



NRG Texas Power LLC
Limestone Generating Station, Units 1 & 2

Safety Factor Assessment
for Existing CCR Surface Impoundments

Prepared by



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1 PURPOSE

Pursuant to 40 CFR 257.73(e), this report provides the initial safety factor assessments for embankment stability of existing coal combustion residual (CCR) surface impoundments at NRG Texas Power LLC's (NRG) Limestone Generating Station. The following existing CCR surface impoundments are addressed herein:

- Unit ST-18 Pond,
- Unit 003 Secondary E Pond,
- Unit 019 E Pond, and
- Unit 002 Storm Water Pond.

NRG has evaluated the CCR landfill stormwater run-off pond (002) and determined that the subject surface impoundment does not meet the definition of a CCR surface impoundment based on EPA guidance. This determination is based on:

1. the fact that the CCR landfill stormwater run-off pond (002) is not designed primarily to hold an accumulation of CCR and liquid
2. the primary function of the landfill stormwater run-off pond (002) is not storage or disposal of CCR.

For the aforementioned reasons, NRG will no longer manage the CCR landfill stormwater run-off pond (002) as a CCR surface impoundment after October 17, 2016.

2 RESULTS & CONCLUSIONS

Safety factor analyses were performed for the critical cross section stability for each CCR surface impoundment (CCR unit). The lowest factor of safety (FOS) corresponding to the potential failure surface for the critical cross section is summarized in Table 1 for each CCR unit.

Table 1: Summary of Safety Factors for Each CCR Unit

FOS Assessment	Unit ST-18	Unit 003 Secondary E Pond	Unit 019 E Pond	Unit 002 Storm Water Pond	Minimum Allowable FOS
40 CFR 257.73(e)(1)(i) Calculated Static FOS for Long-Term, Maximum Storage Pool Loading Condition	1.50	1.79	1.89	2.06	1.50
40 CFR 257.73(e)(1)(ii) Calculated Static FOS for Maximum Surcharge Pool Loading Condition	1.41	1.70	1.65	1.93	1.40
40 CFR 257.73(e)(1)(iii) Calculated Seismic FOS Loading Condition	1.36	3.61	1.68	2.14	1.00
40 CFR 257.73(e)(1)(iv) Calculated Liquefaction	Note 1	Note 1	Note 1	Note 1	1.20
Does CCR Unit Satisfy the Requirements of 40 CFR 257.73(e)?	Yes	Yes	Yes	Yes	-

Notes: 1) The dikes and foundation materials are not susceptible to liquefaction. Thus, liquefaction safety factor is not reported.

The factors of safety calculated for each required load case for each CCR unit satisfy the minimum safety factors specified in 40 CFR 257.73(e)(1)(i) through (iv) for the critical cross section of the embankment.

3 CERTIFICATION

This initial safety factor assessment meets the requirements of 40 CFR 257.73(e).

I certify that this report was prepared by me or under my supervision and that I am a registered professional engineer under the laws of the State of Texas.

This document is released for use under the authority of James H. Staehlin, Texas PE #87527 on October 7, 2016. Sargent & Lundy Texas Registered Engineering Firm #F-2202.

Certified By: JAMES H. STAEHLIN Date: 10-7-2016

Seal:

