ftn Associates Ltd.
water resources / environmental consultants

ENTERGY INDEPENDENCE PLANT
EAST AND WEST RECYCLE PONDS

DEMONSTRATION OF COMPLIANCE WITH EPA CCR RULE SITING CRITERIA §257.61, WETLANDS

PREPARED IN COMPLIANCE WITH THE EPA FINAL RULE FOR THE DISPOSAL OF COAL COMBUSTION RESIDUALS TITLE 40 CODE OF FEDERAL REGULATIONS PART 257

OCTOBER 17, 2018

ENTERGY INDEPENDENCE PLANT
EAST AND WEST RECYCLE PONDS

DEMONSTRATION OF COMPLIANCE WITH EPA CCR RULE SITING CRITERIA §257.61, WETLANDS

Prepared for

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Prepared by

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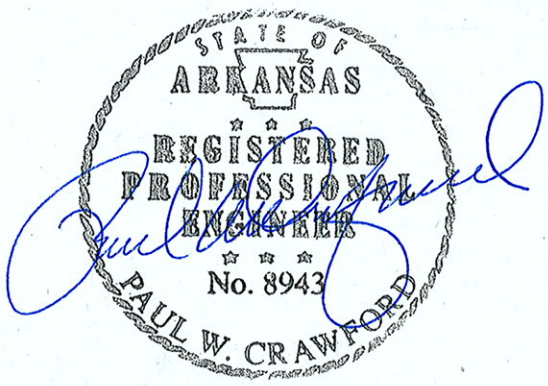
FTN No. R07920-1861-001

October 17, 2018

PROFESSIONAL ENGINEER'S CERTIFICATION

With this certification, I certify that I, as a Professional Engineer in the State of Arkansas, am a qualified professional engineer as defined in §257.53 of Title 40 Code of Federal Regulations (40 CFR) Part 257, that this report has been prepared under my direction in accordance with generally accepted good engineering practices, that the findings are accurate to the best of my knowledge, and that the CCR unit that is subject to this certification meets the location restriction requirements under §257.61 of 40 CFR Part 257.



Paul Crawford, Arkansas PE #8943

10·17·18
Date

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1.0 INTRODUCTION

Entergy Arkansas, Inc. (Entergy), operates the Independence plant located approximately 2 miles southeast of Newark, Arkansas. The plant utilizes two recycle ponds, hereafter referred to as the East and West Recycle Ponds, for, among other things, the management of bottom ash transport water. Pursuant to §257.61 of Title 40 Code of Federal Regulations (40 CFR) Part 257, existing coal combustion residual (CCR) surface impoundments must not be located in wetlands, as defined in §232.2, unless the requirements of §257.61(a)(1) through (5) are met. This report presents the findings of an evaluation of the East and West Recycle Ponds in support of the location restriction requirements of §257.61.

2.0 SITE DESCRIPTION

The East and West Recycle Ponds are shown on Figure 1 (all figures are located in Appendix A). The East Recycle Pond has an approximate surface area of 6.2 acres and the West Recycle Pond has an approximate surface area of 6.8 acres[1]. Based on surveys completed during June 2018, the East Recycle Pond has a maximum depth of 20 ft below ground surface (ft bgs) and the West Recycle Pond has a maximum depth of 18 ft bgs (FTN Associates, Ltd. [FTN] 2018). The typical water level elevation in the recycle ponds is approximately 235 ft North American Vertical Datum of 1988 (NAVD88) based on field observations during June 2018. At the time of this evaluation, the West Recycle Pond was being drained for maintenance. Drained water from the West Recycle Pond was being pumped into and stored in the East Recycle Pond. Topography surrounding the East and West Recycle Ponds is generally flat-lying, with ground surface elevations ranging from approximately 234 to 239 ft NAVD88, as shown on Figures 1 and 2.

[1] Pond surface areas were estimated based on the water level (East Recycle Pond) and water level line (West Recycle Pond) during field activities in June 2018.

3.0 WETLANDS EVALUATION

The US Geological Survey (USGS) topographic quadrangle (based on imagery taken in 1961 and surveys from 1956 to 1962) does not indicate any water features, either wetlands or stream channels, within the area of the recycle ponds (Figure 3). Additionally, the topographic map does not indicate that the recycle pond area is at a low-lying elevation compared with the surrounding landscape. Historical aerial imagery provides no visual indication of potential wetlands within the area of the recycle ponds prior to construction (Figure 4).

The US Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) currently maps the recycle ponds as freshwater pond features (USFWS 2018) (Figure 5). However, as the NWI mapping was done after the recycle ponds were built, these data do not provide indication of potential wetlands within the area of the recycle ponds prior to construction.

A site visit was conducted in May of 2018. During this visit no wetlands were observed within or immediately adjacent to the recycle ponds. Presently, the ponds themselves would not be considered wetlands under Section 404 as they do not support wetland vegetation and lack a hydrologic connection to a navigable water.

FTN's professional opinion is that the recycle ponds were not constructed in or immediately adjacent to wetlands.

4.0 CONCLUSIONS

Based on a review of the available documentation in this report, neither the East Recycle Pond nor the West Recycle Pond is located in a wetland and therefore both the East and West Recycle Ponds at the Entergy Independence plant meet the location restriction requirements of §257.61.

5.0 REFERENCES

FTN [FTN Associates, Ltd.]. 2018. *Entergy Independence Plant, East and West Recycle Ponds, Demonstration of Compliance with EPA CCR Rule Siting Criteria, §257.60, Placement Above the Uppermost Aquifer*. Little Rock, AR: FTN Associates, Ltd.

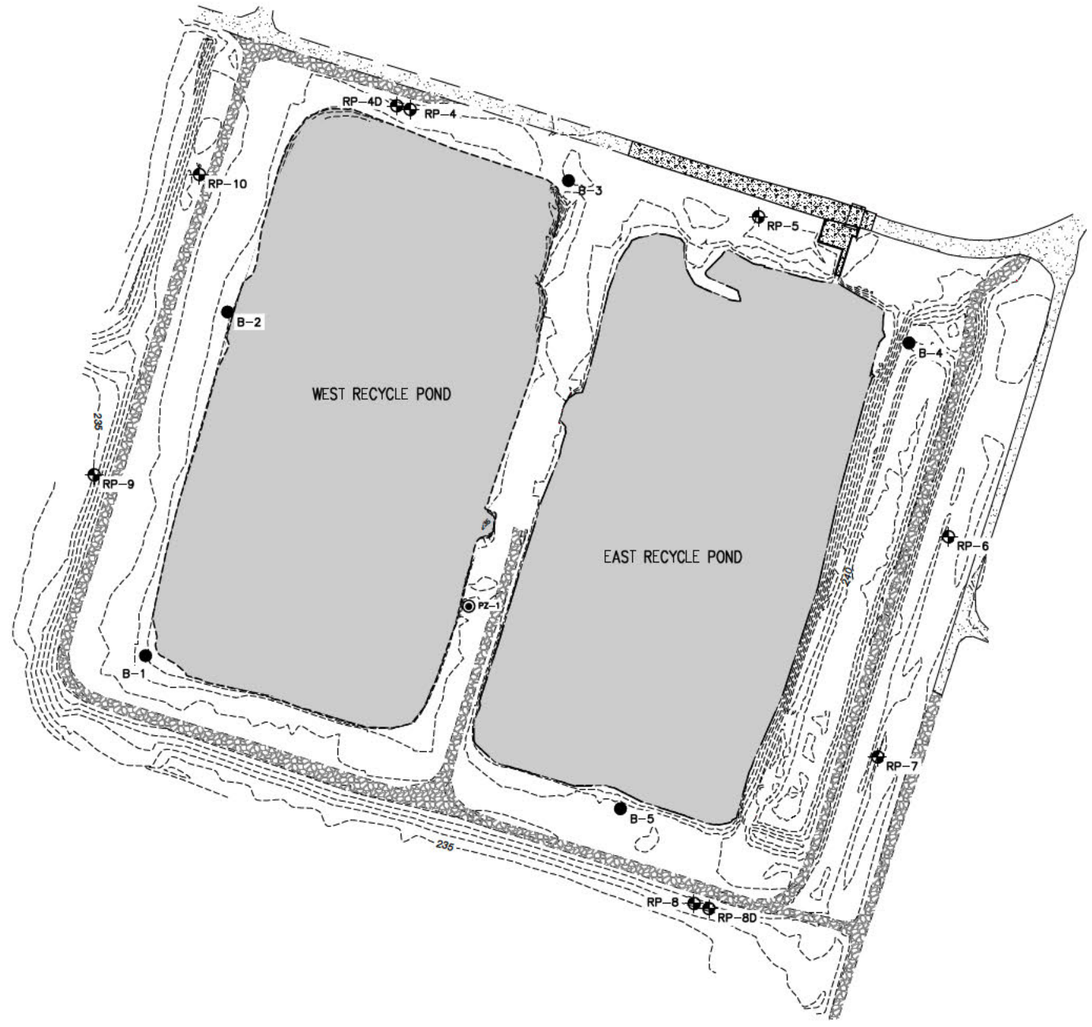
USFWS [US Fish and Wildlife Service]. 2018. "Wetlands Mapper" [web page]. US Fish and Wildlife Service, National Wetlands Inventory. Online at https://www.fws.gov/wetlands/data/mapper.html (accessed 24 August 2018).

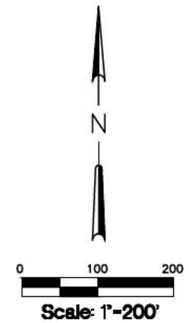
USGS [US Geological Survey]. 1961. "1VAGE00010055" [aerial photo single frame]. US Geological Survey. Available online at https://earthexplorer.usgs.gov/metadata/4660/AR1VAGE00010055/.

———. 1962. "USGS 1:24000-Scale Quadrangle for Newark, AR 1962." US Geological Survey. Available online at https://www.sciencebase.gov/catalog/item/5a8a29e6e4b00f54eb3c797b.

APPENDIX A

Figures





LEGEND

- 240 5-FT INDEX CONTOUR (HARMON SURVEYING, INC.)
- 1-FT INTERMEDIATE CONTOUR (HARMON SURVEYING, INC.)
- PAVED ROAD
- GRAVEL ROAD
- CONCRETE PAD
- B-5 SOIL BORING
- PZ-1 PIEZOMETER
- RP-6 MONITORING WELL
- EDGE OF WATER, JUNE 2018
- TYPICAL EDGE OF WATER

NOTES:

1. TOPOGRAPHIC INFORMATION OUTSIDE OF POND AREA IS FROM SURVEY PERFORMED BY HARMON SURVEYING, INC., JUNE 2018.
2. WEST POND BOTTOM TOPOGRAPHIC DATA IS FROM SURVEY PERFORMED BY B&F ENGINEERING, INC., JULY AND AUGUST 2018.
3. DRAWING IS BASED ON ARKANSAS STATE PLANE SYSTEM, NAD83, U.S. FEET.
4. WEST RECYCLE POND WAS BEING DRAINED FOR MAINTENANCE DURING JUNE 2018.

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Figure 1. Site map, Entergy Independence recycle ponds.

Figure 2. Map showing ponds and surrounding area based on the USGS topographic quadrangle Newark, AR (1962).

Entergy Independence

1,000

Feet

N

W E

S

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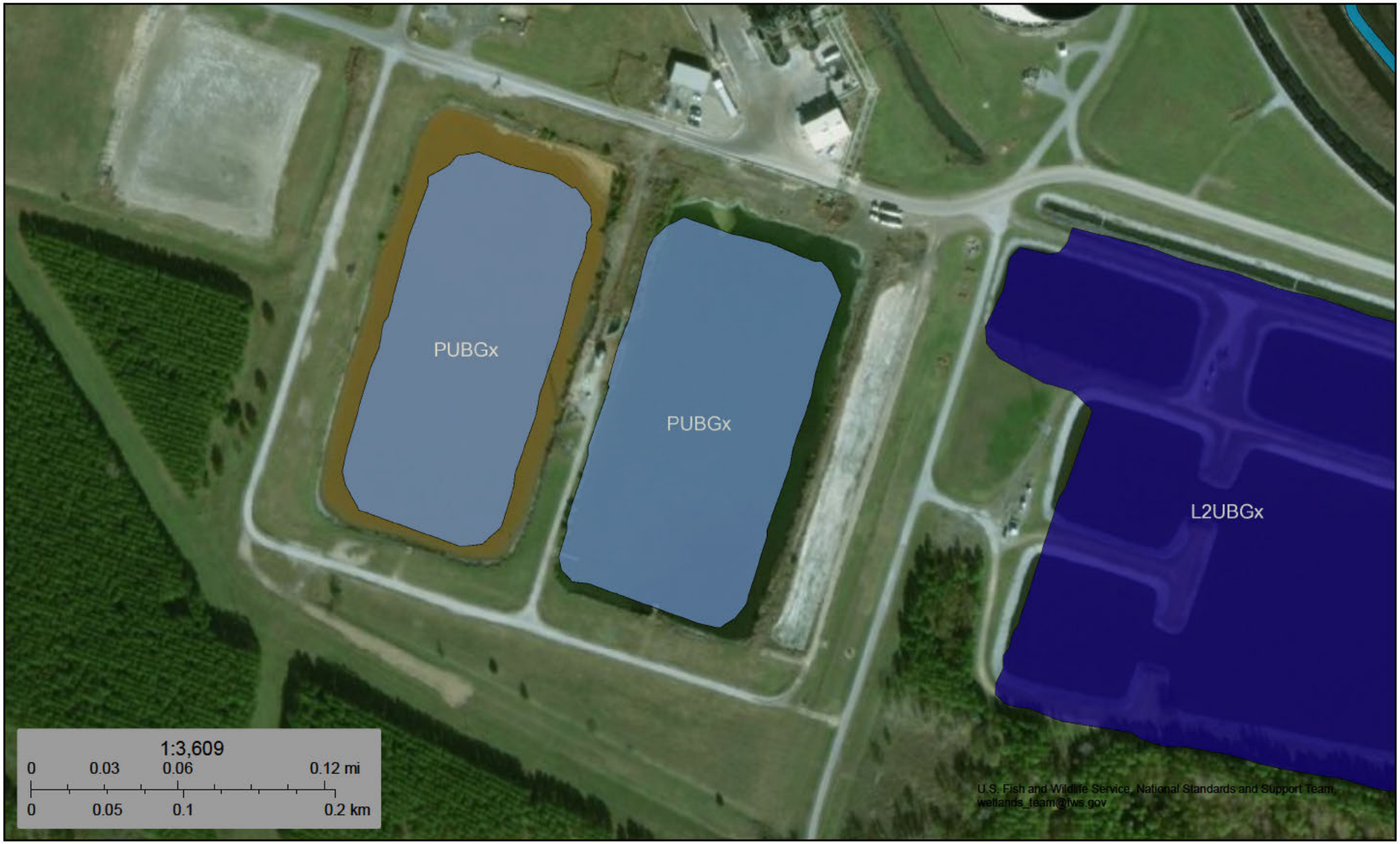
Background: USGS Imagery May 02, 1961

Figure 3. Map showing current pond extents based on 1961 USGS imagery.

U.S. Fish and Wildlife Service
National Wetlands Inventory

Wetlands



May 29, 2018

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Figure 4. Current mapping of recycle ponds by NWI.