In Round 2, there are no BART requirements; therefore, the focus is on making reasonable progress. The U.S. Environmental Protection agency has defined the methodology that states must use to determine what measures are necessary to make reasonable progress in 40 CFR § 51.308(f)(2). At minimum, the reasonable progress analysis must use the four factors identified in 40 CFR § 51.308(f)(2)(i) to evaluate and determine the emission reduction measures necessary to make reasonable progress. The four factors are:

1. The costs of compliance.
2. The time necessary for compliance.
3. The energy and non-air quality environmental impacts of compliance.
4. The remaining useful life of the source.

Data from the IMPROVE monitoring sites at BWCA and Voyageurs indicate that sulfates and nitrates continue to be the largest contributors to visibility impairment in these areas. The primary precursors of sulfates and nitrates are emissions of sulfur dioxide (SO₂) and nitrogen oxides (NO_x).

January 29, 2020

You are receiving this letter because your facility was identified as a significant source of NO_x and SO₂ and is located close enough to the BWCA or Voyageurs to potentially cause or contribute to visibility impairment in these Class I areas. Therefore, the MPCA requests that you prepare a "Four Factor Analysis" for the following emission units:

1. Grate Kiln - Indurator Waste Gas, Phase II (EQUI 97 / EU 030) that addresses emissions of NO_x and SO₂

The analysis should be prepared using the U.S. Environmental Protection Agency guidance¹ that provides recommendations for how each of the factors should be determined.

Preparation of the comprehensive update to Minnesota's Regional Haze SIP will require extensive planning and review of sources in Minnesota. The MPCA is working with the Lake Michigan Air Directors Consortium (LADCO) to prepare the Regional Haze SIP. The MPCA expects air quality modeling of potential regional emissions reductions will be conducted beginning in spring 2020. I appreciate your attention to this matter and request that you **submit the Four Factor Analysis by July 31, 2020.**

If you have any questions regarding this matter, or would like to request a meeting to further discuss the contents of this letter, please contact me by phone at 651-757-2653 or by email at Hassan.Bouchareb@state.mn.us.

Sincerely,

Hassan Bouchareb

This document has been electronically signed.

Hassan M. Bouchareb
Engineer
Environmental Analysis and Outcomes Division

Cc: Deepa de Alwis, MPCA
Cory Boeck, MPCA
Frank Kohlasch, MPCA
Agency Interest ID 142828

Address questions and submittals requested above to:

Hassan M. Bouchareb
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194
(651) 757-2653
Hassan.Bouchareb@state.mn.us

¹ **U.S. Environmental Protection Agency.** *Guidance on Regional Haze State Implementation Plans for the Second Implementation Period*, August 20, 2019, https://www.epa.gov/sites/production/files/2019-08/documents/8-20-2019_-_regional_haze_guidance_final_guidance.pdf.

January 29, 2020

Chrissy Bartovich, Environmental Health and Safety Administrator
U.S. Steel Corporation - Minntac
8771 Park Ridge Drive
Mountain Iron, MN 55768

RE: Request for Information - Regional Haze Rule, Reasonable Progress, Four Factor Analysis

Dear Ms. Bartovich:

The Minnesota Pollution Control Agency (MPCA) is currently preparing information for the second planning period (Round 2) comprehensive update to Minnesota's Regional Haze State Implementation Plan (SIP) as required by the Regional Haze Rule (40 CFR § 51.308). States are responsible for developing a Regional Haze SIP that addresses regional haze in each Class I area located within the state and in each Class I area located outside the state which may be affected by emissions from sources within the state. The Regional Haze SIP is required to identify existing facilities that cause or contribute to visibility impairment; analyze, identify, and apply federally-enforceable control strategies for those sources; and periodically demonstrate reasonable progress toward reaching visibility goals. States are also responsible for periodic comprehensive updates to their Regional Haze SIP that address these same topics. Minnesota's Round 2 Regional Haze SIP must be submitted to the U.S. Environmental Protection Agency (U.S. EPA) by July 31, 2021.

Minnesota has two Class I areas within its borders, the Boundary Waters Canoe Area Wilderness (BWCA) and Voyageurs National Park (Voyageurs). Other nearby Class I areas include Isle Royale National Park in Michigan. Therefore, Minnesota must prepare a Regional Haze SIP that identifies sources that cause or contribute to visibility impairment in these areas. To meet the core requirements for regional haze for these areas, Minnesota must submit a SIP that contains the plan elements and supporting documentation for all required analyses identified in 40 CFR § 51.308(f).

In the first planning period (Round 1), the focus of the Regional Haze Rule was on establishing Best Available Retrofit Technology (BART) for certain older sources and reasonable progress towards national visibility goals. In Round 2, there are no BART requirements; therefore, the focus is on making reasonable progress. The U.S. Environmental Protection agency has defined the methodology that states must use to determine what measures are necessary to make reasonable progress in 40 CFR § 51.308(f)(2). At minimum, the reasonable progress analysis must use the four factors identified in 40 CFR § 51.308(f)(2)(i) to evaluate and determine the emission reduction measures necessary to make reasonable progress. The four factors are:

1. The costs of compliance.
2. The time necessary for compliance.
3. The energy and non-air quality environmental impacts of compliance.
4. The remaining useful life of the source.

Data from the IMPROVE monitoring sites at BWCA and Voyageurs indicate that sulfates and nitrates continue to be the largest contributors to visibility impairment in these areas. The primary precursors of sulfates and nitrates are emissions of sulfur dioxide (SO₂) and nitrogen oxides (NO_x).

January 29, 2020

You are receiving this letter because your facility was identified as a significant source of NO_x and SO₂ and is located close enough to the BWCA or Voyageurs to potentially cause or contribute to visibility impairment in these Class I areas. Therefore, the MPCA requests that you prepare a "Four Factor Analysis" for the following emission units:

1. Line 3 Rotary Kiln (EQUI 146 / EU 225) that addresses emissions of NO_x and SO₂
2. Line 4 Rotary Kiln (EQUI 279 / EU 261) that addresses emissions of NO_x and SO₂
3. Line 5 Rotary Kiln (EQUI 280 / EU 282) that addresses emissions of NO_x and SO₂
4. Line 6 Rotary Kiln (EQUI 3 / EU 315) that addresses emissions of NO_x and SO₂
5. Line 7 Rotary Kiln (EQUI 179 / EU 334) that addresses emissions of NO_x and SO₂

The analysis should be prepared using the U.S. Environmental Protection Agency guidance¹ that provides recommendations for how each of the factors should be determined.

Preparation of the comprehensive update to Minnesota's Regional Haze SIP will require extensive planning and review of sources in Minnesota. The MPCA is working with the Lake Michigan Air Directors Consortium (LADCO) to prepare the Regional Haze SIP. The MPCA expects air quality modeling of potential regional emissions reductions will be conducted beginning in spring 2020. I appreciate your attention to this matter and request that you **submit the Four Factor Analysis by July 31, 2020.**

If you have any questions regarding this matter, or would like to request a meeting to further discuss the contents of this letter, please contact me by phone at 651-757-2653 or by email at Hassan.Bouchareb@state.mn.us.

Sincerely,

Hassan Bouchareb

This document has been electronically signed.

Hassan M. Bouchareb

Engineer

Environmental Analysis and Outcomes Division

Cc: Deepa de Alwis, MPCA
Cory Boeck, MPCA
Frank Kohlasch, MPCA
Agency Interest ID 2476

¹ **U.S. Environmental Protection Agency.** *Guidance on Regional Haze State Implementation Plans for the Second Implementation Period*, August 20, 2019, https://www.epa.gov/sites/production/files/2019-08/documents/8-20-2019_-_regional_haze_guidance_final_guidance.pdf.

Ms. Chrissy Bartovich

Page 3

January 29, 2020

Address questions and submittals requested above to:

Hassan M. Bouchareb

Minnesota Pollution Control Agency

520 Lafayette Road North

St. Paul, MN 55155-4194

(651) 757-2653

Hassan.Bouchareb@state.mn.us

January 29, 2020

Jeff Minter, Environmental Health and Safety Administrator
Virginia Department of Public Utilities
618 2nd Street S
Virginia, MN 55792

RE: Request for Information - Regional Haze Rule, Reasonable Progress, Four Factor Analysis

Dear Mr. Minter:

The Minnesota Pollution Control Agency (MPCA) is currently preparing information for the second planning period (Round 2) comprehensive update to Minnesota's Regional Haze State Implementation Plan (SIP) as required by the Regional Haze Rule (40 CFR § 51.308). States are responsible for developing a Regional Haze SIP that addresses regional haze in each Class I area located within the state and in each Class I area located outside the state which may be affected by emissions from sources within the state. The Regional Haze SIP is required to identify existing facilities that cause or contribute to visibility impairment; analyze, identify, and apply federally-enforceable control strategies for those sources; and periodically demonstrate reasonable progress toward reaching visibility goals. States are also responsible for periodic comprehensive updates to their Regional Haze SIP that address these same topics. Minnesota's Round 2 Regional Haze SIP must be submitted to the U.S. Environmental Protection Agency (U.S. EPA) by July 31, 2021.

Minnesota has two Class I areas within its borders, the Boundary Waters Canoe Area Wilderness (BWCA) and Voyageurs National Park (Voyageurs). Other nearby Class I areas include Isle Royale National Park in Michigan. Therefore, Minnesota must prepare a Regional Haze SIP that identifies sources that cause or contribute to visibility impairment in these areas. To meet the core requirements for regional haze for these areas, Minnesota must submit a SIP that contains the plan elements and supporting documentation for all required analyses identified in 40 CFR § 51.308(f).

In the first planning period (Round 1), the focus of the Regional Haze Rule was on establishing Best Available Retrofit Technology (BART) for certain older sources and reasonable progress towards national visibility goals. In Round 2, there are no BART requirements; therefore, the focus is on making reasonable progress. The U.S. Environmental Protection agency has defined the methodology that states must use to determine what measures are necessary to make reasonable progress in 40 CFR § 51.308(f)(2). At minimum, the reasonable progress analysis must use the four factors identified in 40 CFR § 51.308(f)(2)(i) to evaluate and determine the emission reduction measures necessary to make reasonable progress. The four factors are:

1. The costs of compliance.
2. The time necessary for compliance.
3. The energy and non-air quality environmental impacts of compliance.
4. The remaining useful life of the source.

Data from the IMPROVE monitoring sites at BWCA and Voyageurs indicate that sulfates and nitrates continue to be the largest contributors to visibility impairment in these areas. The primary precursors of sulfates and nitrates are emissions of sulfur dioxide (SO₂) and nitrogen oxides (NO_x).

You are receiving this letter because your facility was identified as a significant source of NO_x and SO₂ and is located close enough to the BWCA or Voyageurs to potentially cause or contribute to visibility impairment in these Class I areas. Therefore, the MPCA requests that you prepare a "Four Factor Analysis" for the following emission units:

1. Boiler #9 (EQUI 3 / EU 003) that addresses emissions of NO_x and SO₂
2. Boiler #11 (EQUI 16 / EU 006) that addresses emissions of NO_x and SO₂

The analysis should be prepared using the U.S. Environmental Protection Agency guidance¹ that provides recommendations for how each of the factors should be determined.

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Sincerely,

Hassan Bouchareb

This document has been electronically signed.

Hassan M. Bouchareb
Engineer
Environmental Analysis and Outcomes Division

Cc: Deepa de Alwis, MPCA
Cory Boeck, MPCA
Frank Kohlasch, MPCA
Agency Interest ID 2504

Address questions and submittals requested above to:

Hassan M. Bouchareb
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194
(651) 757-2653
Hassan.Bouchareb@state.mn.us

¹ **U.S. Environmental Protection Agency.** *Guidance on Regional Haze State Implementation Plans for the Second Implementation Period*, August 20, 2019, https://www.epa.gov/sites/production/files/2019-08/documents/8-20-2019_-_regional_haze_guidance_final_guidance.pdf.

January 29, 2020

Richard Rosvold, Environmental Compliance Manager
Xcel Energy - Allen S King Generating Plant
1103 King Plant Road
Bayport, MN 55003

RE: Request for Information - Regional Haze Rule, Reasonable Progress, Four Factor Analysis

Dear Mr. Rosvold:

The Minnesota Pollution Control Agency (MPCA) is currently preparing information for the second planning period (Round 2) comprehensive update to Minnesota's Regional Haze State Implementation Plan (SIP) as required by the Regional Haze Rule (40 CFR § 51.308). States are responsible for developing a Regional Haze SIP that addresses regional haze in each Class I area located within the state and in each Class I area located outside the state which may be affected by emissions from sources within the state. The Regional Haze SIP is required to identify existing facilities that cause or contribute to visibility impairment; analyze, identify, and apply federally-enforceable control strategies for those sources; and periodically demonstrate reasonable progress toward reaching visibility goals. States are also responsible for periodic comprehensive updates to their Regional Haze SIP that address these same topics. Minnesota's Round 2 Regional Haze SIP must be submitted to the U.S. Environmental Protection Agency (U.S. EPA) by July 31, 2021.

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Mr. Richard Rosvold

Page 2

January 29, 2020

You are receiving this letter because your facility was identified as a significant source of NO_x and SO₂ and is located close enough to the BWCA or Voyageurs to potentially cause or contribute to visibility impairment in these Class I areas. Therefore, the MPCA requests that you prepare a "Four Factor Analysis" for the following emission units:

1. Boiler 1 (EQUI 68 / EU 001) that addresses emissions of NO_x and SO₂

The analysis should be prepared using the U.S. Environmental Protection Agency guidance¹ that provides recommendations for how each of the factors should be determined.

Preparation of the comprehensive update to Minnesota's Regional Haze SIP will require extensive planning and review of sources in Minnesota. The MPCA is working with the Lake Michigan Air Directors Consortium (LADCO) to prepare the Regional Haze SIP. The MPCA expects air quality modeling of potential regional emissions reductions will be conducted beginning in spring 2020. I appreciate your attention to this matter and request that you **submit the Four Factor Analysis by July 31, 2020.**

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Sincerely,

Hassan Bouchareb

This document has been electronically signed.

Hassan M. Bouchareb

Engineer

Environmental Analysis and Outcomes Division

Cc: Patricia Leaf, Xcel Energy
Deepa de Alwis, MPCA
Cory Boeck, MPCA
Frank Kohlasch, MPCA
Agency Interest ID 2346

Address questions and submittals requested above to:

Hassan M. Bouchareb
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194
(651) 757-2653
Hassan.Bouchareb@state.mn.us

¹ **U.S. Environmental Protection Agency.** *Guidance on Regional Haze State Implementation Plans for the Second Implementation Period*, August 20, 2019, https://www.epa.gov/sites/production/files/2019-08/documents/8-20-2019_-_regional_haze_guidance_final_guidance.pdf.

January 29, 2020

Richard Rosvold, Environmental Compliance Manager
Xcel Energy - Sherburne County Generating Plant
13999 Industrial Boulevard
Becker, MN 55308

RE: Request for Information - Regional Haze Rule, Reasonable Progress, Four Factor Analysis

Dear Mr. Rosvold:

The Minnesota Pollution Control Agency (MPCA) is currently preparing information for the second planning period (Round 2) comprehensive update to Minnesota's Regional Haze State Implementation Plan (SIP) as required by the Regional Haze Rule (40 CFR § 51.308). States are responsible for developing a Regional Haze SIP that addresses regional haze in each Class I area located within the state and in each Class I area located outside the state which may be affected by emissions from sources within the state. The Regional Haze SIP is required to identify existing facilities that cause or contribute to visibility impairment; analyze, identify, and apply federally-enforceable control strategies for those sources; and periodically demonstrate reasonable progress toward reaching visibility goals. States are also responsible for periodic comprehensive updates to their Regional Haze SIP that address these same topics. Minnesota's Round 2 Regional Haze SIP must be submitted to the U.S. Environmental Protection Agency (U.S. EPA) by July 31, 2021.

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Data from the IMPROVE monitoring sites at BWCA and Voyageurs indicate that sulfates and nitrates continue to be the largest contributors to visibility impairment in these areas. The primary precursors of sulfates and nitrates are emissions of sulfur dioxide (SO₂) and nitrogen oxides (NO_x).

January 29, 2020

You are receiving this letter because your facility was identified as a significant source of NO_x and SO₂ and is located close enough to the BWCA or Voyageurs to potentially cause or contribute to visibility impairment in these Class I areas. Therefore, the MPCA requests that you prepare a "Four Factor Analysis" for the following emission units:

1. Tangential - Fired Coal Burner 1 (EQUI 72 / EU 001) that addresses emissions of NO_x and SO₂
2. Tangential - Fired Coal Burner 2 (EQUI 74 / EU 002) that addresses emissions of NO_x and SO₂
3. Opposed - Fired Coal Burner 3 (EQUI 73 / EU 003) that addresses emissions of NO_x and SO₂

The analysis should be prepared using the U.S. Environmental Protection Agency guidance¹ that provides recommendations for how each of the factors should be determined.

Preparation of the comprehensive update to Minnesota's Regional Haze SIP will require extensive planning and review of sources in Minnesota. The MPCA is working with the Lake Michigan Air Directors Consortium (LADCO) to prepare the Regional Haze SIP. The MPCA expects air quality modeling of potential regional emissions reductions will be conducted beginning in spring 2020. I appreciate your attention to this matter and request that you **submit the Four Factor Analysis by July 31, 2020.**

If you have any questions regarding this matter, or would like to request a meeting to further discuss the contents of this letter, please contact me by phone at 651-757-2653 or by email at Hassan.Bouchareb@state.mn.us.

Sincerely,

Hassan Bouchareb

This document has been electronically signed.

Hassan M. Bouchareb

Engineer

Environmental Analysis and Outcomes Division

Cc: Patricia Leaf, Xcel Energy
Deepa de Alwis, MPCA
Cory Boeck, MPCA
Frank Kohlasch, MPCA
Agency Interest ID 2344

Address questions and submittals requested above to:

Hassan M. Bouchareb
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194
(651) 757-2653
Hassan.Bouchareb@state.mn.us

¹ **U.S. Environmental Protection Agency.** *Guidance on Regional Haze State Implementation Plans for the Second Implementation Period*, August 20, 2019, https://www.epa.gov/sites/production/files/2019-08/documents/8-20-2019_-_regional_haze_guidance_final_guidance.pdf.