May 27, 2022

Ruben Meza, P.E.
Project Manager
Industrial and Hazardous Waste Permits Section
Coal Combustion Residuals Program, MC-130
Waste Permits Division
Texas Commission on Environmental Quality
P. O. Box 13087
Austin, Texas 78711-3087

RE: Monticello Steam Electric Station – CCR114 – New Registration – Technical NOD #1

Dear Mr. Meza:
On behalf of Golden Eagle Development, LLC, Gemini Engineering (Gemini) is submitting responses to the deficiencies identified in the CCR Registration Application to the Texas Commission on Environmental Quality for the former Monticello Steam Electric Station (MOSES) facility.

Bottom Ash Ponds (BAPs) Closure Update: The ash material from the West Ash Settling Pond and Southwest Ash Settling Pond has been removed and the Northeast Ash Water Retention Pond is over 50% complete. All three BAPs are expected to be closed by Fall 2022.

Deficiency #1: *This application has been assigned the registration identification number: CCR114. This ID number must be used when referencing this application in future correspondence.*

Response:
We will use the new registration identification number in all future correspondence.

Deficiency #2: *Post the registration application, revisions, and other information required to be posted.*

Response: The registration application, revisions, and other information will be posted to the public website soon. The owner is in the process of upgrading the web service to allow larger files.

Deficiency #3: *Provide information for the B-Area Landfill (WMU 002) or explain why this area is not a component of the application. If is not a component the explanation may be narrated in Attachment #2 Description of Proposed Activities and noted in figures where the B-Area is depicted.*

Response: The B-Area Landfill (WMU 002) is currently regulated as a Class 2 non-hazardous industrial solid waste landfill. Per the previous owner, Luminant Generation Company, the landfill ceased receiving CCR waste prior to October 19, 2015 (See revised Attachment #2).

Deficiency #4: *Provide for the application to be located in a public place within Titus County. Currently, the Public Place listed is in Freestone County.*

Response: The registration application, revisions, and other information will be placed at the Titus County Clerk's Office, 100 West First Street, Mount Pleasant, Texas. The documents were mailed to the office on May 23, 2022.

Deficiency #5: *Revise the property owner affidavit to replace "municipal solid waste landfill facility" with "Coal Combustion Residuals Facility"; and remove the reference to Chapter 330. We have attached for your assistance a sample affidavit for your use.*

Response: A new affidavit was completed, signed, and attached to this letter and the original has been mailed to TCEQ.

Deficiency #6: *Revise to check the box for New Permit, Registration or Authorization (Core Data Form).*

Response: A new Core Data Form was completed, signed, and attached to this letter.

Deficiency #7: *Provide a landownership map and landowner list for all property and mineral interest ownership within ¼ quarter mile of the facility. The ¼ mile must be from the entire registration boundary.*

Response: The landowner maps was provided in the original application. The Titus County Appraisers Office and their mineral rights contractor was contacted, and the mineral rights information is not maintained by the county or easily available. Mineral rights in relation to the surface ownership can be complex and requires a significant amount of research and potential high costs. Additionally, the registration boundary will only include an area around the bottom ash ponds as shown on the revised figures (Revised Attachment 6). The plant was constructed on a peninsula bordered on the south and east by Lake Bob Sandlin and to the west by Lake Monticello, which was the cooling reservoir for the coal-fired power plant. Luminant Generation Company owns Lake Monticello and Lake Bob Sandlin is owned by the Titus County Fresh Water Supply District.

Deficiency #8: *Provide maps that depict all the attributes listed in each applicable provision/citation and those listed in the instructions on page 6 and 7 of 13.*

Response: The maps and list have been updated. Additionally, the registration boundary will only include an area around the bottom ash ponds as shown on the revised figures (Revised Attachment 6). There is no process flow diagram because the plant is shutdown and the BAPs are not in use; therefore, there are no processes.

Deficiency #9: *Provide documentation to verify compliance with floodplains, endangered species, and surface water protection requirements.*

Response: The floodplain, endangered species, and surface water protection requirements may not be relevant since two of the three ponds have the ash removed and the third pond is in the process of removal and expected to be closed by Fall 2022. The ash ponds have been present since the

1980's and the owner is not aware of any previous endangered species studies. Per Federal Emergency Management Agency Maps, the MOSES area has no base flood elevations determined (See the Deficiency #9 attachment).

Deficiency #10: *Provide information related to fault areas, seismic impact zones, unstable areas, floodplains, endangered species, surface water, wetlands, and placement above the uppermost aquifer, or reference where this information is located in the application.*

Response: The Attachment #7 in the initial application provided a Technical Memorandum which discusses fault areas, seismic impact zones, unstable areas, and wetlands, and placement above the uppermost aquifer. Floodplains, endangered species, and surface water were discussed in Comment #9.

Please contact me at (512) 566-6878 or at a.kaiser@geministl.com if you have any questions or comments.

Sincerely,

Adam Kaiser, PE
Senior Project Engineer
Gemini Engineering LLC

CC:
Golden Eagle Development

Attachment #2 for Item #7 - Description of Proposed Activities or Changes to Existing Facility

The site contains three BAPs subject to CCR closure requirements, Northeast Ash Water Retention Pond (WMU 11), West Ash Settling Pond (WMU 12), and Southwest Ash Settling Pond (WMU 22) that comprise of approximately 19-acres (Figure 2). The adjacent Stormwater Collection Pond (WMU 9) is not subject to CCR regulations. The BAPs were built in 1974; however, they were relined in 1990 with 3-foot clay liners. The BAPs received recovered overflow from bottom ash dewatering bins and other MOSES process wastewater sources. The ponds also acted as a surge basin for various water streams in the ash-water system. Recovered sluice water, process waters and storm water runoff from the MOSES ash-water system were pumped to each pond through a series of above grade pipes on the east end. The BAPs also served as settling basins to remove residual bottom ash and fines from recovered sluice water associated with the dewatering bins. Water was pumped from the SW Pond, as needed, and returned for reuse in the bottom ash system. When sufficient ash had accumulated in either the NE or West Ponds, the recovered sluice water was diverted to the other pond. Ash was then removed from the first pond and transported via train car to the G Ash Area. Based on the design of the BAPs, minimal accumulation of solids occurred within the SW Pond.

The B-Area Landfill (WMU 002) is currently regulated as a Class 2 non-hazardous industrial solid waste landfill. The landfill ceased receiving CCR waste prior to October 19, 2015.

BOTTOM ASH PONDS CLOSURE - CLOSURE BY REMOVAL OF CCR

The BAPS will be closed through the removal of CCR, and the closure will be performed pursuant to 40 CFR 257.102(c). The dewatering of the BAPs started in January 2021. In 2021 and into 2022, the bottom ash has been removed from the SW and West Ponds. The ash removal of the NE pond has started in January 2022 and is expected to be complete in the spring of 2022.

The bottom ash material from the ponds has been hauled to the B-Area Landfill (WMU 002) for beneficial structure fill. The embankments and bottom clay liner will also be removed following the bottom ash and used as B-Area fill. Pipelines that are above grade will be removed from the around the impoundments. Underground pipelines entering the impoundments will be excavated and removed or closed in place as necessary for future grading.

Upon closure completion, certification from a qualified Texas professional engineer will be provided verifying that closure has been completed in accordance with the closure plan. Following closure certification, the area will be graded to the southwest toward Lake Monticello via an existing surface water culvert that is currently permitted stormwater Outfall 001. Interior surface grading will provide a 3 to 5 percent slope for drainage relief from the footprint of the former impoundments to ensure (to the maximum extent feasible) that post-closure run-off is conveyed off the former impoundment area. The Stormwater Collection Pond will be closed per Texas Risk Reduction Rule (TRRP) 30 TAC 350.

Deficiency #5 (Attachment #3) – Revised Affidavit

Property Owner Affidavit – Monticello Steam Electric Station

"I/We, Ron Froh as President/CEO,

(Printed Signatory Name) (Signatory Capacity)

As authorized signatory for Golden Eagle Development LLC

(Printed Name of Property Owner of Record)

Acknowledge that the State of Texas may hold the property owner of record either jointly or severally responsible for the operation, maintenance, and closure and post-closure care of the Monticello Steam Electric Station facility. I further acknowledge that I or the operator and the State of Texas shall have access to the property during the active life and post-closure care period, if required, after closure for the purpose of inspection and maintenance."

Ron Froh 5/10/22

(Property Owner's Signature) (Date)

Deficiency #6 (Attachment #5) – Revised Core Data Form

TCEQ Use Only

TCEQ Core Data Form

For detailed instructions regarding completion of this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission (*If other is checked please describe in space provided.*)

☐ New Permit, Registration or Authorization (*Core Data Form should be submitted with the program application.*)

☒ Renewal (*Core Data Form should be submitted with the renewal form*) ☐ Other

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number *(if issued)*
CN 605736982		RN 102285921

SECTION II: Customer Information

4. General Customer Information	5. Effective Date for Customer Information Updates (mm/dd/yyyy)	1/19/2022

☐ New Customer ☒ Update to Customer Information ☐ Change in Regulated Entity Ownership

☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).

6. Customer Legal Name *(If an individual, print last name first: eg: Doe, John)*	*If new Customer, enter previous Customer below:*
Golden Eagle Development, LLC	

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number *(if applicable)*
0803485511	32072726568	84-3242461	

11. Type of Customer: ☒ Corporation ☐ Individual Partnership: ☐ General ☐ Limited

Government: ☐ City ☐ County ☐ Federal ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees ☒ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher

13. Independently Owned and Operated? ☐ Yes ☐ No

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following*

☐ Owner ☐ Operator ☒ Owner & Operator

☐ Occupational Licensee ☐ Responsible Party ☐ Voluntary Cleanup Applicant ☐ Other:

15. Mailing Address:	2275 Cassens Drive, Suite 118						
	City	Fenton	State	MO	ZIP	63026	ZIP + 4

16. Country Mailing Information *(if outside USA)*	17. E-Mail Address *(if applicable)*

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(314) 624-1604		( ) -

SECTION III: Regulated Entity Information

21. General Regulated Entity Information (*If 'New Regulated Entity" is selected below this form should be accompanied by a permit application*)

☐ New Regulated Entity ☐ Update to Regulated Entity Name ☒ Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated in order to meet TCEQ Agency Data Standards (removal of organizational endings such as Inc, LP, or LLC).

22. Regulated Entity Name (*Enter name of the site where the regulated action is taking place.*)

Monticello Steam Electric Station

23. Street Address of the Regulated Entity: *(No PO Boxes)*	FM 127							
	City	Mt Pleasant	**State**	TX	**ZIP**	75456	**ZIP + 4**	
24. County	Freestone							

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:	8 Mi SE of Mt. Pleasant on FM 127				
26. Nearest City			**State**	**Nearest ZIP Code**	
Mt Pleasant			TX	75456	
27. Latitude (N) In Decimal:	33.091679		**28. Longitude (W) In Decimal:**	-95.038492	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
33	5	30.0444	95	2	5712

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)
1795		221112	

33. What is the Primary Business of this entity? *(Do not repeat the SIC or NAICS description.)*

34. Mailing Address:	**2275 Cassens Drive, Suite 118**							
	City	**Fenton**	**State**	**MO**	**ZIP**	**63026**	**ZIP + 4**	
35. E-Mail Address:								

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(314) 624-1604		( ) -

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☒ Industrial Hazardous Waste
				TXD05438948 SWR 30081
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☒ Waste Water	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:
	WQ000152000 TX05EO86			

SECTION IV: Preparer Information

40. Name:	Adam Kaiser	**41. Title:**	Project Engineer

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(512) 566-6878		( ) -	A.Kaiser@GeminiSTL.com

SECTION V: Authorized Signature

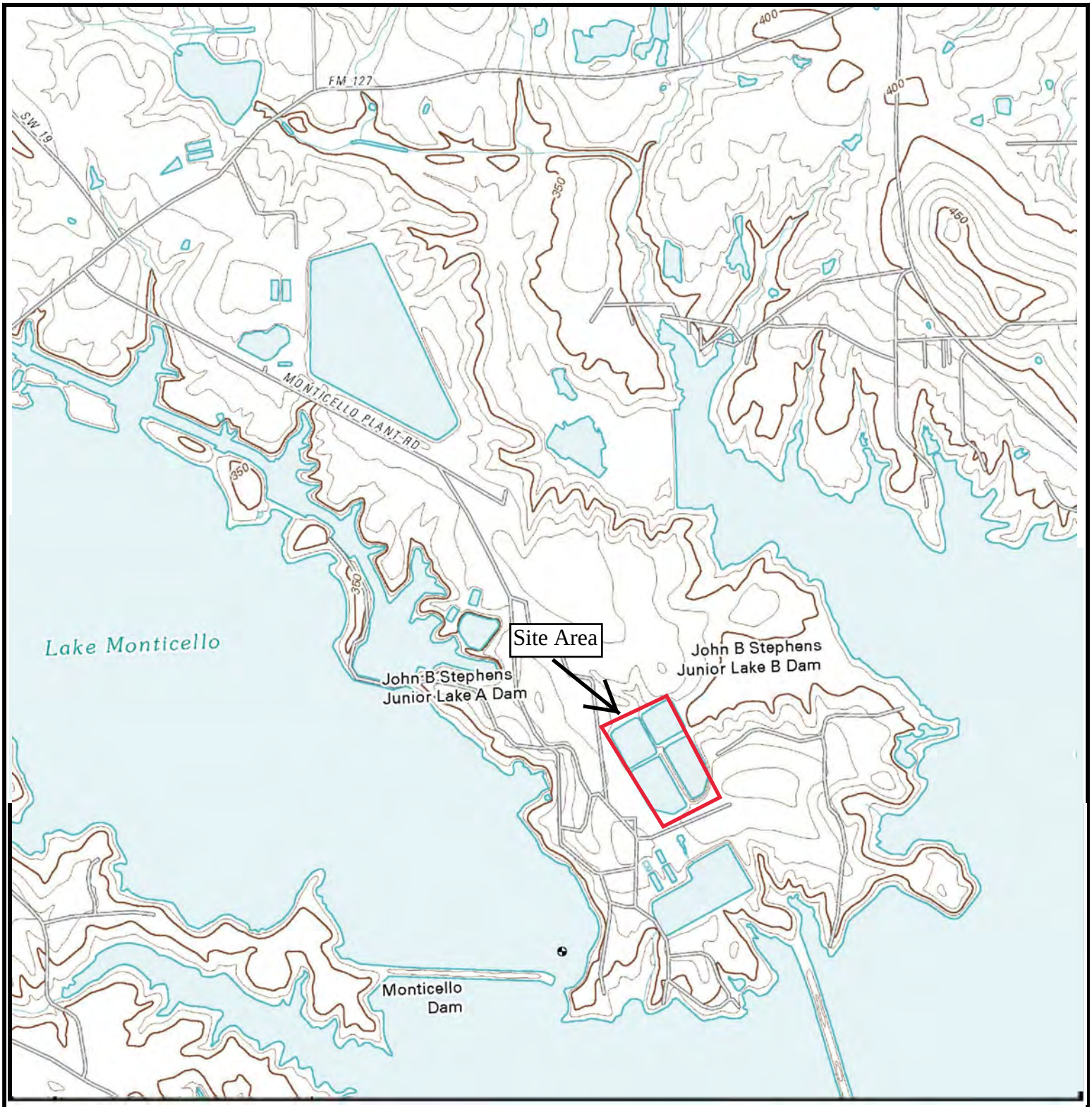
46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	Golden Eagle Development, LLC	**Job Title:**	President & CEO

Name *(In Print)*:	Ron Froh	**Phone:**	(314) 227-8313
Signature:	Ron Froh	**Date:**	5/10/22

Deficiency #7 & 8

Attachment #6 (Revised) for Items #20 – Figures and Attachments



REFERENCE(S)
BASE MAP TAKEN FROM WWW.TNRIS.GOV, MONTICELLO, TX 7.5 MIN. USGS QUADRANGLE DATED 2010.

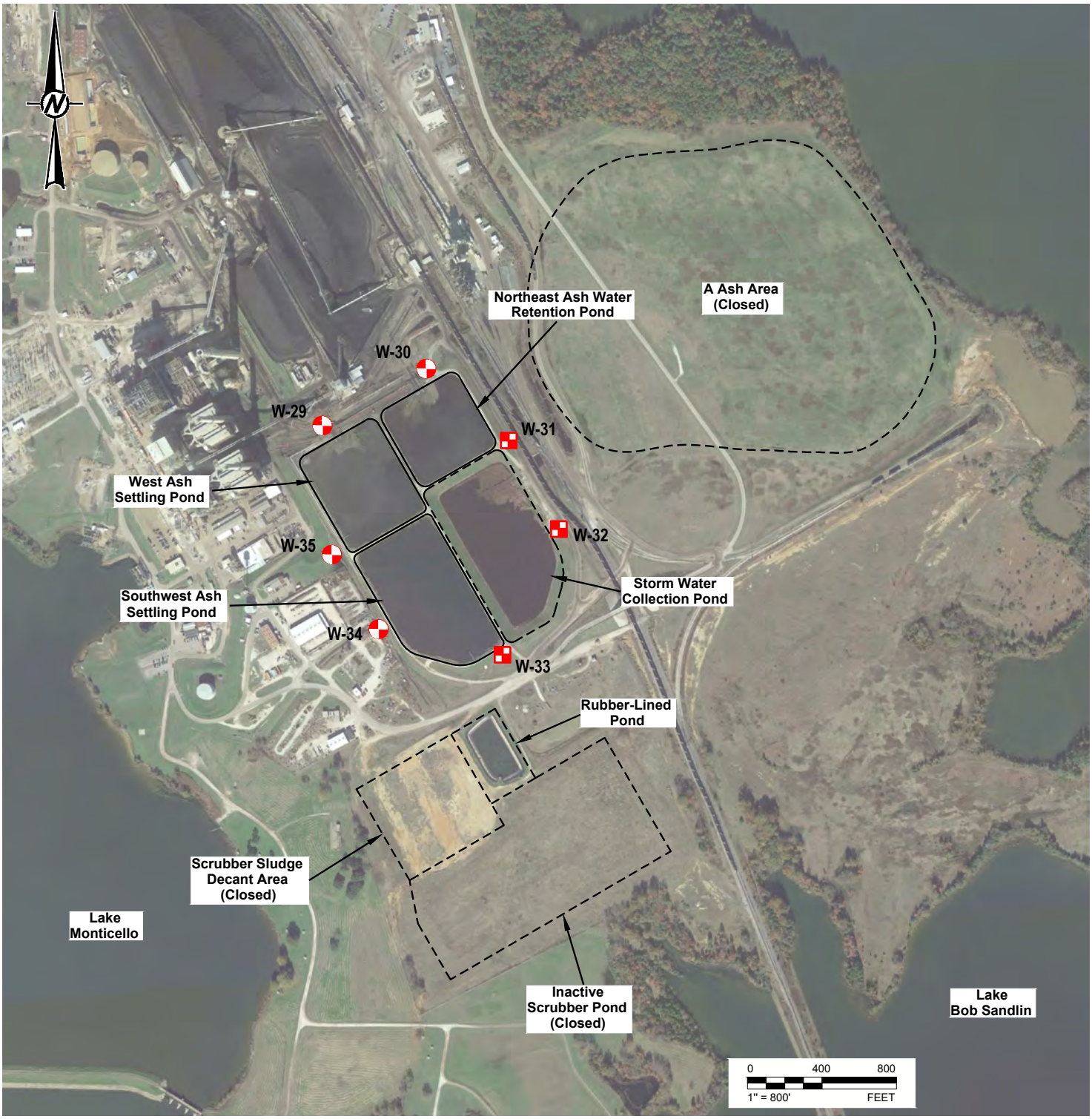
QUADRANGLE LOCATIONS

C:\Users\worcc\OneDrive\Documents\DWG\Gemini\Projects\Monticello\dwg\fig1_SiteLocMap.dwg

GEMINI ENGINEERING

Figure 1
Site Location Map
Former MOSES Site

Chkd:	AK
Drawn:	EFC
Page:	
Date:	9/30/2020
Scale:	As Shown



LEGEND

DOWNGRADIENT CCR MONITORING WELL

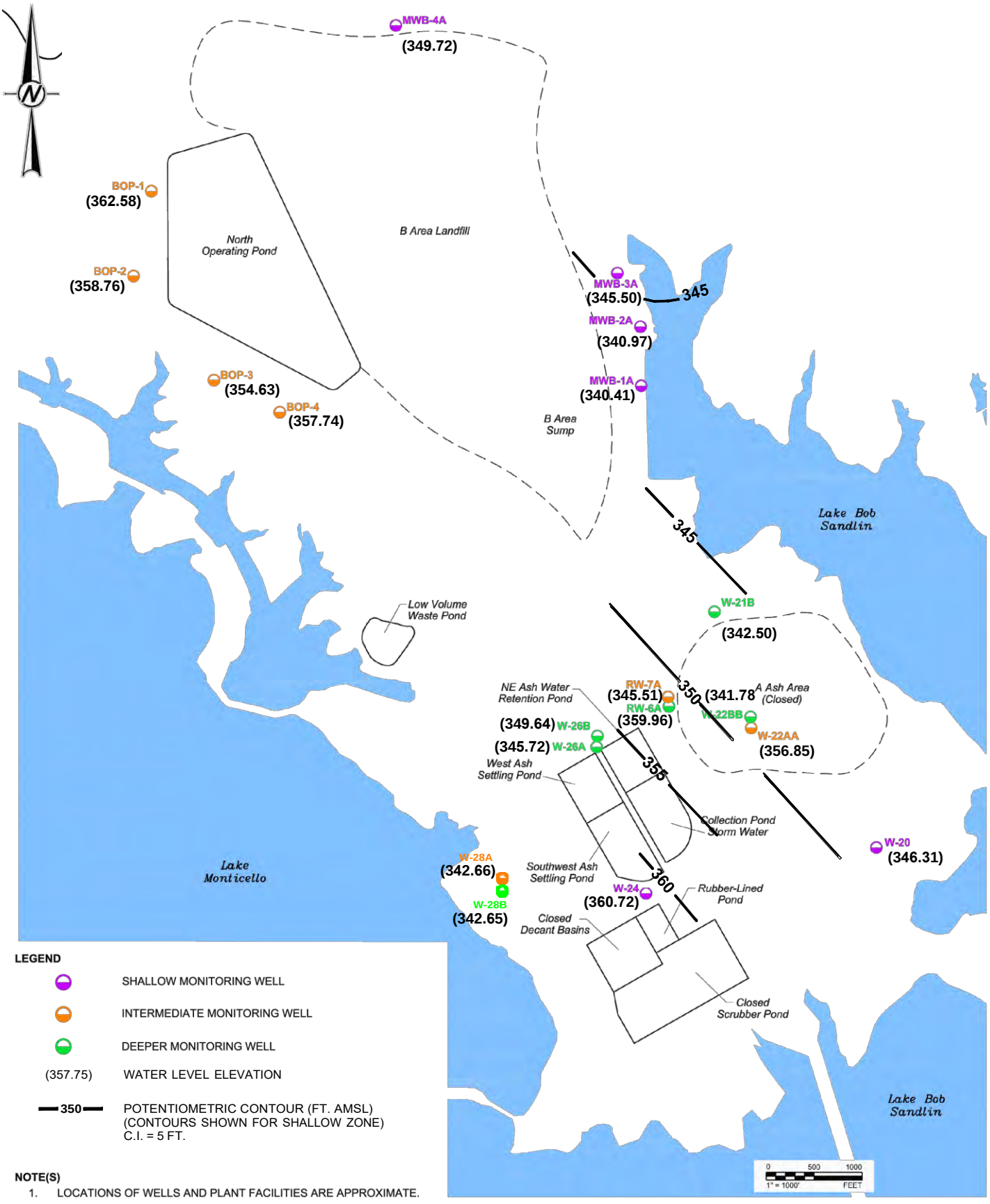
UPGRADIENT CCR MONITORING WELL

C:\Users\worcc\OneDrive\Documents\DWG\Gemini\Projects\Monticello\dwg\Site_Plan.dwg

GEMINI ENGINEERING

Detailed Site Plan
Site: Golden Eagle Development

Chkd:	AK
Drawn:	EFC
Page:	1 of 1
Date:	1/25/2022
Scale:	As Shown



C:\Users\worcc\OneDrive\Documents\DWG\ATON\Projects\Monticello\dwg\fig4_PMAP_2nd.dwg

GEMINI ENGINEERING

Figure 4
Potentiometric Surface Map
2nd Semi-Annual Event
2021 Former MOSES Site

Chkd:	AK
Drawn:	RLK
Page:	
Date:	4/19/2022
Scale:	As Shown

Titus CAD Web Map

5/19/2022, 11:44:16 AM

Land Ownership Map

1:18,056

0 0.13 0.25 0.5 mi

0 0.2 0.4 0.8 km

Abstracts

Parcels

Approximate CCR Boundary

Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, Maxar, Earthstar Geographics, and the GIS User

Titus County Appraisal District, BIS Consulting - www.bisconsulting.com

Disclaimer: This product is for informational purposes only and has not been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of boundaries.

MOSES

Figure ID	Owner	Address	GIS Parcel ID
1	Goldden Eagle Development LLC		339943, 340572, 339981

Bottom Ash Pond Adjacent Landowners

2	LUMINANT GENERATION COMPANY LLC	PO BOX 219071, DALLAS TX 75221 9071	6110

LUMINANT GENERATION COMPANY LLC
PO BOX 219071
DALLAS TX 75221-9071

LUMINANT GENERATION COMPANY LLC
PO BOX 219071
DALLAS TX 75221-9071

Deficiency #9 - I.21. Verification of Compliance

NOTES TO USERS

use in administering the National Flood Insurance Program. It arily identify all areas subject to flooding, particularly from local e of small size. The **community map repository** should be ssible updated or additional flood hazard information.

detailed information in areas where **Base Flood Elevations** **oodways** have been determined, users are encouraged to consult es and Floodway Data and/or Summary of Stillwater Elevations within the Flood Insurance Study (FIS) report that accompanies rs should be aware that BFEs shown on the FIRM represent foot elevations. These BFEs are intended for flood insurance only and should not be used as the sole source of flood ation. Accordingly, flood elevation data presented in the FIS be utilized in conjunction with the FIRM for purposes of or floodplain management.

Flood Elevations shown on this map apply only landward American Vertical Datum of 1988 (NAVD 88). Users of this aware that coastal flood elevations are also provided in the llwater Elevations table in the Flood Insurance Study report on. Elevations shown in the Summary of Stillwater Elevations used for construction and/or floodplain management purposes igher than the elevations shown on this FIRM.

floodways were computed at cross sections and interpolated ections. The floodways were based on hydraulic considerations quirements of the National Flood Insurance Program. Floodway er pertinent floodway data are provided in the Flood Insurance this jurisdiction.

t in Special Flood Hazard Areas may be protected by **flood res.** Refer to Section 2.4 "Flood Protection Measures" of nce Study report for information on flood control structures n.

used in the preparation of this map was Texas State tral zone (FIPSZONE 4202). The **horizontal datum** was NAD83, oid. Differences in datum, spheroid, projection or State Plane e production of FIRMs for adjacent jurisdictions may result in differences in map features across jurisdiction boundaries. s do not affect the accuracy of the FIRM.

on this map are referenced to the North American Vertical . These flood elevations must be compared to structure and ns referenced to the same **vertical datum.** For information rsion between the National Geodetic Vertical Datum of 1929 American Vertical Datum of 1988, visit the National Geodetic at http://www.ngs.noaa.gov/ or contact the National Geodetic llowing address:

Services

Survey

Highway
20910–3282

elevation, description, and/or location information for **bench marks** map, please contact the Information Services Branch of the tic Survey at **(301) 713–3242,** or visit its website at naa.gov/.

ation shown on this FIRM was provided in digital format by the sources Information System (TNRIS). This information etrically compiled at a scale of at least 1:24,000 from aerial d 2004.

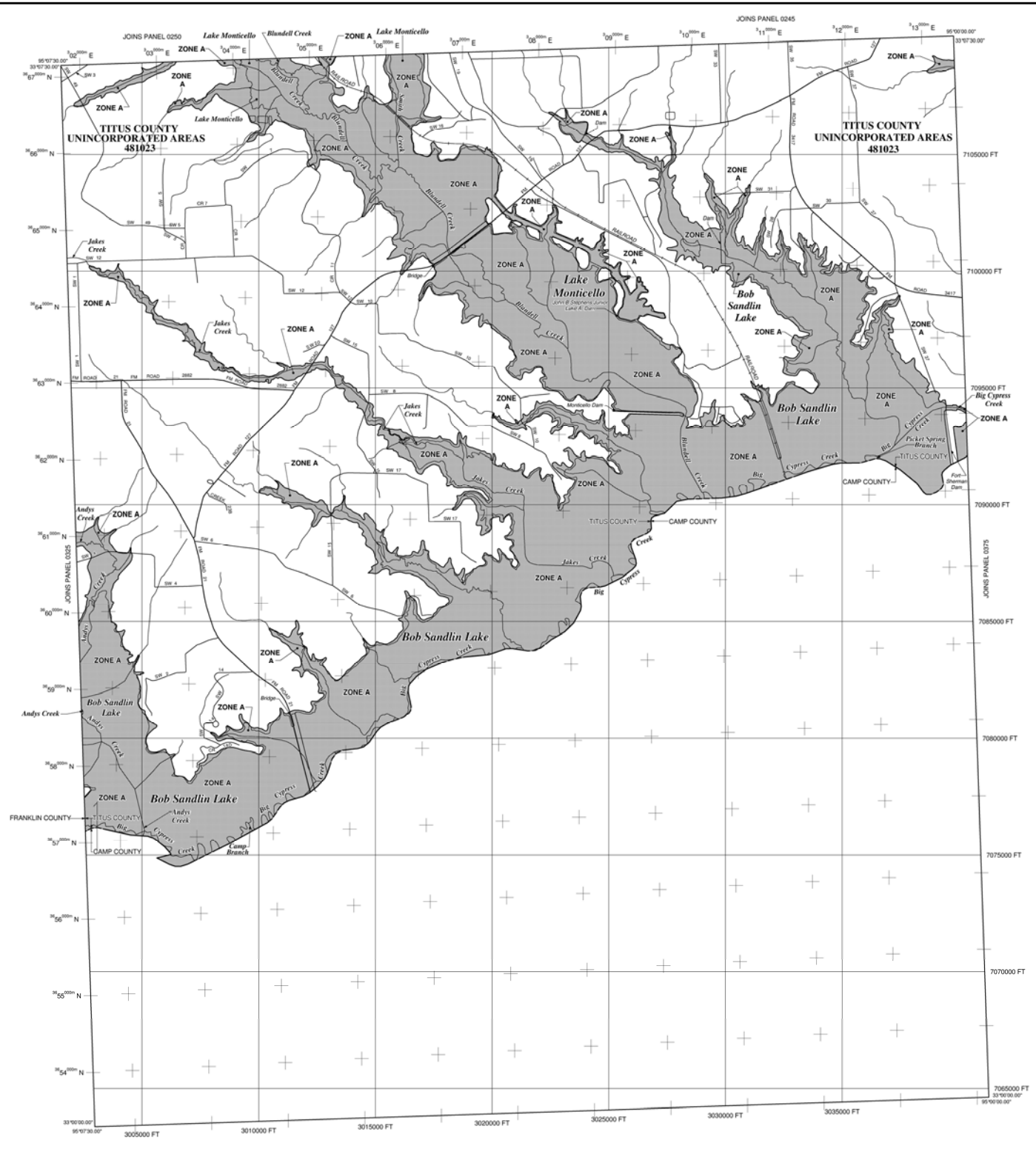
more detailed and up–to–date **stream channel configurations** n on the previous FIRM for this jurisdiction. The floodplains at were transferred from the previous FIRM may have been form to these new stream channel configurations. As a d Profiles and Floodway Data tables *for Hart Creek Tributary, tary 2, and Tributary 3 in the Flood Insurance Study report (which ative hydraulic data)* may reflect stream channel distances that is shown on this map.

s shown on this map are based on the best data available blication. Because changes due to annexations or de–annexations rred after this map was published, map users should contact munity officials to verify current corporate limit locations.

he separately printed **Map Index** for an overview map of the the layout of map panels; community map repository addresses; Communities table containing National Flood Insurance Program community as well as a listing of the panels on which each ated.

A Map Service Center at 1–800–358–9616 for information on ts associated with this FIRM. Available products may include d Letters of Map Change, a *Flood Insurance Study report*, rsions of this map. The FEMA Map Service Center may also be at 1–800–358–9620 and its website at http://www.msc.fema.gov/.

estions about this map or questions concerning the National Program in general, please call **1–877–FEMA MAP** (1–877–336–2627) A website at http://www.fema.gov/.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- **ZONE A** No Base Flood Elevations determined.
- **ZONE AE** Base Flood Elevations determined.
- **ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- **ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE AR** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- **ZONE A99** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- **ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- **ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

- **ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

- **ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.
- **ZONE D** Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- Floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 Base Flood Elevation line and value; elevation in feet*
- (EL 987) Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

- A–A Cross section line
- 23–23 Transect line
- 97°07'30", 32°22'30" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- 4275000mN 1000-meter Universal Transverse Mercator grid , zone 15
- 6000000 FT 5000-foot grid : Texas State Plane coordinate system, north central zone (FIPSZONE 4202), Lambert Conformal Conic
- DX5510 Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
September 29, 2010
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1–800–638–6620.

MAP SCALE 1" = 2000'
1000 0 2000 4000 FEET
600 0 600 1200 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0350D

FIRM
FLOOD INSURANCE RATE MAP
TITUS COUNTY, TEXAS
AND INCORPORATED AREAS

PANEL 350 OF 425
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
TITUS COUNTY	481023	0350	D

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
48449C0350D

EFFECTIVE DATE
SEPTEMBER 29, 2010

Federal Emergency Management Agency

Deficiency #10 – Revised Attachment #7 for Items #23 – Geological Summary

GOLDER

TECHNICAL MEMORANDUM

DATE October 10, 2018 **Project No.** 18107517

TO Jeff Jones
Luminant Generation Company LLC

FROM Patrick J. Behling, P.E.

LUMINANT GENERATION COMPANY LLC
CCR RULE LOCATION RESTRICTION DEMONSTRATION
MONTICELLO STEAM ELECTRIC STATION – TITUS COUNTY, TEXAS
ASH PONDS

Luminant Generation Company LLC (Luminant) formerly operated the Monticello Steam Electric Station (MOSES) located approximately 6 miles southwest of Mt. Pleasant, Titus County, Texas. The MOSES consisted of three coal/lignite-fired units with a combined operating capacity of approximately 1,880 megawatts. Coal Combustion Residuals (CCR) including fly ash, bottom ash, boiler slag, and scrubber gypsum were generated as part of MOSES unit operation. The MOSES suspended operations in early 2018.

The U.S. Environmental Protection Agency's (EPA's) rule entitled *Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities* (CCR Rule) has established technical requirements for CCR landfills and surface impoundments (See 80 Fed. Reg. 21,302 (Apr. 17, 2015); 83 Fed. Reg. 36,435 (July 30, 2018)). The following surface impoundments at the MOSES have been identified as Existing CCR Surface Impoundments regulated under the CCR Rule:

- Southwest Ash Settling Pond (SASP);
- West Ash Settling Pond (WASP); and
- Northeast Ash Water Retention Pond (NAWRP).

The WASP, NAWRP and the SASP (collectively referred to as the "Ash Ponds") are located approximately 1,200 feet southeast of the MOSES power plant (Figure 1). The Ash Ponds are located immediately adjacent to each other and share interior earthen embankments. Due to their proximity to each other, the WASP, NAWRP, and SASP are considered one CCR surface impoundment (identified as the "Ash Ponds) under the CCR Rule.

Golder Associates Inc. (Golder) was retained by Luminant to evaluate the Ash Ponds against the five (5) applicable location restriction criteria for existing CCR surface impoundments described in Sections 257.60 through 257.64 of the CCR Rule. This memorandum sets forth Luminant's location restriction demonstrations and corresponding certifications required by the CCR Rule.

LOCATION RESTRICTION DEMONSTRATION – SUMMARY OF FINDINGS/CONCLUSIONS

This location restriction demonstration concludes that the Ash Ponds satisfy four of the five CCR Rule location restriction criteria for existing CCR surface impoundments (wetlands, fault areas, seismic impact zone and unstable areas):

Golder Associates Inc.
2201 Double Creek Dr, Suite 4004, Round Rock, Texas, USA 78664 T: +1 512 671-3434 F: +1 512 671-3446

Golder and the G logo are trademarks of Golder Associates Corporation.

- The Ash Ponds were determined to not be located in wetlands as per §257.61.
- Based on the available published geologic data and information reviewed, the nearest known fault to the Ash Ponds is located approximately 17 miles north of the MOSES. Therefore, the Ash Ponds satisfy the location restriction criteria presented in §257.62.
- The Ash Ponds were determined to not be located in a Seismic Impact Zone as per §257.63.
- The Ash Ponds were determined to not be located in an Unstable Area as per §257.64.

The Ash Ponds do not comply with the uppermost aquifer separation criterion defined in §257.61. The elevation of the base of the pond liner in the Ash Ponds is below the upper limit of the uppermost aquifer due to normal fluctuations in groundwater elevations.

A professional engineering certification that covers all five location restriction evaluations is included on page 10 of this demonstration.

MEMORANDUM ORGANIZATION

The memorandum is organized as follows:

SECTION 1.0 - Location Restriction Criteria & CCR Unit Description

SECTION 2.0 - Placement Above Uppermost Aquifer

SECTION 3.0 - Wetlands

SECTION 4.0 - Fault Areas

SECTION 5.0 - Seismic Impact Zone

SECTION 6.0 - Unstable Areas

SECTION 7.0 - Limitations

SECTION 8.0 - Professional Certification

FIGURE 1 – Site Plan – Ash Ponds

LUMINANT

SECTION 1.0 Location Restriction Criteria & CCR Unit Description

LOCATION RESTRICTION CRITERIA

Existing CCR Surface Impoundments must comply with the following five location restrictions described in Sections 257.60 through 257.64 of the CCR Rule:

- §257.60 – Placement above the Uppermost Aquifer
- §257.61 – Wetlands
- §257.62 – Fault Areas
- §257.63 – Seismic Impact Zone
- §257.64 – Unstable Areas

The CCR Rule requires that the CCR Surface Impoundment owner or operator certify that the CCR Unit meets the specified location restriction requirements by October 17, 2018 for continued operation of the CCR Unit.

CCR UNIT DESCRIPTION

The WASP and NAWRP received a slurry of bottom ash/boiler slag and water and the SASP was connected to the WASP with two weirs and was used for overflow from the other two ponds. The Ash Ponds are considered an existing CCR Surface Impoundment under the CCR Rule. The Ash Ponds were originally constructed in 1974 as a two-basin system. In 1990, the ponds were segregated and relined with a 3-foot thick clay liner, and the NAWRP interior slopes and the east side interior slopes of the WASP were lined with concrete revetment mats. All remaining interior slopes of the ponds were lined with riprap. The SASP, WASP, and NAWRP are approximately 1000 feet long by 460 feet wide, 570 feet long by 460 feet wide, and 470 feet long by 470 feet wide respectively. The Ash Ponds are constructed partially above and partially below grade and are surrounded by engineered earthen embankments that extend approximately 15 to 20 feet above grade.

LUMINANT

Section 2.0 Placement Above Uppermost Aquifer

Section 257.60(a) of the CCR Rule states:

a) *New CCR landfills, existing and new CCR surface impoundments, and all lateral expansions of CCR units must be constructed with a base that is located no less than 1.52 meters (five feet) above the upper limit of the uppermost aquifer, or must demonstrate that there will not be an intermittent, recurring, or sustained hydraulic connection between any portion of the base of the CCR unit and the uppermost aquifer due to normal fluctuations in groundwater elevations (including the seasonal high water table). The owner or operator must demonstrate by the dates specified in paragraph (c) of this section that the CCR unit meets the minimum requirements for placement above the uppermost aquifer.*

Section 257.53 of the CCR Rule defines uppermost aquifer as follows:

- Aquifer: a geologic formation, group of formations, or portion of a formation capable of yielding usable quantities of groundwater to wells or springs.

- Uppermost aquifer: the geologic formation nearest the natural ground surface that is an aquifer, as well as lower aquifers that are hydraulically interconnected with this aquifer within the facility's property boundary.

Golder evaluated the distance between the base of the Ash Ponds and the uppermost aquifer by comparing the documented elevation of the base of the pond liner and historical maximum groundwater elevations as measured from monitoring wells in the vicinity of the ponds. The upper limit of the uppermost aquifer in the vicinity of the Ash Ponds was measured to be approximately Elev. 365 to 367 feet MSL and the base of the pond liner is located at approximately Elev. 358 ft MSL. Based on these measurements, the upper limit of the uppermost ground-water bearing unit can exceed the base of the liner in the ponds due to normal fluctuations in groundwater elevations. As a result, the Ash Ponds do not satisfy the minimum separation location restriction criterion requirements of §257.60(a).

LUMINANT

Section 3.0 Wetlands

Section 257.61(a) of the CCR Rule states:

a) *New CCR landfills, existing and new CCR surface impoundments, and all lateral expansions of CCR units must not be located in wetlands, as defined in §232.2 of this chapter, unless the owner or operator demonstrates by the dates specified in paragraph (c) of this section that the CCR unit meets the requirements of paragraphs (a)(1) through (5) of this section.*

40 CFR 232.2 defines wetlands as follows:

- Wetlands: Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

The Ash Ponds were originally constructed in the 1974 and are located in a developed industrial area that is part of the MOSES power plant. To determine if the Ash Ponds are located in wetlands, the U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) website was reviewed by Golder. Although the Ash Ponds themselves are represented on the NWI maps as "permanently flooded freshwater basins that were excavated by humans", wastewater discharges from the MOSES are regulated under Texas Pollution Discharge Elimination System (TPDES) permit WQ0002697000 and the Ash Ponds are part of the MOSES wastewater management system. As a result, the Ash Ponds were designed and constructed to meet Clean Water Act requirements and are therefore not considered federally jurisdictional wetlands in accordance with 33 CFR § 328.3(b)(1).

Based on the NWI maps and the construction characteristics of the Ash Ponds, the Ash Ponds are not "located in wetlands" as per §257.61(a), and the Ash Ponds satisfy the wetlands location restriction criterion.

LUMINANT

Section 4.0 Fault Areas

Section 257.62(a) of the CCR Rule states:

a) *New CCR landfills, existing and new CCR surface impoundments, and all lateral expansions of CCR units must not be located within 60 meters (200 feet) of the outermost damage zone of a fault that has had displacement in Holocene time unless the owner or operator demonstrates by the dates specified in paragraph (c) of this section that an alternative setback distance of less than 60 meters (200 feet) will prevent damage to the structural integrity of the CCR unit.*

Section 257.53 of the CCR Rule defines Holocene as the most recent epoch of the Quaternary period, extending from the end of the Pleistocene Epoch (11,700 years before present) to present.

Golder evaluated the potential for existence of CCR Rule-defined faults in proximity to the Ash Ponds based on geologic maps and documents published by the United States Geological Survey (USGS). The nearest known mapped faults to the Ash Ponds are located approximately 17 miles north of the MOSES, which greatly exceeds the 200-foot distance prescribed in the CCR Rule. As a result, the Ash Ponds comply with the requirements of §257.62(a).

LUMINANT

Section 5.0 Seismic Impact Zone

Section 257.63(a) of the CCR Rule states:

a) *New CCR landfills, existing and new CCR surface impoundments, and all lateral expansions of CCR units must not be located in seismic impact zones unless the owner or operator demonstrates by the dates specified in paragraph (c) of this section that all structural components including liners, leachate collection and removal systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site.*

Section 257.53 of the CCR Rule defines these terms as follows:

- Seismic impact zone: 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 0.10g in 50 years.
- Lithified earth material: all rock, including all naturally occurring and naturally formed aggregates or masses of minerals or small particles of older rock that formed by crystallization of magma or by induration of loose sediments. This term does not include man-made materials, such as fill, concrete, and asphalt, or unconsolidated earth materials, soil, or regolith lying at or near the earth surface.
- Maximum horizontal acceleration in lithified earth material: the maximum expected horizontal acceleration at the ground surface as depicted on a seismic hazard map, with a 98% or greater probability that the acceleration will not be exceeded in 50 years, or the maximum expected horizontal acceleration based on a site-specific seismic risk assessment.
- Structural components: liners, leachate collection and removal systems, final covers, run-on and run-off systems, inflow design flood control systems, and any other component used in the construction and operation of the CCR unit that is necessary to ensure the integrity of the unit and that the contents of the unit are not released into the environment.

Golder evaluated the location of the Ash Ponds relative to seismic impact zones using maps and documents published by the United States Geological Survey (USGS). The Ash Ponds are located in an area with peak ground accelerations between 0.04g and 0.06g, which is well below the maximum acceleration of 0.10g specified in the CCR Rule to be considered a Seismic Impact Zone. As a result, the Ash Ponds are not located in a Seismic Impact Zone as defined in the CCR Rule and therefore comply with § 257.63(a).

LUMINANT

Section 6.0 Unstable Areas

Section 257.64(a) of the CCR Rule states:

a) *An existing or new CCR landfill, existing or new CCR surface impoundment, or any lateral expansion of a CCR unit must not be located in an unstable area unless the owner or operator demonstrates by the dates specified in paragraph (d) of this section that recognized and generally accepted good engineering practices have been incorporated into the design of the CCR unit to ensure that the integrity of the structural components of the CCR unit will not be disrupted.*

Section 257.53 of the CCR Rule defines unstable area as follows:

- Unstable area: a location that is susceptible to natural or human-induced events or forces capable of impairing the integrity, including structural components of some or all of the CCR unit that are responsible for preventing releases from such unit. Unstable areas can include poor foundation conditions, areas susceptible to mass movements, and karst terrains.
- Poor Foundation Conditions: those areas where features exist which indicate that a natural or human-induced event may result in inadequate foundation support for the structural components of an existing or new CCR unit.
- Areas Susceptible to Mass Movement: those areas of influence (i.e., areas characterized as having an active or substantial possibility of mass movement) where, because of natural or human-induced events, the movement of earthen material at, beneath, or adjacent to the CCR unit results in the downslope transport of soil and rock material by means of gravitational influence. Areas of mass movement include, but are not limited to, landslides, avalanches, debris slides and flows, soil fluctuation, block sliding, and rock fall.
- Karst terrain: an area where karst topography, with its characteristic erosional surface and subterranean features, is developed as a result of dissolution of limestone, dolomite, or other soluble rock. Characteristic physiographic features present in karst terrain include, but are not limited to, dolines, collapse shafts (sinkholes), sinking streams, caves, seeps, large springs, and blind valleys.

Under § 257.64(b), the following factors must be considered when determining whether an area is unstable:

- on-site or local soil conditions that may result in significant differential settling;
- on-site or local geologic or geomorphic features; and
- on-site or local human-made features or events (both surface and subsurface).

Golder completed a CCR Rule Structural Stability Assessment Report for the Ash Ponds in 2012 and updated the assessment in 2016. The Structural Stability Assessment Report concluded that the soils underlying the Ash Ponds were stable. As a result, the Ash Ponds are not located in an unstable area as defined in the CCR Rule.

LUMINANT

Section 7.0 Limitations

In preparing this evaluation, Golder has reviewed historic, design and investigative information and other data furnished by Luminant. Golder has relied on this information in completing the location restriction evaluations for the Ash Ponds.

The conclusions presented in this memorandum assume that subsurface site conditions in the vicinity of the Ash Ponds reasonably match those conditions associated with site borings, laboratory testing results, etc. The reported conclusions are also based on our understanding of current site operations, maintenance and CCR management practices at the MOSES at the current time as provided by Luminant.

LUMINANT

Section 8.0 Professional Certification

I, Patrick J. Behling, being a Registered Professional Engineer in good standing in the State of Texas, do hereby certify, to the best of my knowledge, information, and belief, that the information contained in this CCR Rule Location Restrictions Demonstration has been prepared in accordance with the accepted practice of engineering. I certify that the CCR Unit described in this report and as explained further in the CCR Rule Location Restriction Evaluation – Monticello Steam Electric Station Ash Ponds, Golder Associates Inc. October 10, 2018, meets the requirements of 40 CFR Sections 257.61 through 257.64. The CCR units do not satisfy the minimum separation location restriction criterion requirements of §257.60(a).

Patrick J. Behling, P.E.
Principal Engineer
Texas PE No. 79872
Golder Associates Inc.
Texas Engineering Firm No. 2578

LUMINANT

Figures

LUMINANT

LEGEND

CCR MONITORING WELL LOCATION

REFERENCE(S)

IMAGERY FROM GOOGLE EARTH DATED 12/02/2015.

CLIENT
LUMINANT GENERATION COMPANY LLC

PROJECT
MONTICELLO STEAM ELECTRIC STATION
ASH PONDS
CCR RULE LOCATION RESTRICTION DEMONSTRATION

TITLE
SITE PLAN

CONSULTANT
GOLDER

YYYY-MM-DD	2018-10-05
DESIGNED	BZH
PREPARED	BZH
REVIEWED	PJB
APPROVED	PJB

PROJECT NO. 18107517 | REV. 0 | FIGURE 1