Appendix B

Additional Sources Discussed During Consultation with FLMs

Nebraska Regional Haze SIP Revision
Second Implementation Period (2018-2028)

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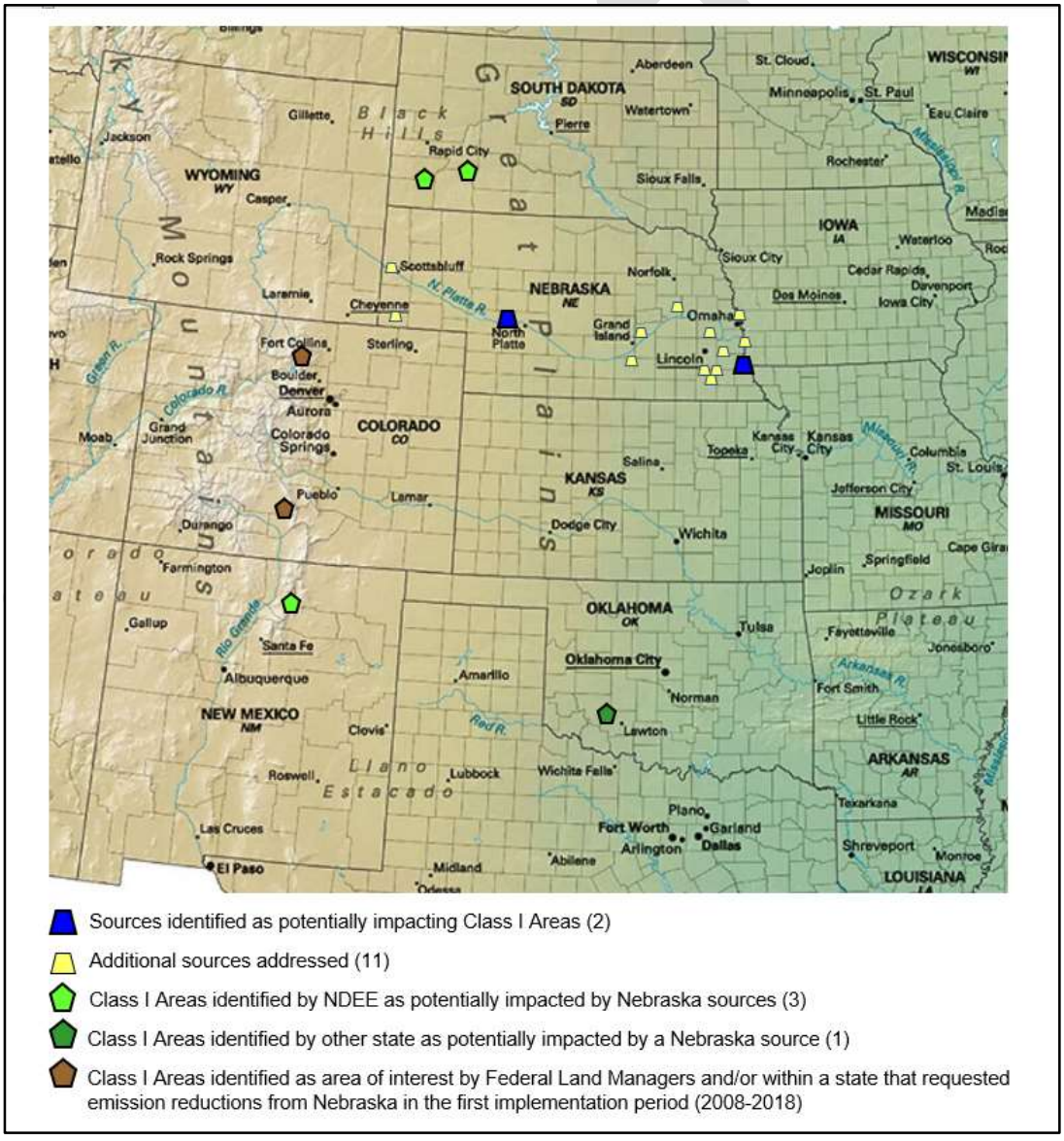
During Nebraska's informal consultation with Federal Land Managers (FLMs), a list[1] of additional sources and respective Class I areas of potential concern were provided to NDEE; none of these sources were identified for further evaluation or four-factor analysis using Nebraska's screening methodology, but are addressed nonetheless in this appendix. **Figure B-1** below shows the location of the sources and respective Class I areas identified by FLMs.

Figure B-1. Map of Nebraska sources and Potentially Impacted Class I Areas



[1] This list is included in **Appendix D-1**.

Emissions data were obtained from:

- The State of Nebraska Enterprise Content Management (ECM) system https://ecmp.nebraska.gov/PublicAccess/index.html?&MyQueryID=340;
- The Nebraska State and Local Emissions Inventory System (SLEIS), https://ndeqsleis.nebraska.gov/;
- EPA's Clean Air Markets Program Data (CAMPD), https://campd.epa.gov/.

1. Sheldon Station

This coal-fired EGU is located in the village of Hallam in rural southeastern Nebraska, consisting of two units with a combined capacity of 225 MW. The units came online in 1961 (Unit 1) and 1968 (Unit 2), and both are fitted with controls for NOx (overfire air) and particulate matter (baghouse). Both Units 1 and 2 are secondarily fueled by natural gas.

Annual emissions (2010)	SO_2: 3,758 tpy	NOx: 5,824 tpy
Annual emissions (2021)	SO_2: 2,537 tpy	NOx: 2,473 tpy
Change since 2010	SO_2: -32.5%	NOx: -57.5%

Nebraska's screening methodology did not identify this source for further evaluation using its threshold of 2.00%. Emission reductions at this source since the first implementation period (2008-2018) are significant and the potential for impacts on visibility during the second implementation period (2018-2028) is low.

The NPS identified this source as one of concern with respect to visibility impairment at Badlands National Park (BADL), located approximately 342 miles (550 km) west-northwest of Sheldon Station. A large number of other facilities (>100), the majority of which are out of state, were ranked as higher contributors to visibility impairment at this area based on Nebraska's screening methodology.

2. Whelan Energy Center

This coal-fired EGU is located in the city of Hastings in south central Nebraska and consists of two units with a combined capacity of 297 MW. These units came online in 1981 (Unit 1) and 2011 (Unit 2); Unit 1 is fitted with controls for NOx (overfire air) and particulate matter (electrostatic precipitator) and Unit 2 has controls for SO_2 (dry lime flue gas desulfurization), NOx (selective catalytic reduction), and particulate matter (baghouse).

Annual emissions (2010)	SO_2: 2,301 tpy	NOx: 1,079 tpy
Annual emissions (2021)	SO_2: 2,476 tpy	NOx: 818 tpy
Change	SO_2: 7.6%	NOx: -24.2%

Nebraska's screening methodology did not identify this source for further evaluation using its threshold of 2.00%. NOx emission reductions at this facility since the first implementation period are significant and the potential for impacts on visibility during the second implementation period is low.

The NPS identified this source as one of concern with respect to visibility impairment at Badlands National Park (BADL), located approximately 304 miles (489 km) west-northwest of Whelan Energy Center. A large number of other facilities (>30), the majority of which are out of state, were ranked as higher contributors to visibility impairment at this area based on Nebraska's screening methodology.

3. Ash Grove Cement Company

This Portland cement manufacturing plant is located in the southeastern Nebraska city of Louisville and operates two dry process cement kilns. The kilns were added in 1973 and 1980; both are fitted with PM controls (baghouses), and kiln #2 is fitted with a selective noncatalytic reduction (SNCR) system to reduce NOx emissions. In 2022, construction permits[2] were issued by NDEE for two projects at this facility:

- CP21-042, issued July 27, 2022. This permit action addresses revisions to PTE for PM to reflect corrections to airflows associated with previously permitted baghouses and revisions to an additive to the end-product and slight process change associated with use of this additive. The resulting PTE for PM estimated an increase of less than 5 tpy and reflected no changes in PTE for SO_2 or NOx.
- CP21-040, issued April 19, 2022. This permit action addresses a request by the facility to use biomass as a source of fuel for its kiln system. As addressed in **Section I.E.3** Source Retirements and Replacements, the estimated PTE for SO_2 and NOx with the use of biomass fuel was estimated to decrease by 35% and 65.9% from the currently permitted PTE, respectively.

Annual emissions (2010)	SO_2: 783 tpy	NOx: 1,821 tpy
Annual emissions (2021)	SO_2: 725 tpy	NOx: 2,287 tpy
Change	SO_2: -7.4%	NOx: 25.6%

Nebraska's screening methodology did not identify this source for further evaluation using its threshold of 2.00%. Emissions of SO_2 and NOx increased during the first implementation period but have decreased slightly since 2018; emissions of both pollutants are anticipated to further decrease with the use of biomass fuel in the kiln system.

The NPS identified this source as one of concern with respect to visibility impairment at Badlands National Park (BADL). Badlands NP is located approximately 372 miles (598 km) northwest of Ash Grove. With anticipated emission reductions from the use of biomass fuel, the potential for impacts on visibility during the second implementation period (2018-2028) at the Class I area of concern identified by the FLMs is low. A large number of other facilities (>100), the majority of which are out of state, were ranked as higher contributors to visibility impairment at this area based on Nebraska's screening methodology.

[2] Ash Grove Cement (DEE Facility number 4129), Construction Permit CP21-042 and Basis of Permit (7/27/2022) and Construction Permit CP21-040 and Basis of Permit (4/19/2022), available at Nebraska Public Records Search, https://ecmp.nebraska.gov/PublicAccess/index.html?&MyQueryID=340

4. Western Sugar Cooperative

This source is a sugar beet processing plant located in the western city of Scottsbluff, Nebraska, near the Wyoming border. The facility operates two coal-fired boilers which are being decommissioned and replaced with natural gas boilers pursuant to a consent decree issued in April 2019.[3] The construction permit for this project was issued by NDEE on May 10, 2022, and the project is to be completed by September 30, 2023. This project is expected to significantly decrease SO_2 emissions from the facility.

Annual emissions (2010)	SO_2: 162 tpy	NOx: 457 tpy
Annual emissions (2021)	SO_2: 156 tpy	NOx: 477 tpy
Change	SO_2: -3.7%	NOx: 4.4%

Nebraska's screening methodology did not identify this source for further evaluation using its threshold of 2.00%. Emissions have not significantly changed since the first implementation period but are expected to decrease following installation of the natural gas boilers, as addressed in **Section I.E.3**, Source Retirements and Replacements. Estimated PTE for SOx, NOx, and PM are expected to decrease as a result of this project.

The NPS identified this source as one of concern with respect to visibility impairment at Wind Cave National Park (WICA). Wind Cave NP is located approximately 115 miles (185 km) north of Western Sugar. With anticipated emission reductions from the boiler replacement project, the potential for impacts on visibility during the second implementation period (2018-2028) at this Class I area is low. A large number of other facilities (>100), the majority of which are out of state, were ranked as higher contributors to visibility impairment at this area based on Nebraska's screening methodology. The potential for visibility impacts from this source during the second implementation period (2018-2028) at this Class I area is low.

[3] The consent decree is available on the *NDEE Compliance and Enforcement – Judicial Cases-2019* webpage http://dee.ne.gov/Press.nsf/Judicial_2019.xsp.

5. NGPL Compressor Station 106

This source is a natural gas facility located in the southeastern Nebraska city of Beatrice, operated by Natural Gas Pipeline Company of America. As a compressor station, this facility provides energy to move natural gas through the pipeline and consists of a natural gas-fired boiler and emergency generator. Facility emissions have been relatively consistent since the first implementation period but have demonstrated significant NOx emission reductions since 2018.

Annual emissions (2011)	SO_2: 0.2 tpy	NOx: 1,404 tpy
Annual emissions (2021)	SO_2: 0.2 tpy	NOx: 1,032 tpy
Change	SO_2: -	NOx: -26.5%

Nebraska's screening methodology did not identify this source for further evaluation using its threshold of 2.00%. An increase in NOx emissions occurred during the first implementation period, but significant reductions (40.0%) have been demonstrated thus far during the second implementation period. The most recent operating permit was issued in July 2020 (SO_2 permit limit 2.5lb/MMBtu, averaged over 2 hours for all emission points), and a recent compliance inspection in September 2021 resulted in no violations.

The NPS identified this source as one of concern with respect to visibility impairment at Badlands National Park (BADL). Badlands NP is located approximately 115 miles (185 km) north of Western Sugar. A large number of other facilities (>100), the majority of which are out of state, were ranked as higher contributors to visibility impairment at this area based on Nebraska's screening methodology. The potential for visibility impacts from this source during the second implementation period (2018-2028) at this Class I area is low.

6. Clean Harbors Environmental Services

This industrial waste storage and treatment facility is located in the western city of Kimball, Nebraska, near the Wyoming border. The facility operates a fluidized bed natural gas-fueled incinerator that began operation in 1995. Controls in use include a spray dry absorber and carbon injection baghouses on the facility's thermal oxidizer, and baghouse/fabric filters on its ash removal, bed letdown system, and lime storage silo emission points. Emission limits in the most recent operating permit (October 2018) include an SO_2 limit of 56.7lb/hr (1 hour averaging period); NOx limit of 55.0lb/hr (1 hour averaging period); PM (filterable) limits of 11.3lb/hr (1 hour averaging period) for the facility's ash removal bed letdown system and 3.81lb/hr (1 hour averaging period) for the lime storage silo.

Annual emissions (2013)	SO_2: 224 tpy	NOx: 219 tpy
Annual emissions (2021)	SO_2: 197 tpy	NOx: 193 tpy
Change	SO_2: -12.1%	NOx: -11.9%

Nebraska's screening methodology did not identify this source for further evaluation using its threshold of 2.00%. Though SO_2 and NOx emissions increased early and later decreased during the first implementation period (ending in 2018), emissions have since decreased slightly (~4%) thus far during the second implementation period. The most recent compliance inspection was conducted in September 2021 with no violations.

The NPS identified this source as one of concern with respect to visibility impairment at Rocky Mountain National Park (ROMO). Rocky Mountain NP is located approximately 107 miles (173 km) southwest of Clean Harbors. A large number of other facilities (>200), the majority of which are out of state, were ranked as higher contributors to visibility impairment at this area based on Nebraska's screening methodology. Visibility impacts from this source at this Class I area are unlikely, given that predominant winds in the Kimball area are from the northwest and those in Rocky Mountain NP are from the southwest.[4]

[4] Windroses for Kimball, NE and the Estes Park RAWS weather stations are available from the Iowa Environmental Mesonet at https://mesonet.agron.iastate.edu/sites/windrose.phtml?station=IBM&network=NE_ASOS and https://mesonet.agron.iastate.edu/sites/windrose.phtml?station=ESPC2&network=CO_DCP, respectively.

7. Platte Generating Station

This coal-fired EGU is located in the city of Grand Island in central Nebraska and consists of one unit with a capacity of 100 MW. This unit came online in 1982 and is fitted with controls for NOx (low-NOx burner with overfire air), SO_2 (dry lime flue gas desulfurization), and particulate matter (baghouse with electrostatic precipitator). The utility is considering lower cost fuel options and/or renewables to replace coal, which it expects to phase out within eight to 10 years; finalization of the refueling project is expected in the next couple of years.[5]

Annual emissions (2010)	SO_2: 2,365 tpy	NOx: 1,201 tpy
Annual emissions (2021)	SO_2: 438 tpy	NOx: 529 tpy
Change	SO_2: -81.5%	NOx: -56.0%

Nebraska's screening methodology did not identify this source for further evaluation using its threshold of 2.00%. Significant reductions in SO_2 and NOx emissions were demonstrated during the first implementation period, with additional reductions (>10%) of each pollutant thus far in the second implementation period. The most recent compliance inspection was conducted in September 2021 with no violations.

The NPS identified this source as one of concern with respect to visibility impairment at Badlands National Park (BADL). Badlands NP is located approximately 289 miles (465 km) northwest of Platte Generating Station. Emission reductions have been significant and the potential for impacts on visibility during the second implementation period at this Class I area is low. A large number of other facilities (>80), the majority of which are out of state, were ranked as higher contributors to visibility impairment at this area based on Nebraska's screening methodology.

[5] 2022 Nebraska Power Association Load and Capability Report (July 2022), page 11, https://www.nepower.org/file_download/inline/21e54d11-6166-4ec5-8f5e-e9d47617e0ed

8. Lon D Wright Power Plant

This EGU is located in the city of Fremont in eastern Nebraska and consists of three operating units: two fueled by natural gas with coal backup, and one fueled by coal with natural gas backup. These units came online in 1958, 1963, and 1982, respectively, and have a combined capacity of 130MW. The coal-fired unit (Unit 8) uses PRB low-sulfur coal and is fitted with controls for NOx (low-NOx burner – dry bottom), SO_2 (wet lime flue gas desulfurization), and particulate matter (baghouse with electrostatic precipitator). Unit 8 participates in the CSAPR trading program (Group 2) and holds allowances to cover annual SO_2 and NOx emissions.

Annual emissions (2010)	SO_2: 1,206 tpy	NOx: 449 tpy
Annual emissions (2021)	SO_2: 838 tpy	NOx: 513 tpy
Change	SO_2: -30.5%	NOx: 14.3%

Nebraska's screening methodology did not identify this source for further evaluation using its threshold of 2.00%. Significant reductions in SO_2 emissions were demonstrated during the first implementation period, and increased use of renewable energy sources (wind and solar)[6] thus far in the second implementation period will likely contribute to further reductions. The most recent compliance inspection was conducted in March 2022 with no violations.

The NPS identified this source as one of concern with respect to visibility impairment at Rocky Mountain National Park (ROMO). Rocky Mountain NP is located approximately 495 miles (767 km) west-southwest of this facility. Emission reductions of SO_2 during the first implementation period were significant and the potential for impacts on visibility during the second implementation is low. Following application of Nebraska's source screening methodology, Lon D Wright Power Plant did not appear on the resulting list of sources.

[6] Integrated Resource Plan (2018 to 2022), City of Fremont, Nebraska, https://www.fremontne.gov/DocumentCenter/View/5093/Final-Integrated-Resource-Plan-2018-8242018

9. Northern Natural Gas Company

Two compressor stations operated by Northern Natural Gas Company, located in the southeastern cities of Palmyra and Beatrice, operate numerous natural gas-fired reciprocating internal combustion engines (RICE), stationary gas combustion turbines, and boilers. These units are subject to various permit limits for NOx, SO_2, and PM (filterable), as well as opacity limits.

	Palmyra		Beatrice	
	SO_2	NOx	SO_2	NOx
Annual emissions (2011)	1.31 tpy	869 tpy	0.2 tpy	749 tpy
Annual emissions (2021)	0.6 tpy	807 tpy	0.3 tpy	150 tpy
Change	-53.8 %	-7.1 %	50.0 %	-80 %

Nebraska's screening methodology did not identify these facilities for further evaluation using its threshold of 2.00%. Reductions in SO_2 and NOx emissions from these plants were demonstrated during the first implementation period, and significant reductions (ranging from 39.1% to 86.4%) have occurred thus far in the second implementation period. The most recent compliance inspection at the Beatrice facility was conducted in November 2019, identifying a minor discrepancy in documentation (corrected within 30 days); an inspection in December 2021 at the Palmyra facility resulted in no violations.

The NPS identified these facilities as those of concern with respect to visibility impairment at Rocky Mountain National Park (ROMO). Rocky Mountain NP is located approximately 477 miles (772 km) west of the Beatrice facility and 462 miles (743 km) west of the Palmyra facility. Emission reductions at both facilities have been significant and the potential for impacts on visibility during the second implementation period at this Class I area is low. A large number of other facilities (>100), the majority of which are out of state, were ranked as higher contributors to visibility impairment at this area based on Nebraska's screening methodology.

10. ADM Corn Processing

This facility is located in the eastern Nebraska city of Columbus and consists of a corn milling operation and ethanol cogeneration plant. The mill and ethanol plant operate a natural gas-fired thermal oxidizer and associated equipment subject to various permit limits for PM (filterable), SO_2, VOC, and opacity. Control equipment includes SO_2 scrubbers, low NOx burners, and baghouses.

Annual emissions (2010)	SO_2: 415 tpy	NOx: 441 tpy
Annual emissions (2021)	SO_2: 500 tpy	NOx: 378 tpy
Change	SO_2: 20.5%	NOx: -14.3%

Nebraska's screening methodology did not identify this source for further evaluation using its threshold of 2.00%. Though SO_2 emissions increased during the first implementation period, the increase thus far in the second implementation period has been less than 4%. NOx emissions have steadily decreased since the beginning of the first implementation period and thus far in the second implementation period. A compliance inspection conducted in October 2020 found two emission points (the thermal oxidizer and the millhouse scrubbers) in violation of its SO_2 emission limit. The source completed a variety of troubleshooting and corrective actions to return these units to compliance, and in May 2021, provided compliance testing documentation to NDEE; the agency verified compliance with the permitted emission limit for SO_2.

The NPS identified this source as one of concern with respect to visibility impairment at Rocky Mountain National Park (ROMO). Rocky Mountain NP is located approximately 434 miles (698 km) west-southwest of the facility. Emissions from this facility are controlled and the potential for impacts on visibility during the second implementation period at this Class I area is low. A large number of other facilities (>1000), the majority of which are out of state, were ranked as higher contributors to visibility impairment at this area based on Nebraska's screening methodology.