

STRUCTURAL STABILITY ASSESSMENT – REVISION 01
40 C.F.R. SECTION 257.73(d)
GULF CLEAN ENERGY CENTER GYPSUM STORAGE AREA
FLORIDA POWER & LIGHT COMPANY

This Structural Stability Assessment was prepared for Florida Power & Light Company's (FPL's) Gulf Clean Energy Center (GCEC, formerly Plant Crist) Gypsum Storage Area, located in Pensacola, Florida. The United States Environmental Protection Agency's (EPA) "Disposal of Coal Combustion Residuals Landfills and Surface Impoundments" Final Rule (40 C.F.R. Part 257, Subpart D), §257.73(d) and §257.100(e)(3)(v) require the owner or operator of an existing CCR surface impoundment to conduct an initial and periodic structural stability assessment. The owner or operator must document whether the design, construction, operation, and maintenance of the CCR unit is consistent with generally accepted good engineering practices for the maximum volume of CCR and CCR wastewater which can be impounded therein.

The GCEC Gypsum Storage Area, consisting of a 15.5-acre lined gypsum storage pond, is currently inactive following the facility ceasing coal fired operation, and is undergoing engineering design evaluation for closure by removal in accordance with §257.102(c).

The GCEC Gypsum Storage Area is located in the Gulf Coastal Plain Geologic province, a wedge of sediments over the crystalline "basement" rock trending from zero thickness at the fall line to over 10,000 ft at the coast. For purposes of this demonstration, the lowest level considered is the Miocene Series of soils, which is described as dense fine to coarse sand, gravelly sand and thin-bedded clay and clayey sands.

The embankments of the GCEC Gypsum Storage Area are formed by perimeter dikes, consisting of locally borrowed, compacted soils of the Gulf Coastal Plain Geologic Province generally consisting of dense silty sands (SM). The subsurface near the perimeter berms of the GCEC Gypsum Storage Area consists of the following major layers:

- Clayey Soils
- Organic Clayey Soils
- Clayey and Silty Sands
- Clayey Soils (in select areas)
- Silty Sands
- Limestone

The embankments were originally constructed using mechanically stabilized structural fill. The embankments are founded on stable foundation soils, that do not meet the definition of Unstable Areas (40 C.F.R. §257.64). Slopes and other cover components effectively meet the requirements of 40 C.F.R. §257.73(e). Downstream embankment slopes are vegetated and well maintained, with CCR within the lined slopes on the interior slopes and grassy vegetation with some riprap and gravel for erosion control as needed on exterior slopes. The Gypsum Storage Area is not operated in a manner to normally be subject to wave action or rapid drawdown.

The GCEC Gypsum Storage Area was originally designed with the following discharge structures:

- A stop-log riser structure that flows into a 30-inch HDPE pipe and continuing into a 48-inch pipe toward the Sedimentation Pond
- A box culvert flowing into the Sedimentation Pond

There are no pipes that penetrate any of the exterior embankments. The water levels within the Gypsum Storage Area are maintained such that there is adequate storage to manage the inflow during the 1,000-year, 24-hr design storm event.

There is low probability of inundation of the downstream slopes of the embankment due to surge from tropical storms. Currently, the embankment is protected from erosion in the event of inundation by vegetative cover at the downstream toe of the embankment. Portions of the lower embankment along the northwest and northern boundaries are also protected with rip rap.

Engineering analyses for GCEC Gypsum Storage Area were evaluated for loading conditions for its interim condition reflective of current conditions. For all cases analyzed, the calculated factors of safety are in excess of those required in 40 C.F.R. § 257.73(e)(i) to (iv).

CERTIFICATION

I certify that this Structural Stability Assessment for the Gulf Clean Energy Center Gypsum Storage Area was prepared in accordance with 40 C.F.R. §257.73(d).



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