Seismic Impact Zones Determination

Lewis & Clark Station

Prepared for
Montana-Dakota Utilities Co.

October 2018

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Certifications

I hereby certify that this Seismic Impact Zones Determination report for the Lewis & Clark Station meets the requirements of the Coal Combustion Residuals Rule 40 CFR 257 Subpart D, and the requirements of 40 CFR §257.63.

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Barr Engineering Co.
MT Registration Number 12805PE

Dated this 15th day of October 2018

1.0 Introduction

Montana-Dakota Utilities Co. (MDU) operates the Lewis & Clark Station (Lewis & Clark), a coal-fired steam-electric generating plant, near Sidney, Montana, to produce electrical energy. Coal combustion residuals (CCR) is a by-product of plant operation. Management of CCR produced by electric utilities is subject to the requirements of 40 CFR 257 Subpart D, Disposal of Coal Combustion Residuals From Electric Utilities (CCR Rule).

The Scrubber Ponds, a single, multi-unit CCR unit, at Lewis & Clark is an existing CCR surface impoundment (40 CFR §257.53) that receives sluiced flue-gas desulfurization sludge and fly ash material. This CCR seismic impact zones determination report has been developed to satisfy the requirements of 40 CFR §257.63 as they apply to the Scrubber Ponds.

2.0 Demonstration

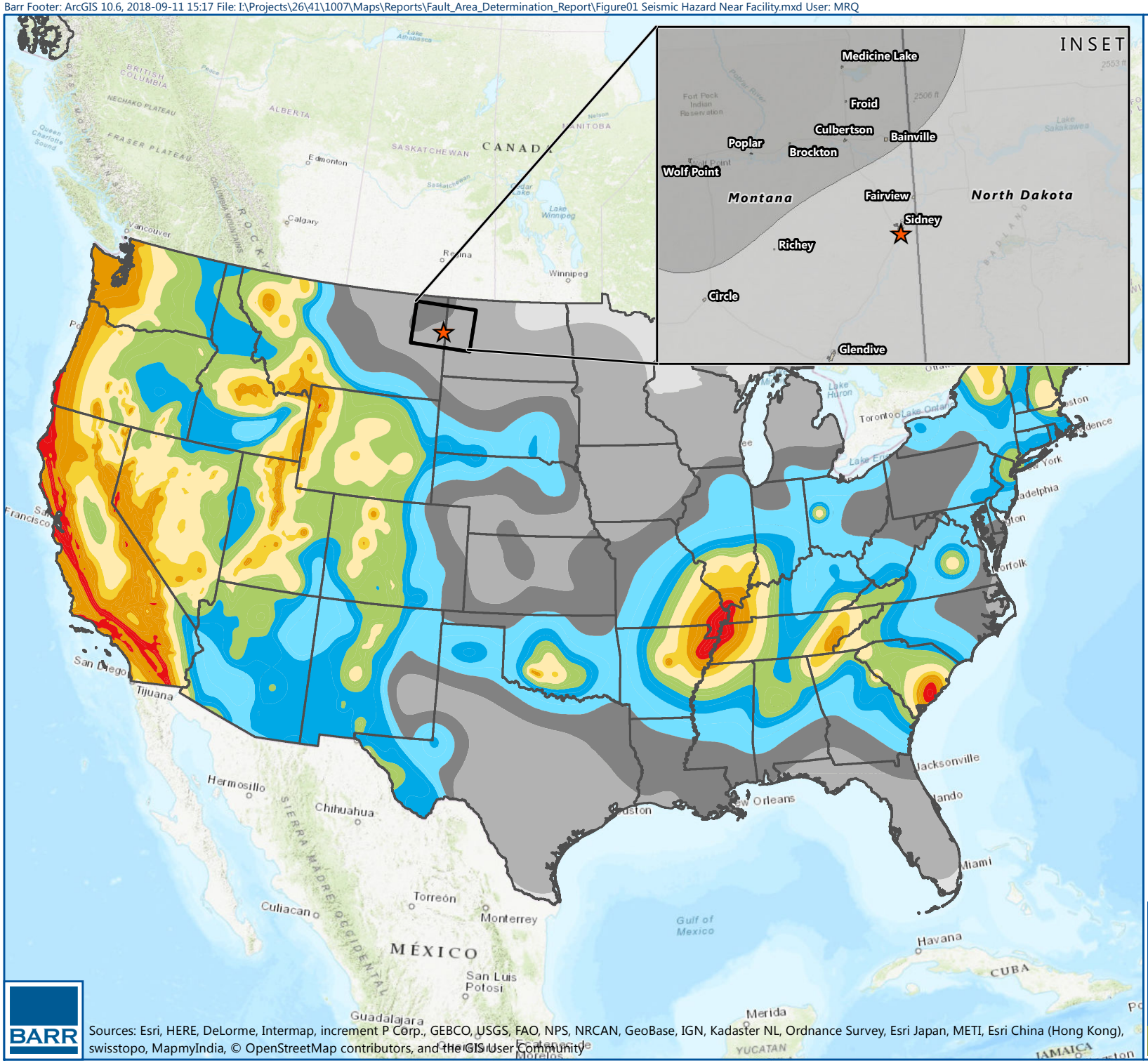
As required by 40 CFR §257.63, CCR units must not be located in seismic impact zones unless the owner or operator demonstrates that all structural components including liners, leachate collection and removal systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site.

Per 40 CFR §257.53, a seismic impact zone is defined as "an area having a 2% or greater probability that the maximum expected horizontal acceleration, expressed as a percentage of the earth's gravitational pull (g), will exceed 0.10 g in 50 years." Figure 1 was prepared based on data obtained from the USGS National Seismic Hazards Mapping Project. The location shown on Figure 1 demonstrates that the CCR unit is located in an area of less than 0.10 g horizontal acceleration.

Based on the information provided above, the location of the existing CCR surface impoundment conforms to the location restriction of §257.63.

3.0 References

USGS, United States Geological Survey National Seismic Hazards Mapping Project, Unified Hazard Tool, https://earthquake.usgs.gov/hazards/interactive/ Accessed on September 11, 2018.



Site Location

Peak Acceleration, expressed as a fraction of standard gravity (g)

- 0-0.02
- 0.02-0.04
- 0.04-0.06
- 0.06-0.1
- 0.1-0.14
- 0.14-0.2
- 0.2-0.3
- 0.3-0.4
- 0.4-0.8
- >0.8

Note: Data shown depicts probabilistic ground motions with a 2 percent probablity of exceedance of peak ground acceleration in 50 years.

0 175 350 525

Miles

Data source: United States Geological Survey

SEISMIC HAZARD NEAR FACILITY
Lewis & Clark Station
Montana-Dakota Utilities, Co.
Sidney, Montana

FIGURE 1

BARR

Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community