



June 15, 2018

Mr. Kent Fletcher  
Environmental Coordinator  
Western Farmers Electric Cooperative  
P.O. Box 429, 701 N.E. 7<sup>th</sup>  
Anadarko, OK 73005

Re: Seismic Impact Zone Demonstration Report  
Hugo Power Plant  
Burns & McDonnell Project No: 85009

Dear Mr. Fletcher:

Western Farmers Electric Cooperative (WFEC) retained Burns & McDonnell Engineering Company, Inc. (Burns & McDonnell) to conduct a review and provide a seismic impact zone demonstration report relating to WFEC's Hugo Power Plant (Facility) pursuant to the United States Environmental Protection Agency's (EPA) final rule titled *Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments* in 40 CFR Part 257 Subpart D, published in the *Federal Register* on April 17, 2015 and pursuant to the Oklahoma Department of Environmental Quality's counterpart rule, OAC 252:517, which became effective on September 15, 2016 (collectively, the CCR Rule).

## INTRODUCTION

The Facility is located on U.S. Hwy 70, west of Fort Towson, Oklahoma in Choctaw County. The Facility generates three types of ash from burning coal – fly ash, economizer ash, and bottom ash. Bottom ash is sluiced to a CCR impoundment (Impoundment). The Impoundment is divided into two cells - a north cell (CCR2) and a south cell (CCR3). The CCR Rule requires that new CCR landfills, new and existing CCR surface impoundments, and any lateral expansion of CCR Units not be located within a seismic impact zone unless the owner or operator can demonstrate that all structural components are designed to resist the maximum horizontal acceleration in lithified earth material for the site. 40 C.F.R. § 257.63(a); OAC 252:517-5-4(a).

## METHODS

As defined in the CCR Rule, 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." 40 C.F.R. § 257.53; OAC 252:517-1-3. Burns & McDonnell reviewed available data from United States Geological Survey (USGS) Earthquake Hazards Program (<http://earthquake.usgs.gov/hazards/apps/>) to determine the maximum expected horizontal acceleration for the Facility. Using data from the USGS website, a map was generated for the State of Oklahoma and is included in Appendix A of this Report. The USGS national seismic hazard map is included in Appendix B.

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## **RESULTS**

According to data extracted from the USGS website, the maximum expected horizontal acceleration in the vicinity of the Facility is 0.06-0.08 g, which is below the 0.10 g requirement of the CCR rule. Therefore, the Facility is not located within a seismic impact zone and is in compliance with the location restriction standards with respect to seismic impact zones as described in the CCR Rule, 40 C.F.R. § 257.63(a) and OAC 252:517-5-4(a).

I certify that I am a “Qualified Professional Engineer” as required by 40 C.F.R. § 257.63(b) and OAC 252:517-5-4(b), respectively, and as defined by 40 C.F.R. § 257.53 and OAC 252:517-1-3, respectively, by the fact that I am a currently registered Professional Engineer in the State of Oklahoma and I have the technical knowledge and experience to make the certifications set forth in this Report.

Sincerely,

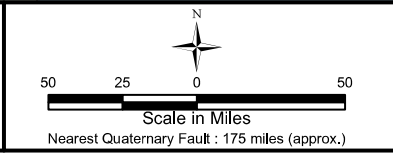
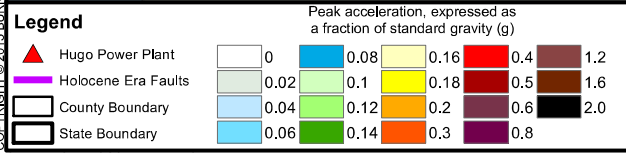
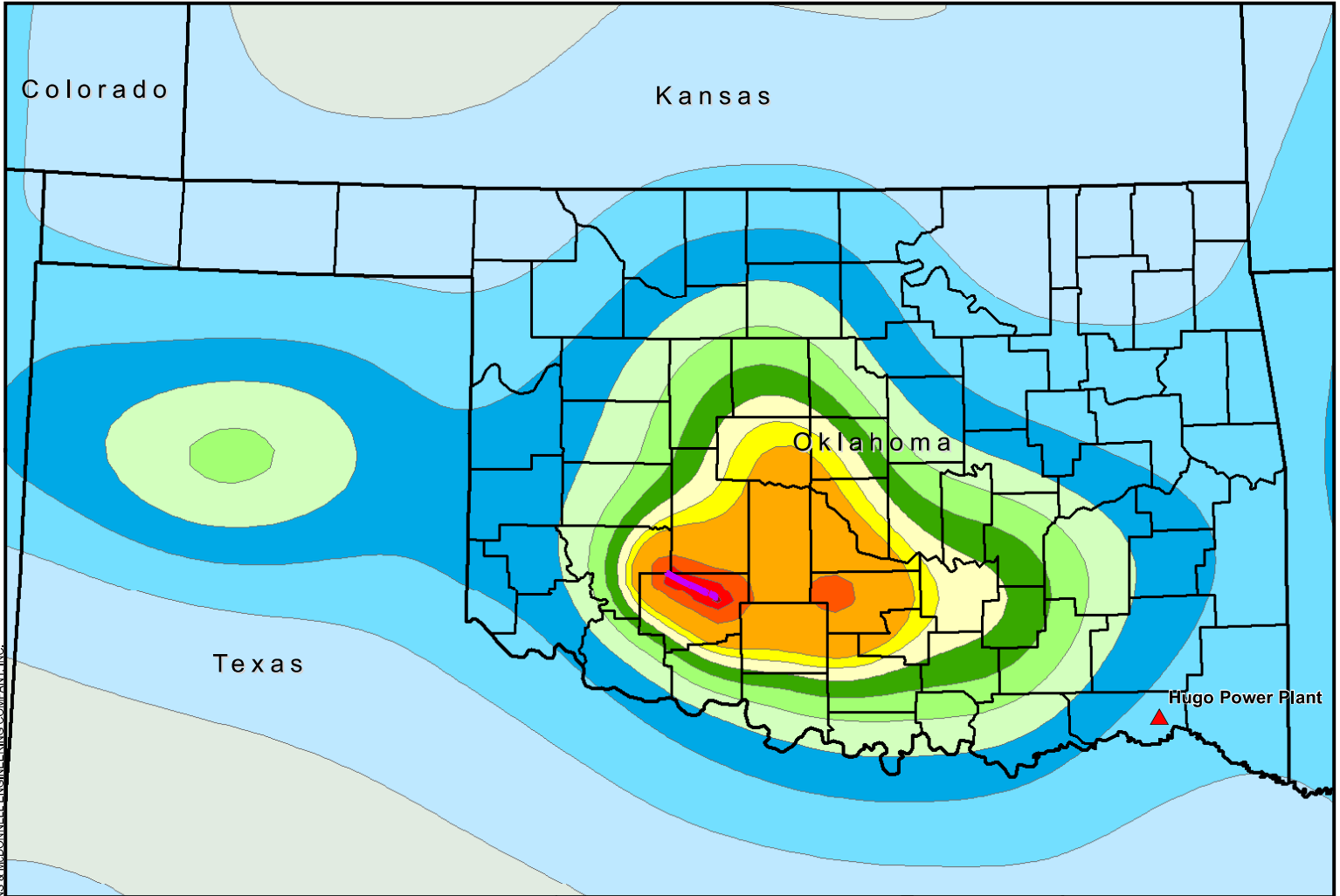


Robert Owens, PE Associate Civil Engineer  
Oklahoma License Number 21260 Attachments:

Appendix A - 2014 USGS Seismic Impact Zone  
Appendix B - USGS National Seismic Hazard Map

cc: Katie Bland, Burns & McDonnell  
Jason Eichenberger, Burns & McDonnell

**APPENDIX A - 2014 USGS SEISMIC IMPACT ZONE**



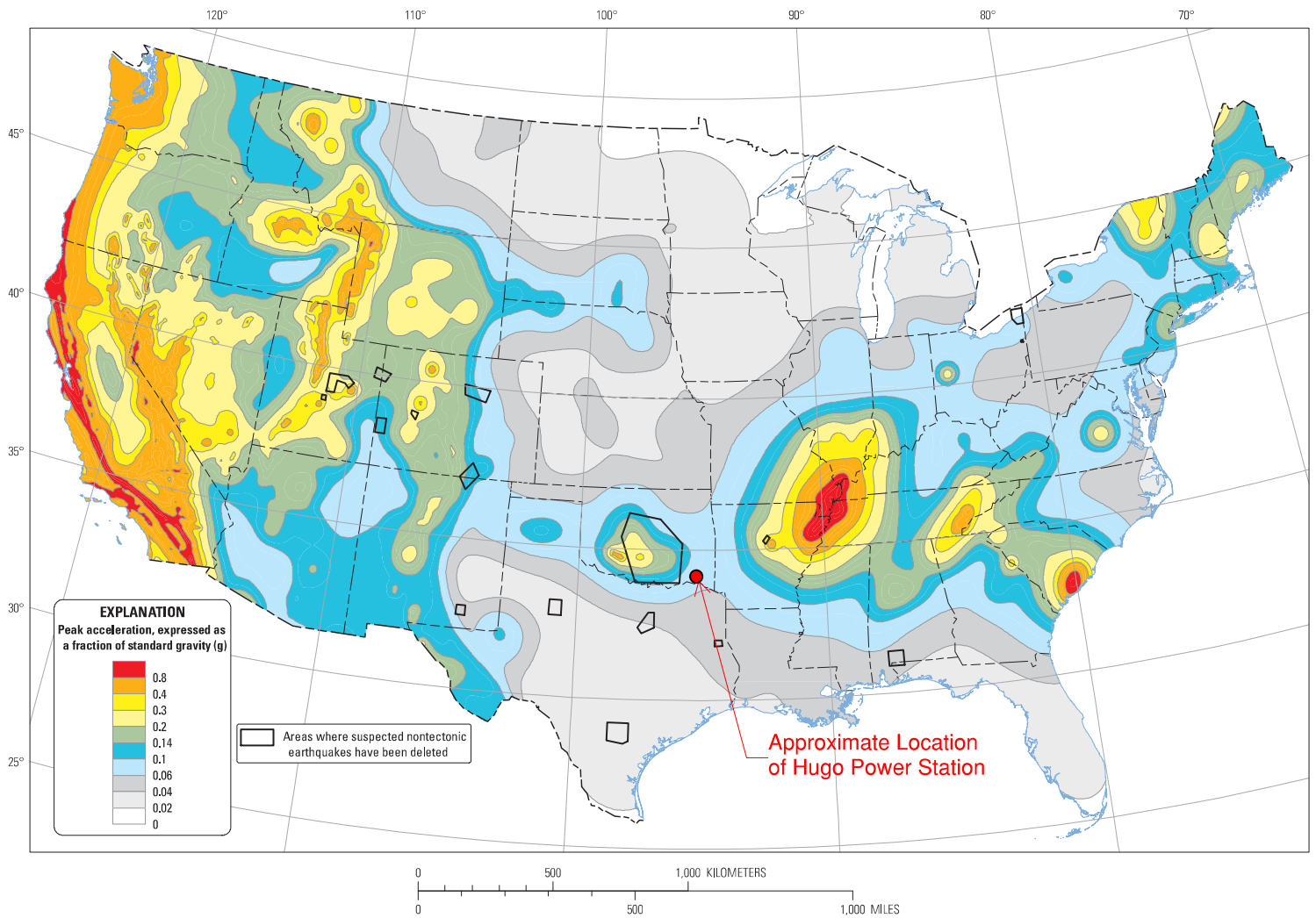
**CCR Impoundment  
Location Requirements:  
Fault Areas & Seismic Zones  
In Oklahoma**

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Source: ESRI, USGS, and Burns & McDonnell Engineering Inc.

Issued: September, 24 2015

**APPENDIX B - USGS NATIONAL SEISMIC HAZARD MAP**



## Two-percent probability of exceedance in 50 years map of peak ground acceleration

<http://earthquake.usgs.gov/hazards/products/conterminous/>