

STRUCTURAL STABILITY ASSESSMENT – REVISION 01
40 C.F.R. SECTION 257. 73(d)
PLANT SMITH ASH POND
FLORIDA POWER & LIGHT COMPANY

This Structural Stability Assessment was prepared for Florida Power & Light Company's (FPL's) Smith Electric Generating Plant (Plant Smith) Ash Pond, located in Southport, 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), 40 C.F.R. §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 Plant Smith Ash Pond is currently being consolidated and closed in place in accordance with 40 C.F.R. §257.102(d) and no longer receives CCR.

The Plant Smith Ash Pond 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. Based on USGA and FGS mapping reports, the Cambrian Age metamorphic and igneous, crystalline "basement" rock is over 11,000 feet deep at the site. For purposes of this demonstration, the lowest level considered is the Miocene Age Bruce Creek Limestone, which is described as light colored, granular, partly indurated limestone. This is overlain by the Intercoastal Formation, comprised of calcareous sands and recent (Pliocene to Holocene) sandy sediments.

The embankments of the Plant Smith Ash Pond are formed by incised and perimeter dikes, consisting of locally borrowed, compacted soils of the Gulf Coastal Plain Geologic Province generally consisting of dense clean sands (USCS SP, SP-SM) and stiff silty sands (SM), and compacted mixtures of bottom ash, fly ash, aforementioned soils with trace gravel sized bottom ash and pyrite. The subsurface near the perimeter berms of the Plant Smith Ash Pond consists of the following major layers:

- Sandy fill soils and ash-soil mixtures
- Organic Soils
- Interlayered clean sands with clayey and silty sands
- Clayey Soils (in select areas)
- Silty Sands
- Limestone

The embankments were originally incised and then a dike was constructed using mechanical stabilization during ash pond operation. 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 temporary stormwater channels and compacted dry-stacked CCR on the interior slopes and grassy vegetation with some riprap and gravel on exterior slopes. The Ash Pond is not operated in a manner to normally be subject to wave action or rapid drawdown.

The Ash Pond was originally designed with a concrete overflow weir discharge structure in the northeast portion of the unit. The overflow weir structure empties into a forebay area and ultimately the north canal channel via a 48-inch pipe culvert. There are no pipes that penetrate any of the embankments. The water levels within the Ash Pond are maintained such that there is adequate storage to manage the inflow during the 100-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. Recent analyses of storm surge for this coastal region indicates storm surge greater than two (2) feet occurs less than one percent (1%) of the time. Currently, the embankment is protected from erosion in the event of inundation by the vegetation and rip rap cover at the downstream toe of the embankment.

Engineering analyses for the Plant Smith Ash Pond were evaluated for loading conditions for its interim condition reflective of current conditions utilizing aerial topography dated September 7, 2021. For the static storage pool case analyzed, the calculated factors of safety are lower than the factors required in 40 C.F.R. § 257.73(e)(i). As such, the Plant Smith Ash Pond is required to cease placing CCR and non-CCR wastewater into the Ash Pond and undergo closure subject to the requirements of 40 C.F.R. § 257.101(b)(2) within six months of this determination. As noted in the Plant Smith Closure Plan, a Notice of Intent to Initiate Closure was previously completed on May 7, 2021 and Plant Smith Ash Pond no longer receives CCR or non-CCR wastewater. The Plant Smith Ash Pond is currently undergoing closure in accordance with the requirements of 40 C.F.R. § 257.102.

CERTIFICATION

I certify that this Structural Stability Assessment for the Plant Smith Ash Pond was prepared in accordance with 40 C.F.R. § 257.73(d).



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