



ANNUAL INSPECTION OF CCR UNITS

**Oak Grove Steam Electric Station
Robertson County, Texas**

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January 2016

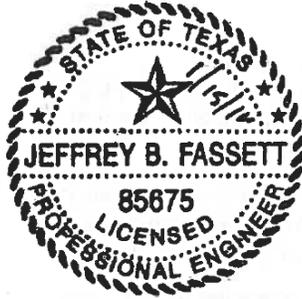
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CERTIFICATIONS

I hereby certify that this report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the state of Texas.



Jeffrey B. Fassett, PE

January 15, 2016

Date

Golder Associates Inc
F-2578

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EXECUTIVE SUMMARY

The United States Environmental Protection Agency (EPA) promulgated the Resource Conservation and Recovery Act (RCRA) Coal Combustion Residuals (CCR) Rule (Rule) on April 17, 2015. The Rule requires owners or operators of existing CCR surface impoundments and landfills to have those units inspected on an annual basis by a qualified professional engineer in accordance with 40 CFR §257.83(b) §257.84(b). The initial annual qualified professional engineer inspections are required to be completed and the results documented in inspection reports per CFR §257.84(b)(2) for surface impoundments §257.84(b)(2) for landfills.

Golder Associates Inc. (Golder) was retained by Luminant to perform the annual inspection of the CCR units at the Oak Grove Steam Electric Station located near Franklin, Robertson County, Texas.

The inspection included the following:

- Review of applicable information regarding the status and condition of the CCR unit
- A visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit and appurtenant structures
- A visual inspection of hydraulic structures underlying the base of the CCR unit or passing through the dike of the CCR unit for structural integrity and continued safe and reliable operation



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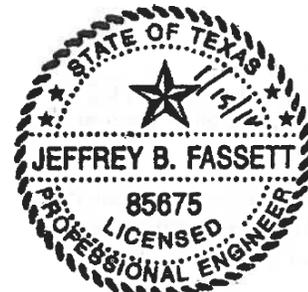
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Jeffrey B. Fassett



1.0 INTRODUCTION

The U.S. Environmental Protection Agency (EPA) published the final rule governing the disposal of coal combustion residuals (CCR) as solid waste regulated under subtitle D of the Resource Conservation and Recovery Act (RCRA) on April 17, 2015, with an effective date of October 19, 2015. The CCR Rule establishes national minimum criteria and new CCR management obligations for existing, new, and lateral expansions of CCR disposal units. One of the new obligations pertains to inspections, specifically; CCR unit owners/operators must initiate the following activities:

- weekly inspections and monthly instrument monitoring of CCR Units by October 19, 2015; and
- annual inspections of CCR units by January 18, 2015.

This report presents the results of the first annual inspection of the CCR units at the Oak Grove Steam Electric Station (SES) conducted to comply with §257.83 and §257.84 of the new CCR Rule.

In accordance with §257.83(b)(1)(ii) and (iii) and §257.84(b)(1)(ii), a visual inspection was conducted on October 29, 2015. The objectives of the inspection are:

- to identify signs of distress or malfunction of each CCR unit and appurtenant structures; and
- to assess the structural integrity and continued safe and reliable operation of hydraulic structures underlying the base of each surface impoundment.

In accordance with §257.83(b)(2) and §257.84(b)(2), this inspection report has been prepared by a qualified professional engineer documenting the points listed above, and identifying the following since the previous annual inspection:

- any changes in geometry of the structure;
- location and type of existing instrumentation and the maximum recorded readings of each instrument (CCR surface impoundments only);
- the approximate minimum, maximum, and present depth/elevation of impounded water and CCR (CCR surface impoundments only);
- the storage capacity of the impounding structure at the time of inspection (CCR surface impoundments only);
- approximate volume of impounded water and/or CCR;
- any appearances of actual or potential structural weakness of the CCR unit; and
- any other changes which may have affected the stability or operation of the structure since the previous annual inspection.



2.0 FACILITY DESCRIPTION

The Oak Grove SES is located near Franklin, Robertson County, Texas. The 1,600 MW SES burns lignite mined at the Luminant Kosse Mine, located approximately 15 miles from the facility.

The following CCR units are present at the site.

- CCR surface impoundments
 - FGD-A Pond
 - FGD-B Pond
- CCR landfill
 - Ash Landfill 1

Coal combustion byproducts such as fly ash, bottom ash, gypsum/scrubber sludge, and process wastewater are being generated during operation. Gypsum/scrubber sludge that cannot be recycled and selected process wastewaters are currently managed in FGD-A and FGD-B Ponds. All flyash and bottom ash generated at the facility is handled in a dry manner and deposited in Ash Landfill 1, other than that amount that is sold/beneficially used in accordance with the CCR regulation.

A new surface impoundment, FGD-C Pond, is currently under construction and anticipated to be in operation during the first quarter of 2016. Since this unit has not received CCR, it was not included in the 2015 annual inspection.

The locations of the surface impoundments and landfill are shown on Figure 1 and 2, respectively.



3.0 REVIEW OF OPERATIONAL RECORDS

The CCR Rule (§257.83(b)(1)(i) and §257.84(b)(i)) requires a review of information regarding the status and condition of each CCR unit, including the following items.

- Design and construction information
- Previous periodic structural stability assessments (CCR surface impoundments only)
- Results of weekly inspections and monthly instrumentation monitoring by a qualified person
- Results of previous annual inspections
- Other operating records

As part of the annual inspection, Golder reviewed the following documents:

- FGD-A Slope Stability Evaluation Report, Golder Associates Inc., March 2011.
- FGD-B Slope Stability Evaluation Report, Golder Associates Inc., June 2010.
- Liner Evaluation Report, Oak Grove SES, FGD-B Pond, Golder Associates Inc., January 2012.
- Addendum to Slope Stability Investigation Reports, Golder Associates Inc., March 19, 2014.
- Dam Safety Assessment of CCW Impoundments, Luminant/Oak Grove Steam Electric Station, O'Brien & Gere, June 3, 2014.
- Draft Critical Impoundment Inspection Report for Oak Grove SES, FGD-A Pond, FGD-B Pond, Pinnacle Technical Resources, Inc. The draft report is not dated; however, the inspection was conducted on January 20, 2015.
- TCEQ Registration Package, Oak Grove Steam Electric Station, Ash Landfill 1, Pastor, Behling & Wheeler, LLC; revised by Golder Associates Inc., January 17, 2011, and October 2012.
- Final Soil Cover Evaluation Report, Oak Grove SES, Ash Landfill 1, Cell 1 Final Cover, Golder Associates Inc., July 2015.
- 7-Day Inspection Checklists

CCR Unit	Date
FGD-A Pond	10/6/15
	10/13/15
	10/20/15
	10/27/15
FGD-B Pond	10/6/15
	10/13/15
	10/20/15
	10/27/15
Ash Landfill 1	10/6/15
	10/13/15
	10/20/15
	10/27/15



- Daily freeboard levels for October 1, 2015 through October 29, 2015.

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4.0 VISUAL INSPECTION OF CCR UNITS

In accordance with §257(b)(1)(ii)-(iii) and §258(b)(1)(ii), a visual inspection of the surface impoundments and landfill was conducted on October 29, 2015 by Jeffrey B. Fassett, a registered professional engineer in the State of Texas. Mr. Fassett has over 25 years of experience with design and construction of waste containment systems. Mr. Fassett was accompanied by Bennett Jones, Dustin Manthei, and Larry Johnston of Luminant.

The weather on the date of the visual inspection was sunny and approximately 75 degrees. Between October 23 and 25, the measured rainfall at the site was 6.95 inches.

Field checklists and maps of each CCR unit were used to record the findings. Photographs were taken to provide an additional record. The checklists and photographs are included in Appendix A and B, respectively.

4.1 Summary of Observations

Prior to conducting the visual inspection, Luminant provided checklists from the recently implemented 7-day inspections and daily freeboard levels in the ponds. In addition, the objectives of the visual inspection and safety concerns were discussed.

4.1.1 FGD-A Pond

During the visual inspection of FGD-A Pond the following observations were made.

- The crest is generally in good condition. Shallow ruts were observed along the crest and the outside edge of crest was raised in areas.
- The majority of the upstream slope has good vegetative cover. The southern slope is covered with gravel.
- The southeastern corner of the divider berm has been lined with an HDPE geomembrane and riprap for erosion protection. .
- The solids have built up above the waterline around the pond inlet.
- In general, the downstream slope is in good condition and well-maintained. The vegetation, consisting of native grasses, forbs and coastal Bermuda, was well-established and appeared to have been recently mowed.
- It appears that mowing equipment is causing depression in portions of the downstream slope, particularly near the toe of the western embankment.
- Animal burrows were observed and marked for repair along the downstream slope. Several had been recently repaired.
- Numerous ant mounds were present.
- Evidence of standing water was visible near the southwest toe of the embankment; however the water appears to be the result of run-off collecting in a depression.



- Standing water was present on the concrete pad that supports the outlet pipes and pumps for returning water to the SES. The water appears to be the result of the recent heavy rainfall event.

4.1.2 FGD-B Pond

During the visual inspection of FGD-B Pond the following observations were made.

- The crest is generally in good condition. Shallow ruts were observed and the outside edge of crest was raised in areas.
- Repairs to the upstream slope, consisting of replacement of the protective soil cover and placement of erosion control matting were conducted in 2014. The repairs have been damaged by wave action. Gravel has been placed in highly eroded areas.
- In general, the downstream slope is in good condition and well-maintained. Rills have formed in recently repaired areas.
- Brush has been recently cut along lower portion of northeastern corner of downstream embankment.
- Animal burrows were observed and marked for repair along the downstream slope. Several had been recently repaired.
- Numerous ant mounds were present.
- Due to the steepness of the slope, vegetation along the upper portion of the southern downstream slope cannot be mowed using the equipment used on the rest of the embankment. At the time of this inspection, there were zones where this vegetation exceeded 6 inches, but the vegetation height did not prevent a thorough inspection of the integrity of the embankment. Luminant indicated that these steeper slopes are maintained using weed-wackers, but due to the recent wet conditions, this area could not be safely accessed prior to the inspection.
- It appears that water recently backed up behind a corrugated HDPE culvert below the southern access ramp.

4.1.3 Ash Landfill 1

During the visual inspection of Ash Landfill 1 the following observations were made.

- Construction of Cell 4 is underway.
- Final cover construction (consisting of 3 feet of compacted clay overlain with 1.5 feet of vegetative cover) over the ash above the upper crest of the embankment was completed in February 2015.
- An HDPE pipe runs along the lower bench of the southern embankment, carrying water from FGD ponds to the clay-lined floor in Cell 3.
- Embankments
 - Cell 1
 - The vegetation below the lower bench is generally good.
 - Recently reseeded areas between lower and upper bench have eroded due to recent rain.
 - The final cover is poorly vegetated and the vegetative cover layer has eroded in places.



- Cells 2 and 3
 - The southern slope is well-vegetated, with minor rilling in isolated areas.
 - Vegetation is present on the protective cover on the interior slopes.
 - The northern slope is used to access the landfill and is in good condition.
- Benches
 - Drop inlets on the Cell 1 embankment benches have been recently cleared of sediment.
 - It appears that ponding due to clogged drop inlets has caused erosion at and below the edge of the benches.
- Downchutes
 - A concrete block downchute is present below the lower bench in the southern Cell 2 embankment. Surface water flow below the geotextile has eroded the soil below the upper end of the downchute.
 - The temporary HDPE geomembrane-lined downchute located on the southern embankment at the western edge of Cell 1 is performing well; however, it appears that some runoff from the final cover is not being directed to the downchute and is flowing down the slope, causing erosion.
 - The final cover below the concrete block downchute on the eastern slope has eroded resulting in a void below the woven geotextile layer.
 - The concrete block downchute along the northern portion of the embankment is performing well.

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5.0 INSPECTION REPORT

Table 1 provides information for each of the items listed in §257.83(b)(2) and §258.84(b)(2), related to the inspection report.

Table 1: CCR Unit Information

Item	FGD-A Pond	FGD-B Pond	Ash Landfill 1
Changes in Geometry	None	None	Within last year: <ul style="list-style-type: none"> Placed final cover over Cell 1 Currently constructing Cell 4
Maximum Instrumentation Readings ⁽¹⁾	N/A	N/A	N/A
Approx. Min., Max., and Present Depth of Impounded Water ⁽²⁾	Max. = 24 inches Min. = 65 inches Present = 38.5 inches from crest	Max. = 52 inches Min. = 98 inches Present = 52 inches from crest	N/A
Approximate Volume of CCR in Unit ^{(3), (4)}	Approx. 200,000 cy	Approx. 17,000 cy	Approx. 7.56 million cy
Approximate Storage Capacity ⁽³⁾	Approx. 75,000 cy	Approx. 150,000 cy	N/A
Observed Structural Weakness of the CCR Unit	None	None	None
Changes That Affect Stability or Operation of the CCR Unit	FGD-C Pond construction is nearly complete. This unit will allow diversion of CCR from FDG-A for removal of CCR and repairs/maintenance	FGD-C Pond construction is nearly complete. This unit will allow FGD-B to be emptied for repairs and maintenance	The combination of drought and recent heavy rain has resulted in damage to some of the permanent drainage features in Cell 1.

Notes:

- No instrumentation is in place to monitor structural stability in the CCR units.
- Impounded water depths for October 2015 only.
- Volumes of CCR in FGD Ponds estimated based on field observations.
- Volume of CCR in Ash Landfill 1 from Luminant.



6.0 SUMMARY OF FINDINGS AND RECOMMENDED ACTIONS

Based on observations made on October 29, 2015, the overall condition of the surface impoundments and ash landfill is good. No structural weaknesses or safety issues were observed within the embankments. In addition, there were no signs of problems within the hydraulic structures underlying the base of the surface impoundments that could adversely affect the integrity and continued safe and reliable operation.

Conditions that could impact the operation of the CCR units are limited to appurtenant features on Ash Landfill 1 specifically: erosion of the final cover; and erosion below the concrete block downchutes. It should be noted that final cover erosion was limited to the vegetative cover layer; in no case has erosion resulted in exposed CCR below the final cover.

A summary of the findings and items recommended for repair or maintenance is provided in Table 2.

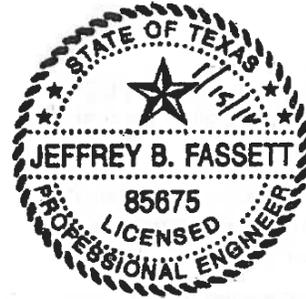
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7.0 CLOSING

This report has been prepared in general accordance with normally accepted civil engineering practices to fulfill reporting requirements in accordance with 40 CFR 257.83(b) and 257.84(b). Based on our review of the information provided by Luminant and on our on-site inspection, the overall condition of the surface impoundments and ash landfill is good.

GOLDER ASSOCIATES INC.



William E. Gordon, PE
Senior Engineer

Jeffrey B. Fassett, PE
Associate Geotechnical Engineer

JBF/Admin initials

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Table 2: Summary of Findings and Recommendations

CCR UNIT	Component	Condition * (Good/ Fair/ Poor)	Actions Since Last Inspections and Other Observations and Remarks	Photograph	Severity * (Minor/ Moderate/ Severe)	Further Actions and Recommendations
FGD-A Pond	U/S Slope	Good	Good grass cover on all areas except southern slope, where slope is covered with gravel. Wave action erosion is present in gravel.	2, 3	Minor	Consider alternate erosion protection along southern slope: e.g. installing riprap, installing erosion control matting, or lining with geomembrane.
	Crest	Fair	There are areas of rutting and minor ponding.	1	Minor	Grade to drain toward upstream slope. Keep vehicles off crest after storm events.
	D/S Slope	Good	Good grass cover on all areas except southern slope where recently repaired areas have been slightly eroded by recent heavy rain and southwestern slope where grass has not yet been established following recent equipment traffic.	4, 7	Minor	No action required. Continue to monitor. If the condition worsens, reestablish vegetation by surface roughening, topsoiling and mulching at time of seeding.
			Large ruts caused by mowing equipment present along northern slope.	5	Minor	Limit mowing to drier periods.
			Animal burrows visible. Several recently repaired burrows visible.		Minor	Consider animal control program.
			Ant mounds visible.		Minor	Broadcast fire ant bait annually.
			Standing water, which appears to be stormwater, was visible near the southwestern toe.	6	Minor	Regrade area to provide positive drainage.
Inlet Pipes	Fair	Solids have built up above the waterline around the spillway inlet.	1	Minor	No action required. Continue to monitor.	
Outlet Pipes	Good	Upstream end submerged. Minor depression above HDPE pipe.	10		Depression previously flagged for repair.	
FGD-B Pond	U/S Slope	Fair	The 2014 upstream embankment repairs, consisting of clay cover and erosion matting, have been eroded by wave action. Gravel has been placed in heavily eroded areas.	11	Moderate	Soil placed above a geomembrane tends to slough when wetted. Consider alternate erosion protection: e.g. gravel-filled geowebbing, more robust erosion control matting (HydroTurf), or placing a weighted geomembrane flap over the protective soil cover.
	Crest	Good	There are areas of rutting and minor ponding.		Minor	Grade to drain. Keep vehicles off crest after storm events.
	D/S Slope	Good	Fair to good grass cover on all areas except recently repaired areas that have been slightly eroded by recent heavy rain.	15, 17	Minor	No action required. Continue to monitor. If the condition worsens, reestablish vegetation by surface roughening, topsoiling and mulching at time of seeding.
			Southern embankment slope is too steep for lawn mower and was inaccessible before the inspection; therefore, vegetation height is > 6 inches.	18	Minor	Use weed-wacker or other equipment to cut vegetation in steep area when weather allows.
		Animal burrows visible. Several recently repaired burrows visible.	16	Minor	Consider animal control program.	
		It appears that stormwater runoff backed up behind the corrugated HDPE culvert under the southern access ramp.	19	Minor	No action required. Continue to monitor. If water continues to back up in area, flush or replace culvert.	

Table 2: Summary of Findings and Recommendations

CCR UNIT	Component	Condition * (Good/ Fair/ Poor)	Actions Since Last Inspections and Other Observations and Remarks	Photograph	Severity * (Minor/ Moderate/ Severe)	Further Actions and Recommendations
Ash Landfill 1	D/S Slope	Good to Fair	Cell 2 and 3: south slope well vegetated; north side vegetation is fair to good. Cell 1: good vegetation below lower bench; recently reseeded areas between lower and upper bench eroded recently.	20, 21, 24, 26, 28	Minor	
			Animal burrows visible. An armadillo was observed burrowing during inspection.	26	Minor	Consider animal control program.
	U/S Slope	Good	Vegetation is present on the protective cover		Minor	Check the root depth of the vegetation. If it exceeds the thickness of the protective cover (1 foot) it should be controlled to prevent damage to the clay liner.
	Benches	Fair	Drop inlets have recently been cleared of silt.			No action required. Continue to monitor. If the condition worsens, install silt fencing or other sediment control around inlets.
			Erosion features due to ponded water present along upper bench on northern slope.		Minor	Repair erosion.
	Final Cover	Fair	Final cover was placed over the ash above the crest of the Cell 1 embankment between October 2014 and February 2015. Due to drought conditions vegetation has not been established. Due to a recent heavy rain, erosion has occurred.	25	Moderate	Establish grass on the embankment by surface roughening, topsoiling and mulching at the time seed is placed.
	Downchutes	Good to Poor	The final cover beneath the new downchute on the west slope has been eroded, undermining the concrete blocks. The new temporary HDPE geomembrane downchute along the southern slope and the concrete block downchute along the northern slope are performing well. Seepage eroding soil below woven geotextile in the concrete block downchute on the southern Cell 2 embankment.	22, 23, 27	Moderate	Remove blocks and repair final cover along west slope. Investigate the cause of erosion below the downchute before relining. Redirect runoff from final cover to temporary geomembrane-lined downchute. Repair the Cell 2 concrete block downchute.
Control of Contact Water	Good	Water ponding along south side of Cell 2.		Minor	Regrade area to direct contact water away from perimeter.	

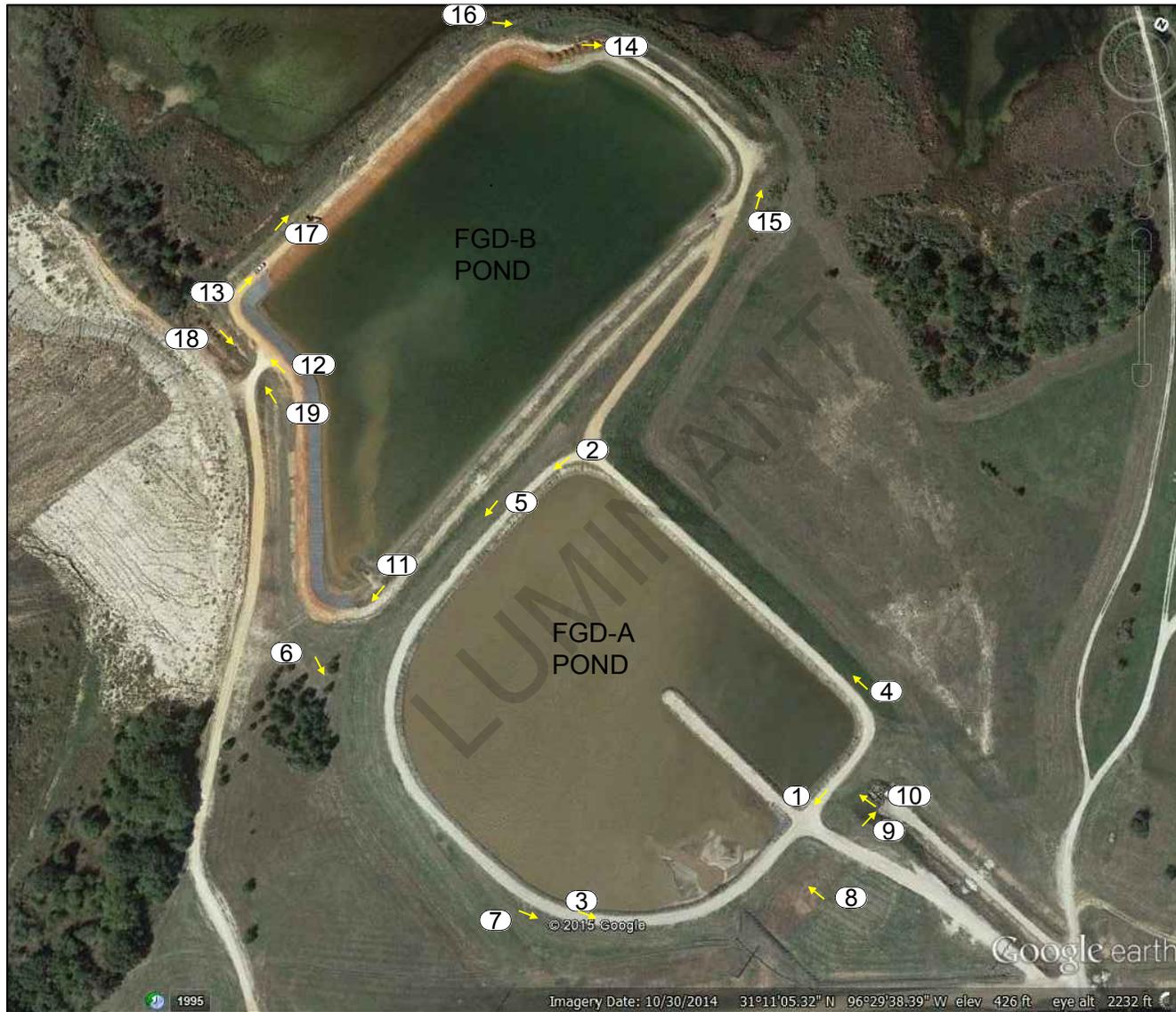


FIGURE 1
OAK GROVE SES
FGD-A POND & FGD-B POND



FIGURE 2
OAK GROVE SES
ASH LANDFILL

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**APPENDIX A
INSPECTION CHECKLISTS**

OAK GROVE SES

IMPOUNDMENT: FGD-A Pond

INSPECTION DATE: 10/29/2015

AREA INSPECTED	EMBANKMENT			CHECK (✓) ACTION NEEDED		
	1 of 2					
	ITEM NO.	CONDITION	OBSERVATIONS	MONITOR	INVESTIGATE	REPAIR
CREST	1	SURFACE CRACKING	None			
	2	CAVE IN, ANIMAL BURROWS	None			
	3	LOW AREA(S)	None			
	4	HORIZONTAL ALIGNMENT	Good			
	5	RUTS AND/OR PUDDLES	Minor, up to 4-inch rut depth in northwest and northeast and minor ponding in northeast			✓
	6	VEGETATION CONDITION	None, gravel or bare soil			
	7	TREES	None			
	8	OTHER				
UPSTREAM SLOPE	9	SLIDE, SLOUGH, SCARP	None			
	10	SLOPE PROTECTION	Gravel placed on southern slope. Geomembrane and riprap at dividing dike.			
	11	SINKHOLE, ANIMAL BURROW	None observed			
	12	EMB.-ABUT. CONTACT	NA			
	13	EROSION	Minor; wave action erosion along southern slope	✓		
	14	VEGETATION CONDITION	Vegetation poor on northern and southern slopes	✓		
	15	TREES	None			
	16	OTHER				

ADDITIONAL COMMENTS: REFER TO ITEM NO. IF APPLICABLE.

IMPOUNDMENT: FGD-A Pond

INSPECTION DATE: 10/29/2015

AREA INSPECTED	EMBANKMENT			CHECK (✓) ACTION NEEDED		
	2 of 2			MONITOR	INVESTIGATE	REPAIR
	ITEM NO.		OBSERVATIONS			
DOWNSTREAM SLOPE	17	WET AREAS	None			
	18	SEEPAGE	None			
	19	SLIDE, SLOUGH, SCARP	None			
	20	EMB.-ABUT. CONTACT	Good			
	21	CAVE IN, ANIMAL BURROW	Several burrows repaired or recently marked; two new burrows found	✓		✓
	22	EROSION	Minor; some damage from mowers	✓		
	23	UNUSUAL MOVEMENT	None			
	24	VEGETATION CONTROL	Good grass cover except for recently repaired/reseeded area near southwestern corner and area disturbed by equipment near inlet			
	25	BENCH	NA			
	26	OTHER				
INSTRUMENTATION	27	PIEZOMETERS/OBSERV. WELLS	NA			
	28	STAFF GAUGE AND RECORDER	NA. Freeboard measured manually.			
	29	WEIRS	NA			
	30	SURVEY MONUMENTS	NA			
	31	DRAINS	NA			
	32	FREQUENCY OF READINGS	Daily freeboard measurements			

ADDITIONAL COMMENTS: Erosion and animal burrows have been recently repaired.

IMPOUNDMENT: FGD-A Pond

INSPECTION DATE: 10/29/2015

AREA INSPECTED	HYDRAULIC STRUCTURES			CHECK (✓) ACTION NEEDED		
	1 of 1			MONITOR	INVESTIGATE	REPAIR
	ITEM NO.	CONDITION	OBSERVATIONS			
OUTLET WORKS	33	INLET PIPES	Two pipes visible. One discharging into pond.			
	34	TRASHRACK	NA			
	35	STILLING BASIN	NA			
	36	PRIMARY CLOSURE	NA			
	37	SECONDARY CLOSURE	NA			
	38	CONTROL MECHANISM	One valve to discharge pipe to FGD-B			
	39	OUTLET PIPE	Small depression above HDPE pipe	✓		
	40	OUTLET TOWER	NA			
	41	EROSION ALONG DAM TOE	None			
	42	SEEPAGE	None observed. Standing water on pump station pad appears to be rainwater.			
	43	UNUSUAL MOVEMENT	None			
44	OTHER					

ADDITIONAL COMMENTS: Portable pump pulling water from near inlet pipes.

OAK GROVE SES

IMPOUNDMENT: FGD-B Pond

INSPECTION DATE: 10/29/2015

AREA INSPECTED	EMBANKMENT			CHECK (✓) ACTION NEEDED		
	1 of 2					
	ITEM NO.	CONDITION	OBSERVATIONS	MONITOR	INVESTIGATE	REPAIR
CREST	1	SURFACE CRACKING	None			
	2	CAVE IN, ANIMAL BURROWS	None			
	3	LOW AREA(S)	None			
	4	HORIZONTAL ALIGNMENT	Good			
	5	RUTS AND/OR PUDDLES	Minor, up to 4-inch rut depth in southeast and southwest corners.			✓
	6	VEGETATION CONDITION	None, bare soil			
	7	TREES	None			
	8	OTHER				
UPSTREAM SLOPE	9	SLIDE, SLOUGH, SCARP	None			
	10	SLOPE PROTECTION	Repairs made last year are not performing well. Eroded below waterline.	✓		
	11	SINKHOLE, ANIMAL BURROW	None observed			
	12	EMB.-ABUT. CONTACT	NA			
	13	EROSION	Wave action erosion along southern slope. Gravel placed on eroded areas.	✓		
	14	VEGETATION CONDITION	Good above waterline, with exception of southern slope	✓		
	15	TREES	None			
	16	OTHER				

ADDITIONAL COMMENTS:

IMPOUNDMENT: FGD-B Pond

INSPECTION DATE: 10/29/2015

AREA INSPECTED	EMBANKMENT			CHECK (✓) ACTION NEEDED		
	2 of 2			MONITOR	INVESTIGATE	REPAIR
	ITEM NO.		OBSERVATIONS			
DOWNSTREAM SLOPE	17	WET AREAS	None			
	18	SEEPAGE	None			
	19	SLIDE, SLOUGH, SCARP	None			
	20	EMB.-ABUT. CONTACT	Good			
	21	CAVE IN, ANIMAL BURROW	Several burrows repaired or recently marked; several new burrows found	✓		✓
	22	EROSION	Minor; primarily in recently repaired areas	✓		
	23	UNUSUAL MOVEMENT	None			
	24	VEGETATION CONTROL	Good grass cover except for recently repaired/reseeded areas. Recently cut high vegetation near northeastern corner. Vegetation > 6 in on southern slope.			✓
	25	BENCH	NA			
	26	OTHER				
INSTRUMENT-ATION	27	PIEZOMETERS/OBSERV. WELLS	NA			
	28	STAFF GAUGE AND RECORDER	NA. Freeboard measured manually.			
	29	WEIRS	NA			
	30	SURVEY MONUMENTS	NA			
	31	DRAINS	NA			
	32	FREQUENCY OF READINGS	Daily freeboard measurements			

ADDITIONAL COMMENTS:

IMPOUNDMENT: FGD-B Pond

INSPECTION DATE: 10/29/2015

AREA INSPECTED	HYDRAULIC STRUCTURES			CHECK (✓) ACTION NEEDED		
	1 of 1			MONITOR	INVESTIGATE	REPAIR
	ITEM NO.	CONDITION	OBSERVATIONS			
OUTLET WORKS	33	INLET PIPES	One pipe discharges into east side of pond. Outlet submerged			
	34	TRASHRACK	NA			
	35	STILLING BASIN	NA			
	36	PRIMARY CLOSURE	NA			
	37	SECONDARY CLOSURE	NA			
	38	CONTROL MECHANISM	One valve to discharge pipe to FGD-B			
	39	OUTLET PIPE	NA			
	40	OUTLET TOWER	NA			
	41	EROSION ALONG DAM TOE	None			
	42	SEEPAGE	None observed.			
	43	UNUSUAL MOVEMENT	None			
44	OTHER					
<p>ADDITIONAL COMMENTS: REFER TO ITEM NO. IF APPLICABLE. Portable pump pulling water from western side.</p>						

OAK GROVE SES

INSPECTION DATE: 10/29/2015

Ash Landfill 1			CHECK (✓) ACTION NEEDED		
ITEM NO.	CONDITION	OBSERVATIONS	MONITOR	INVESTIGATE	REPAIR
1	SURFACE CRACKING	None			
2	ANIMAL BURROWS	Numerous animal burrows present, particularly on east side.	✓		✓
3	SLIDE, SLOUGH, SCARP	None			
4	SETTLEMENT/DEPRESSIONS	None in embankment			
5	VEGETATION CONDITION	Final cover and recently repaired areas have poor coverage.			
6	EROSION	Areas of erosion present in recently reseeded areas between lower and upper bench and final cover in Cell 1.	✓		✓
7	DRAINAGE FEATURES	Drop inlets recently cleared of sediment. Ponding water on benches causing erosion. Some runoff from the final cover is not being directed to the temporary downchute and is flowing down the slope.	✓		✓
8	DOWNCHUTES	Concrete block downchutes not performing well.		✓	✓
9	FINAL COVER INTRUSIONS	None			
10	CONTROL OF CONTACT WATER	South side of Cell 2 has ponding water.	✓		✓
ADDITIONAL COMMENTS: Cell 4 construction on-going.					

**APPENDIX B
PHOTOGRAPHS**

LUMINANT



Project Title: Oak Grove SES Annual Inspection

PHOTO 1

FGD-A Pond

Crest near divider berm and inlet pipes. Minor ruts in road. Solids above the water line. Riprap in southeastern corner of divider berm.



PHOTO 2

FGD-A Pond

Western upstream slope.





PHOTO 3

FGD-A Pond
Southern upstream slope
lined with gravel.



PHOTO 4

FGD-A Pond
Northern downstream
slope.





PHOTO 5

FGD-A Pond
Large ruts from mower
near toe of western
embankment



PHOTO 6

FGD-A Pond
Standing water near
southwest toe





PHOTO 7

FGD-A Pond

Recently repaired area near crest of southern downstream embankment slope



PHOTO 8

FGD-A Pond

Inlet pipes and portable pump.





PHOTO 9

FGD-A Pond
Reclaim/recycling pump station



PHOTO 10

FGD-A Pond
Depression above HDPE outlet pipe.





PHOTO 11

FGD-B Pond
Southeast corner of
upstream slope. Protective
cover and erosion control
matting placed in 2014.



PHOTO 12

FGD-B Pond
Southern crest and
upstream slope. Upstream
edge of crest raised.





PHOTO 13

FGD-B Pond
Western crest and
upstream slope.



PHOTO 14

FGD-B Pond
Northern upstream slope.





PHOTO 15

FGD-B Pond

Recently cut brush on northeastern downstream slope.



PHOTO 16

FGD-B Pond

Animal burrow along western downstream embankment





PHOTO 17

FGD-B Pond

Recently repaired area along southern end western downstream slope. Pump in background.



PHOTO 18

FGD-B Pond

Southern downstream slope. Steep slope makes mowing difficult and recent wet weather has prevented safe access with weed-wacker.





PHOTO 19

FGD-B Pond
Corrugated HDPE pipe
below southern access
ramp.



PHOTO 20

Ash Landfill 1
Southern slope of Cell 3.
Pipe delivers water from
FGD ponds to clay lined
Cell 3 floor.





PHOTO 21

Ash Landfill 1
Southern slope of Cell 2.



PHOTO 22

Ash Landfill 1
Seepage below concrete block downchute at lower bench of southern Cell 3 slope.





PHOTO 23

Ash Landfill 1
Temporary HDPE
geomembrane-lined
downchute at west end of
Cell 1 southern slope.



PHOTO 24

Ash Landfill 1
Southern slope at lower
bench in Cell 1





PHOTO 25

Ash Landfill 1

Upper bench on Cell 1 southern slope. Vegetation not established on final cover.



PHOTO 26

Ash Landfill 1

Upper bench on Cell 1 eastern slope. Sediment removed from drop inlet in background.





PHOTO 27

Ash Landfill 1

Concrete block lined downchute on Cell 1 final cover on eastern slope. Void below blocks due to erosion.



PHOTO 28

Ash Landfill 1

Recently repaired area below upper bench of Cell 1 eastern slope.





PHOTO 29

Ash Landfill 1

Concrete block downchute on Cell 1 northern slope. Previously marked animal burrow in foreground.



PHOTO 30

Ash Landfill 1

Northern slope of Cell 2 and 3.



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