

History of Construction Monticello Steam Electric Station CCR Surface Impoundments

Luminant Generation Company, LLC

**MOSES History of Construction
Project No. 90601**

August 15, 2016

History of Construction Monticello Steam Electric Station CCR Surface Impoundments

prepared for

**Luminant Generation Company, LLC
MOSES History of Construction
Rusk County, Texas**

Project No. 90601

August 15, 2016

prepared by

**Burns & McDonnell Engineering Company, Inc.
Kansas City, Missouri**

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INDEX AND CERTIFICATION

**Luminant Generation Company, LLC
History of Construction
Monticello Steam Electric Station
CCR Surface Impoundments
Project No. 90601**

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Certification

I hereby certify, as a Professional Engineer in the state of Texas, that the information in this document was assembled under my direct personal charge. This report is not intended or represented to be suitable for reuse by Luminant Generation Company, LLC or others without specific verification or adaptation by the Engineer.



Randell Lee Sedlacek
8/31/16

Randell Lee Sedlacek
Randell Lee Sedlacek, P.E. (Texas License No. 99056)

Date: 8/31/16

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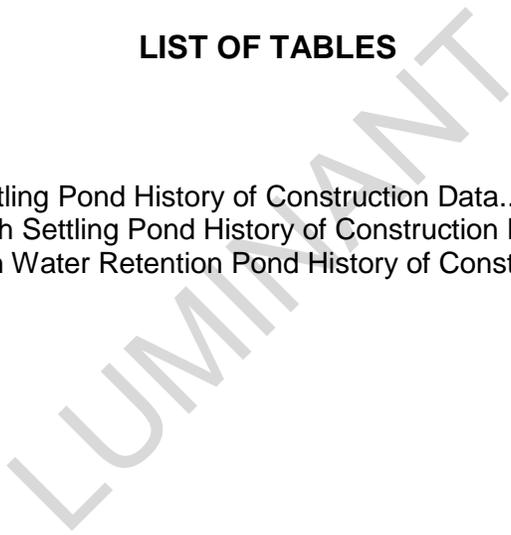
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LIST OF ABBREVIATIONS

<u>Abbreviation</u>	<u>Term/Phrase/Name</u>
BMcD	Burns & McDonnell
CCR	Coal Combustion Residual
CFR	Code of Federal Regulation
EPA	Environmental Protection Agency
GM	Geomembrane
MOSES	Monticello Steam Electric Station
RCRA	Resource Conservation and Recovery Act

LUMINANT

1.0 INTRODUCTION

Luminant Generation Company, LLC (Luminant) owns and operates the Monticello Steam Electric Station (MOSES), located in Titus County, Texas. MOSES is located adjacent to Lake Monticello, which is used as its cooling water source. The bottom ash, fly ash, and scrubber gypsum created during electricity generation are stored, conditioned, and/or disposed of in surface impoundments and landfills on-site, or in nearby Luminant owned and operated facilities.

The EPA published the final Rule to regulate Coal Combustion Residuals (CCR) on April 17, 2015. The final Rule establishes minimum criteria for existing and new CCR Landfills and Surface Impoundments (CCR Units). Luminant is subject to the CCR Rule and as such must compile a History of Construction for existing CCR surface impoundments (to the extent feasible) per 40 CFR §257.73. This document, its appendices and attachments provide the History of Construction for the existing surface impoundments at MOSES.

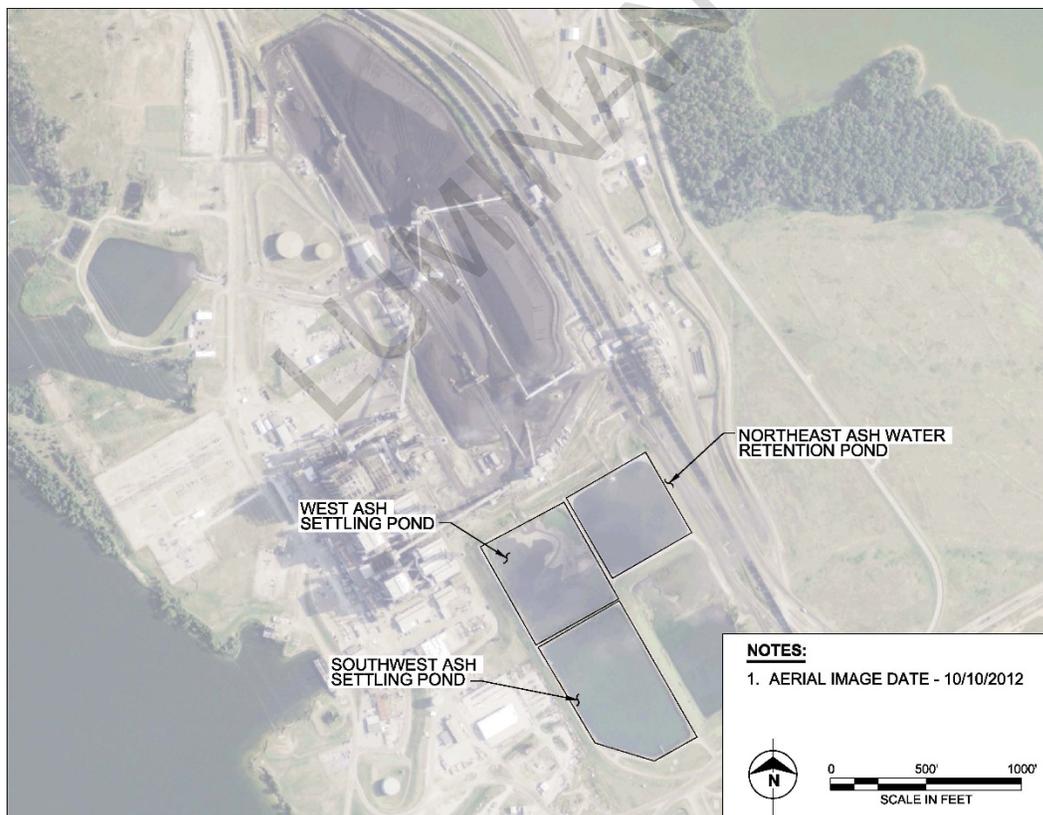


Figure 1 MOSES Site Plan

TABLE 1-1 WEST ASH SETTLING POND HISTORY OF CONSTRUCTION DATA

Section	CCR Rule Description	Included	Information
			Luminant Generation Company, LLC 1601 Bryan Street Dallas, TX 75201
§257.73 (c)(1) (i)	Name and address of the owner/operator of the CCR unit	Y	Dallas, TX 75201
§257.73 (c)(1) (i)	Name of the CCR units	Y	West Ash Settling Pond
§257.73 (c)(1) (i)	Identification number of the CCR unit	Y	TCEQ WMU No. 012
§257.73 (c)(1) (ii)	Location of the CCR unit on most recent United State Geological Survey (USGS) 7½ minute or 15 minute topographical map	Y	See Attachment 1
§257.73 (c)(1) (iii)	Statement of the purpose for which the CCR unit is being used	Y	Bottom ash is sluiced to the NE and West ponds, and the SW pond is used for overflow from the other two. In addition to the sluiced ash, overflow from the dewatering bins is also sent to these ponds
§257.73 (c)(1) (iv)	Name and size of watershed within which the CCR unit is located	Y	HUC12=111403050204, Blundell Creek-Big Cypress Creek Watershed, AREA in ACRES=36291
§257.73 (c)(1) (v)	Description of the physical and engineering properties of the foundation and abutment materials on which the CCR unit is constructed	Y	Foundation soils consisted of clayey sand and sandy clay. Dense, silty or poorly graded sand was noted beneath the sandy clay/clayey layers.
§257.73 (c)(1) (vi)	Statement of the type, size, range, and physical and engineering properties of the materials used in constructing each zone or stage of the CCR unit	Y	Embankment material consists of native onsite soils. Liner consists of 3' of 1x10 ⁻⁷ clay.
§257.73 (c)(1) (vi)	The method of site preparation and construction of each zone or stage of the CCR unit	N	No records available.
§257.73 (c)(1) (vi)	The approximate dates of construction of each successive stage of construction of the CCR unit	Y	1974, Re-configured and clay lined in 1990.
§257.73 (c)(1) (vii)	Detailed Dimensional Drawings Including the Following:	Y	See Attachment 2
§257.73 (c)(1) (vii)	Plan view and cross sections of the length and width of the CCR unit	Y	See Attachment 2
§257.73 (c)(1) (vii)	Foundation improvements	N	N/A
§257.73 (c)(1) (vii)	Drainage provisions, spillways, diversion ditches, outlets	N	N/A
§257.73 (c)(1) (vii)	Instrumentation locations	N	N/A
§257.73 (c)(1) (vii)	Slope protection	Y	4" Revetment Matt, See Attachment 2
§257.73 (c)(1) (vii)	Normal operating pool surface elevation	Y	EL 384
§257.73 (c)(1) (vii)	Maximum pool surface elevation following peak discharge from the inflow design flood	N	This information is being compiled by another consultant and will be included in the Inflow Design Flood Control System Plan published on Luminant's CCR website.
§257.73 (c)(1) (vii)	Expected maximum depth of CCR within the unit	Y	Approximately 23' (384'-361')
§257.73 (c)(1) (vii)	Any identifiable natural or manmade features that could adversely affect operation of the CCR unit due to malfunction or mis-operation	Y	Unused/abandoned pipe penetrations, See Attachment 2
§257.73 (c)(1) (viii)	Description of the type, purpose, and location of existing instrumentation	N	None.
§257.73 (c)(1) (ix)	Area-capacity curves for the CCR unit	N	This information is being compiled by another consultant and will be included in the Inflow Design Flood Control System Plan published on Luminant's CCR website.
§257.73 (c)(1) (x)	Description of each spillway and diversion design features and capacities and calculations used in their determination	N	There are no spillways.
§257.73 (c)(1) (xi)	Construction specifications	N	None.
§257.73 (c)(1) (xi)	Provisions for surveillance, maintenance, and repair of the CCR unit	N	Weekly and Annual Inspections per §257.83.
§257.73 (c)(1) (xii)	Any record or knowledge of structural instability of the CCR unit	N	None.

TABLE 1-2 SOUTHWEST ASH SETTLING POND HISTORY OF CONSTRUCTION DATA

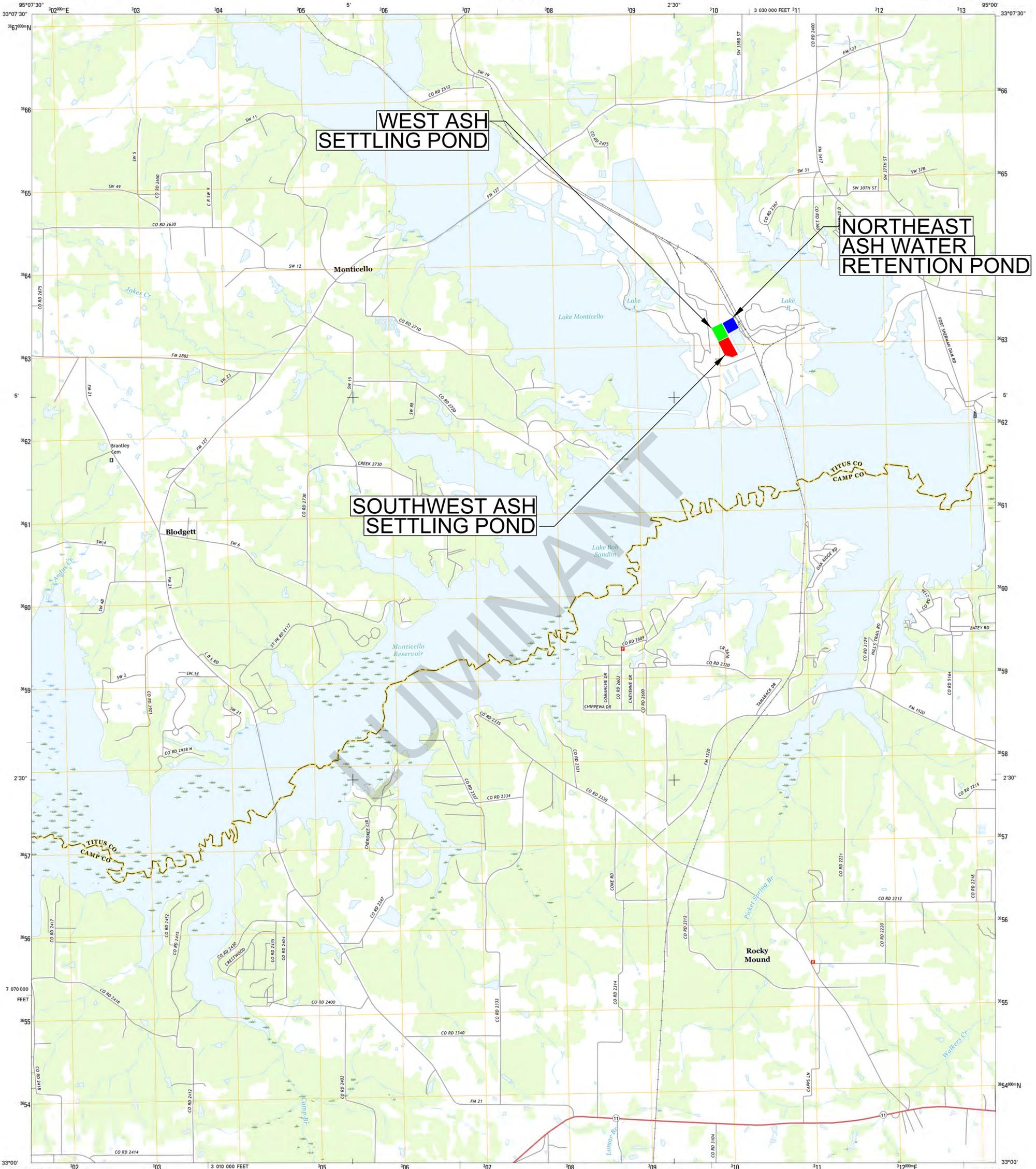
Section	CCR Rule Description	Included	Information
			Luminant Generation Company, LLC 1601 Bryan Street Dallas, TX 75201
§257.73 (c)(1) (i)	Name and address of the owner/operator of the CCR unit	Y	Dallas, TX 75201
§257.73 (c)(1) (i)	Name of the CCR units	Y	Southwest Ash Settling Pond
§257.73 (c)(1) (i)	Identification number of the CCR unit	Y	TCEQ WMU No. 022
§257.73 (c)(1) (ii)	Location of the CCR unit on most recent United State Geological Survey (USGS) 7½ minute or 15 minute topographical map	Y	See Attachment 1
§257.73 (c)(1) (iii)	Statement of the purpose for which the CCR unit is being used	Y	Bottom ash is sluiced to the NE and West ponds, and the SW pond is used for overflow from the other two. In addition to the sluiced ash, overflow from the dewatering bins is also sent to these ponds
§257.73 (c)(1) (iv)	Name and size of watershed within which the CCR unit is located	Y	HUC12=111403050204, Blundell Creek-Big Cypress Creek Watershed, AREA in ACRES=36291
§257.73 (c)(1) (v)	Description of the physical and engineering properties of the foundation and abutment materials on which the CCR unit is constructed	Y	Foundation soils consisted of clayey sand and sandy clay. Dense, silty or poorly graded sand was noted beneath the sandy clay/clayey layers.
§257.73 (c)(1) (vi)	Statement of the type, size, range, and physical and engineering properties of the materials used in constructing each zone or stage of the CCR unit	Y	Embankment material consists of native onsite soils. Liner consists of 3' of 1x10 ⁻⁷ clay.
§257.73 (c)(1) (vi)	The method of site preparation and construction of each zone or stage of the CCR unit	N	No records available.
§257.73 (c)(1) (vi)	The approximate dates of construction of each successive stage of construction of the CCR unit	Y	1974, Re-configured and clay lined in 1990.
§257.73 (c)(1) (vii)	Detailed Dimensional Drawings Including the Following:	Y	See Attachment 2
§257.73 (c)(1) (vii)	Plan view and cross sections of the length and width of the CCR unit	Y	See Attachment 2
§257.73 (c)(1) (vii)	Foundation improvements	N	N/A
§257.73 (c)(1) (vii)	Drainage provisions, spillways, diversion ditches, outlets	N	N/A
§257.73 (c)(1) (vii)	Instrumentation locations	N	N/A
§257.73 (c)(1) (vii)	Slope protection	Y	4" Revetment Matt, See Attachment 2
§257.73 (c)(1) (vii)	Normal operating pool surface elevation	Y	EL 384
§257.73 (c)(1) (vii)	Maximum pool surface elevation following peak discharge from the inflow design flood	N	This information is being compiled by another consultant and will be included in the Inflow Design Flood Control System Plan published on Luminant's CCR website.
§257.73 (c)(1) (vii)	Expected maximum depth of CCR within the unit	Y	Approximately 23' (384'-361')
§257.73 (c)(1) (vii)	Any identifiable natural or manmade features that could adversely affect operation of the CCR unit due to malfunction or mis-operation	Y	Unused/abandoned pipe penetrations, See Attachment 2
§257.73 (c)(1) (viii)	Description of the type, purpose, and location of existing instrumentation	N	None.
§257.73 (c)(1) (ix)	Area-capacity curves for the CCR unit	N	This information is being compiled by another consultant and will be included in the Inflow Design Flood Control System Plan published on Luminant's CCR website.
§257.73 (c)(1) (x)	Description of each spillway and diversion design features and capacities and calculations used in their determination	N	There are no spillways.
§257.73 (c)(1) (xi)	Construction specifications	N	None.
§257.73 (c)(1) (xi)	Provisions for surveillance, maintenance, and repair of the CCR unit	N	Weekly and Annual Inspections per §257.83.
§257.73 (c)(1) (xii)	Any record or knowledge of structural instability of the CCR unit	N	None.

TABLE 1-3 NORTHEAST ASH WATER RETENTION POND HISTORY OF CONSTRUCTION DATA

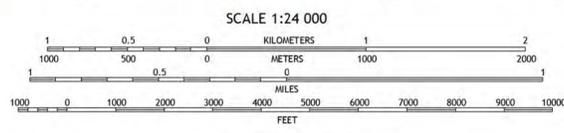
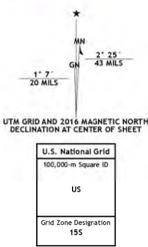
Section	CCR Rule Description	Included	Information
			Luminant Generation Company, LLC 1601 Bryan Street Dallas, TX 75201
§257.73 (c)(1) (i)	Name and address of the owner/operator of the CCR unit	Y	Dallas, TX 75201
§257.73 (c)(1) (i)	Name of the CCR units	Y	Northeast Ash Water Retention Pond
§257.73 (c)(1) (i)	Identification number of the CCR unit	Y	TCEQ WMU No. 011
§257.73 (c)(1) (ii)	Location of the CCR unit on most recent United State Geological Survey (USGS) 7½ minute or 15 minute topographical map	Y	See Attachment 1
§257.73 (c)(1) (iii)	Statement of the purpose for which the CCR unit is being used	Y	Bottom ash is sluiced to the NE and West ponds, and the SW pond is used for overflow from the other two. In addition to the sluiced ash, overflow from the dewatering bins is also sent to these ponds
§257.73 (c)(1) (iv)	Name and size of watershed within which the CCR unit is located	Y	HUC12=111403050204, Blundell Creek-Big Cypress Creek Watershed, AREA in ACRES=36291
§257.73 (c)(1) (v)	Description of the physical and engineering properties of the foundation and abutment materials on which the CCR unit is constructed	Y	Foundation soils consisted of clayey sand and sandy clay. Dense, silty or poorly graded sand was noted beneath the sandy clay/clayey layers.
§257.73 (c)(1) (vi)	Statement of the type, size, range, and physical and engineering properties of the materials used in constructing each zone or stage of the CCR unit	Y	Embankment material consists of native onsite soils. Liner consists of 3' of 1x10 ⁻⁷ clay.
§257.73 (c)(1) (vi)	The method of site preparation and construction of each zone or stage of the CCR unit	N	No records available.
§257.73 (c)(1) (vi)	The approximate dates of construction of each successive stage of construction of the CCR unit	Y	1974, Re-configured and clay lined in 1990.
§257.73 (c)(1) (vii)	Detailed Dimensional Drawings Including the Following:	Y	See Attachment 2
§257.73 (c)(1) (vii)	Plan view and cross sections of the length and width of the CCR unit	Y	See Attachment 2
§257.73 (c)(1) (vii)	Foundation improvements	N	N/A
§257.73 (c)(1) (vii)	Drainage provisions, spillways, diversion ditches, outlets	N	N/A
§257.73 (c)(1) (vii)	Instrumentation locations	N	N/A
§257.73 (c)(1) (vii)	Slope protection	Y	4" Revetment Matt, See Attachment 2
§257.73 (c)(1) (vii)	Normal operating pool surface elevation	Y	EL 384
§257.73 (c)(1) (vii)	Maximum pool surface elevation following peak discharge from the inflow design flood	N	This information is being compiled by another consultant and will be included in the Inflow Design Flood Control System Plan published on Luminant's CCR website.
§257.73 (c)(1) (vii)	Expected maximum depth of CCR within the unit	Y	Approximately 23' (384'-361')
§257.73 (c)(1) (vii)	Any identifiable natural or manmade features that could adversely affect operation of the CCR unit due to malfunction or mis-operation	Y	Unused/abandoned pipe penetrations, See Attachment 2
§257.73 (c)(1) (viii)	Description of the type, purpose, and location of existing instrumentation	N	None.
§257.73 (c)(1) (ix)	Area-capacity curves for the CCR unit	N	This information is being compiled by another consultant and will be included in the Inflow Design Flood Control System Plan published on Luminant's CCR website.
§257.73 (c)(1) (x)	Description of each spillway and diversion design features and capacities and calculations used in their determination	N	There are no spillways.
§257.73 (c)(1) (xi)	Construction specifications	N	None.
§257.73 (c)(1) (xi)	Provisions for surveillance, maintenance, and repair of the CCR unit	N	Weekly and Annual Inspections per §257.83.
§257.73 (c)(1) (xii)	Any record or knowledge of structural instability of the CCR unit	N	None.

ATTACHMENT 1 - LOCATION OF UNITS ON USGS MAP

LUMINANT



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84)
Projection and 1 000-meter grid: Universal Transverse Mercator, Zone 15S
10 000-foot ticks: Texas Coordinate System of 1983 (north central zone)
This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.
Imagery: NADP, August 2014
Roads: U.S. Census Bureau, 2014 - 2015
Names: GNS, 2015
Hydrography: National Hydrography Dataset, 2014
Contours: National Elevation Dataset, 2004
Boundaries: Multiple sources; see metadata file 1972 - 2015
Wetlands: FWS National Wetlands Inventory 1977 - 2014



CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988
This map was produced to conform with the National Geospatial Program US Topo Product Standard, 2011. A metadata file associated with this product is draft version 0.6.19



ROAD CLASSIFICATION
Legend for road types: Expressway, Secondary Hwy, Ramp, Interstate Route, Local Connector, Local Road, 4WD, US Route, State Route.

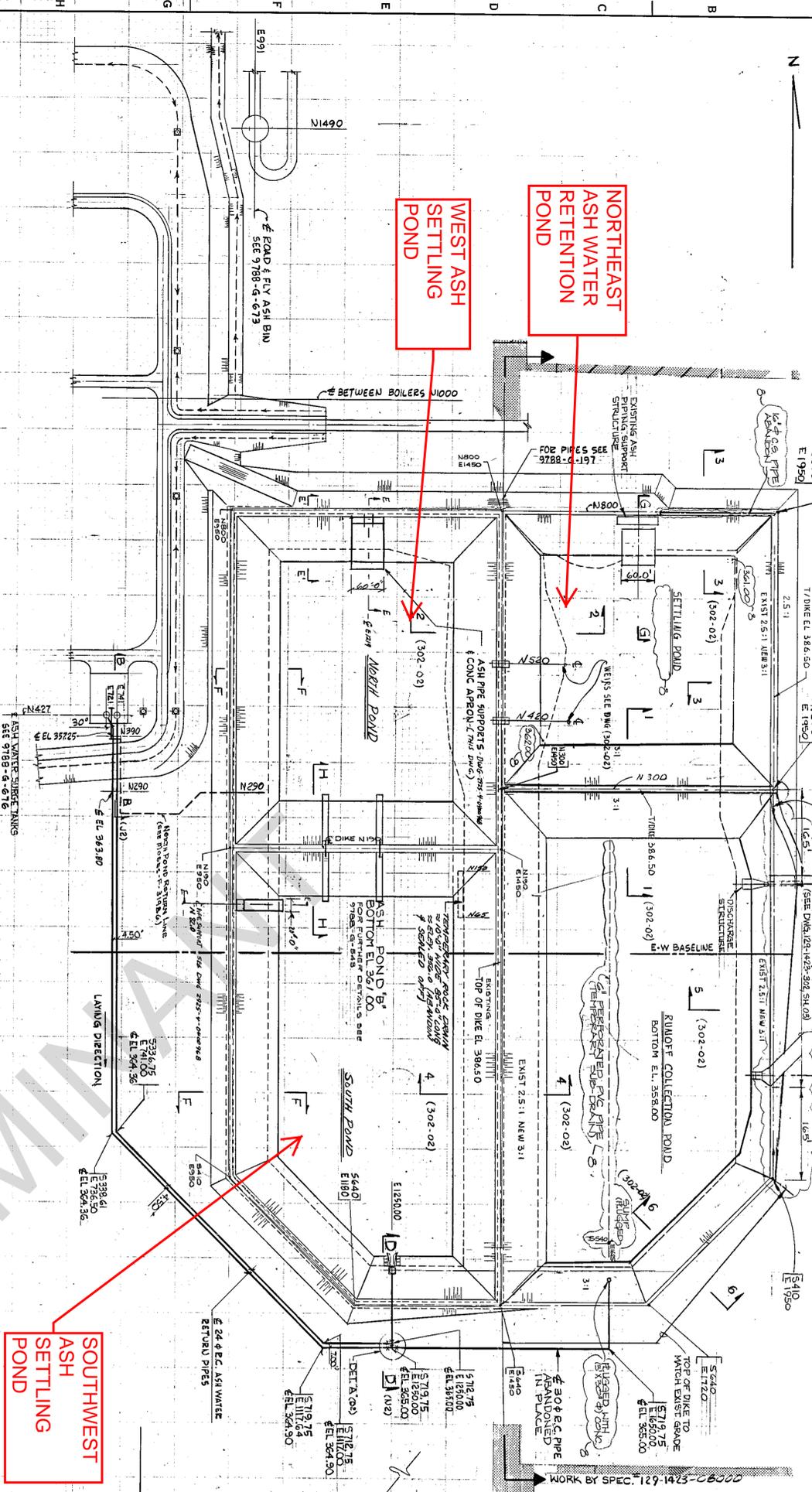
ADJOINING QUADRANGLES
A 3x3 grid of numbers 1 through 9, with 5 in the center.

- 1 Mount Vernon
2 Winfield
3 Mount Pleasant
4 New Hope
5 Harvard
6 Newsome
7 Lewisburg
8 Pittsburg

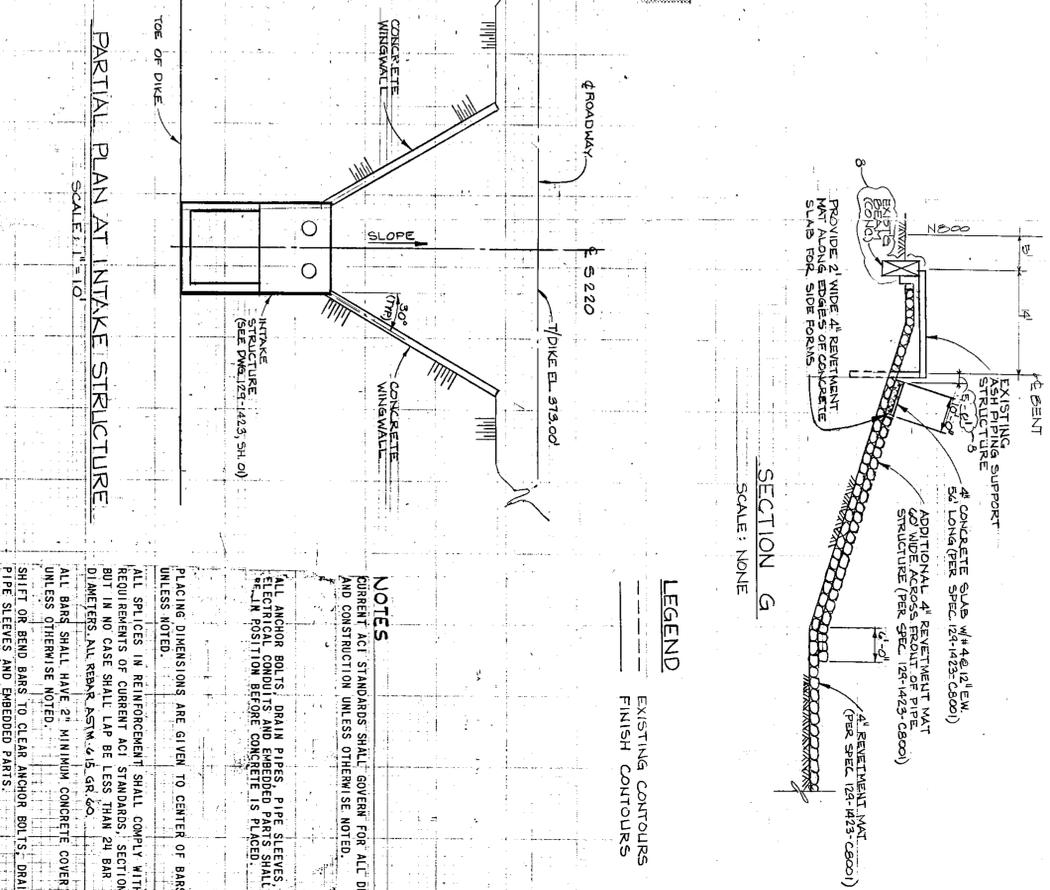


ATTACHMENT 2 - DETAILED DIMENSIONAL DRAWINGS

LUMINANT



PLAN
L.I.C.O.C.



PARTIAL PLAN AT INTAKE STRUCTURE
SCALE: 1"=10'

SECTION G
SCALE: NONE

LEGEND

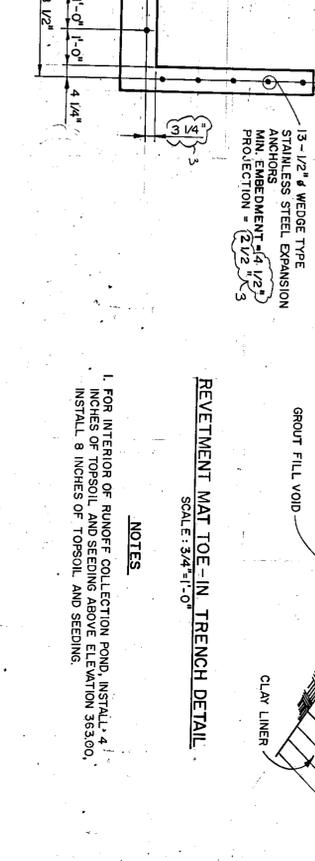
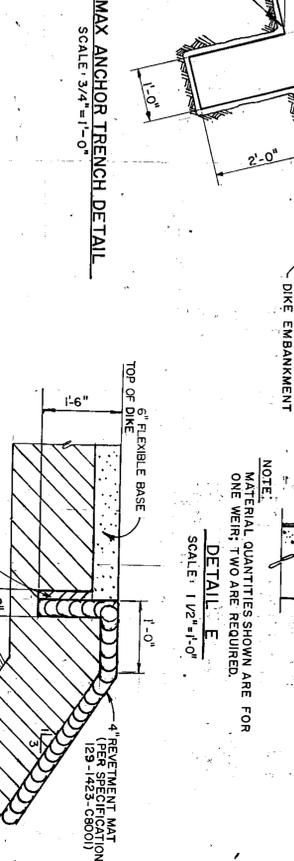
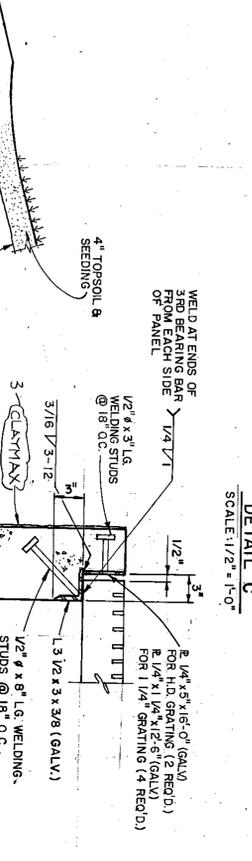
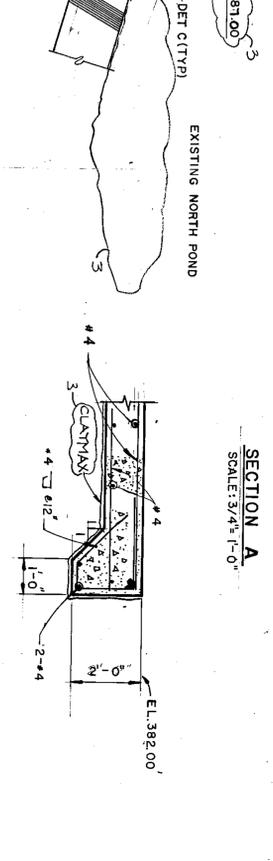
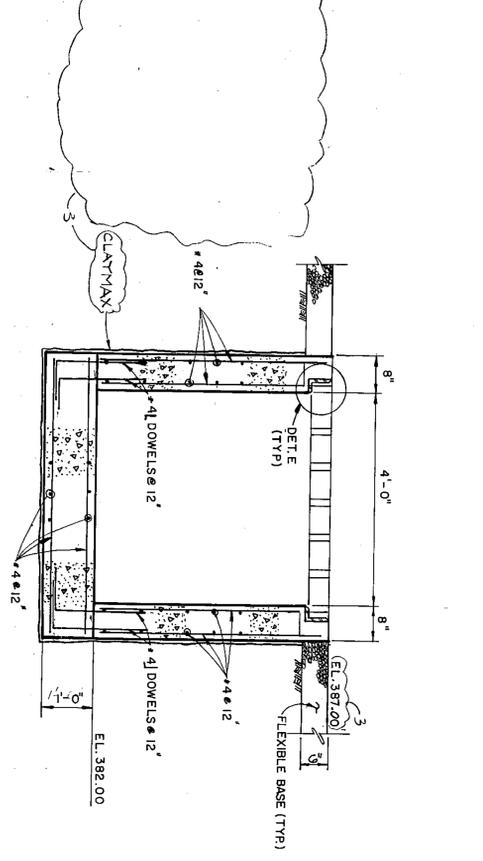
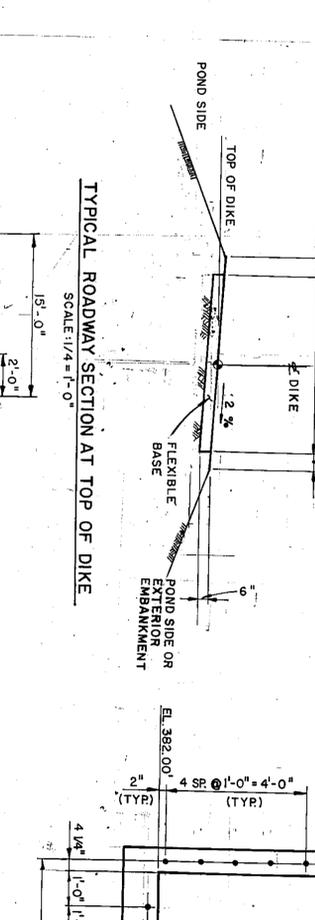
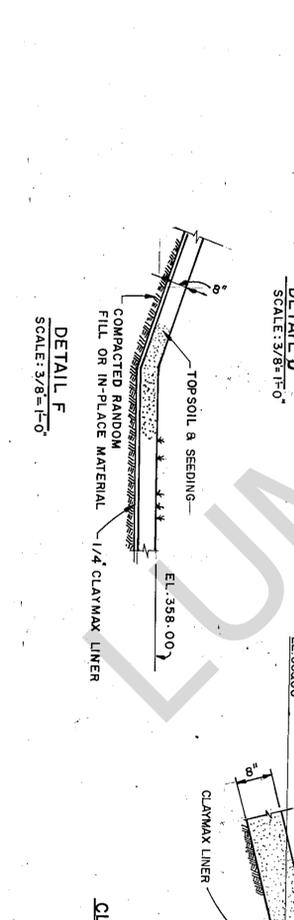
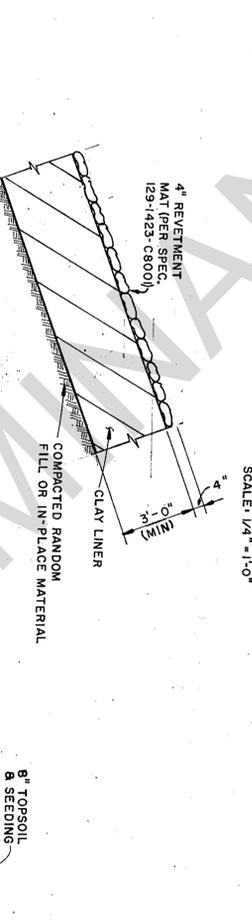
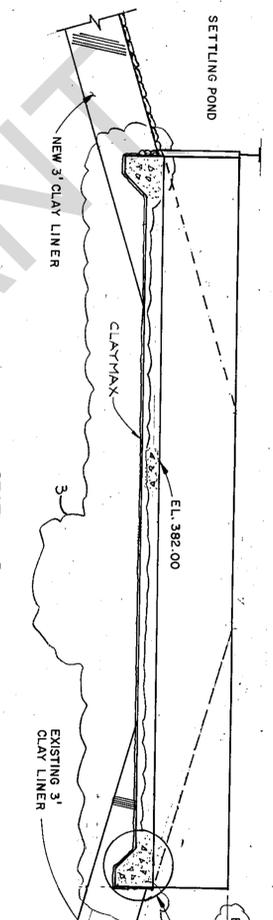
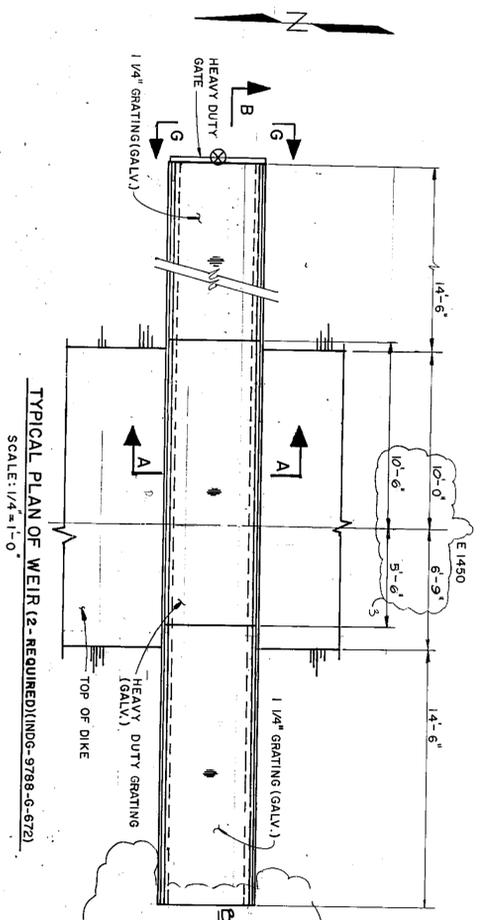
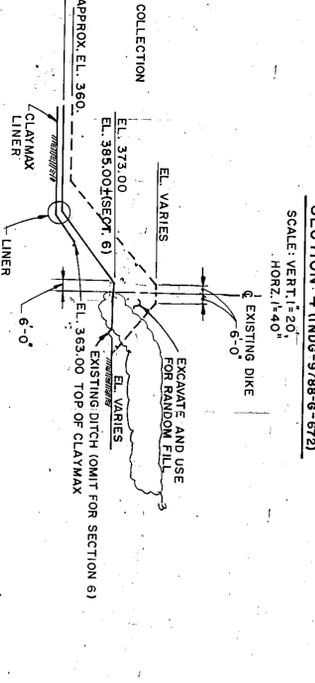
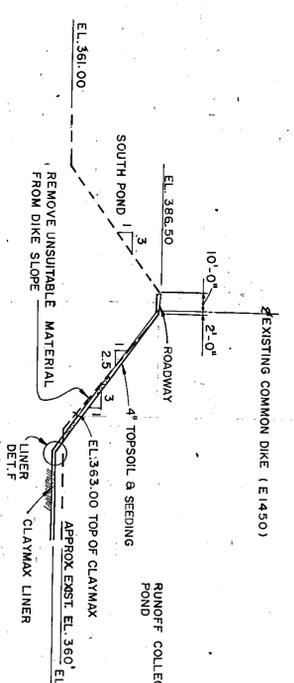
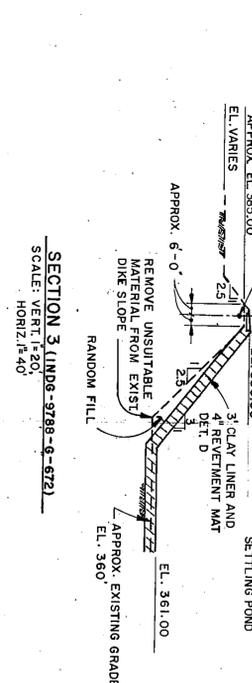
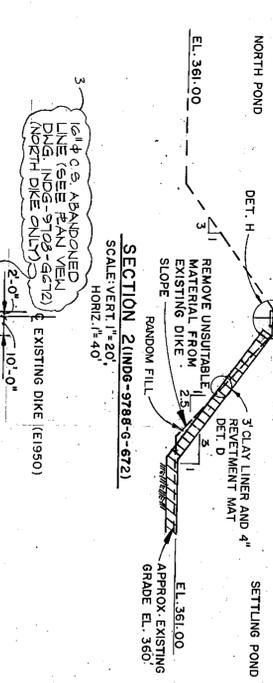
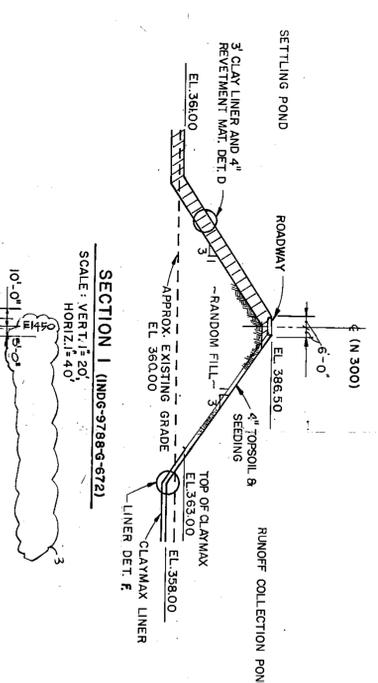
- EXISTING CONTOURS
- FINISH CONTOURS

NOTES

1. EXISTING ACI STANDARDS SHALL GOVERN FOR ALL DESIGN AND CONSTRUCTION UNLESS OTHERWISE NOTED.
2. ALL ANCHOR BOLTS, DRAIN PIPES, PIPE STEES, ELECTRICAL CONDUITS AND EMBEDDED PARTS SHALL BE IN POSITION BEFORE CONCRETE IS PLACED.
3. PLACING DIMENSIONS ARE GIVEN TO CENTER OF BARS UNLESS NOTED.
4. ALL SPICES IN REINFORCEMENT SHALL COMPLY WITH THE REQUIREMENTS OF CURRENT ACI STANDARDS, SECTION 308, BUT IN NO CASE SHALL LAP BE LESS THAN 24 BAR DIAMETERS AND REBAR ASTM A-63 GR. 60.
5. ALL BARS SHALL HAVE 2" MINIMUM CONCRETE COVER UNLESS OTHERWISE NOTED.
6. SPLIT OR BEND BARS TO CLEAR ANCHOR BOLTS, DRAINS, PIPE STEES AND EMBEDDED PARTS.
7. REFERENCE DRAWINGS:
 - 8. ELEC. PLAN 9788-401-00
 - 9. CIV. PLAN 9788-401-00
 - 10. MECH. PLAN 9788-401-00
 - 11. PIPING PLAN 9788-401-00
 - 12. FOUNDATION PLAN 9788-401-00
 - 13. STRUCTURE PLAN 9788-401-00
 - 14. ASH POND SECTIONS & DETAILS 193-1423-302 SH. 02
 - 15. BULKHEAD & SECTION 129-1423-304 SH. 03
 - 16. ROAD POND STRUCTURE 129-1423-304 SH. 03
 - 17. ROAD POND STRUCTURE 129-1423-1501
 - 18. ALL PIPES FROM N. AREA 129-1096-401-00
 - 19. REFERENCE TO ASH POND 129-1096-401-00

NO.	DATE	REVISION	BY	CHK.	APPROVED
1	5-17-72	AS BUILT P.D. 129-1423-1702A/B	...	...	...
2	5-17-72	FOR CONSTRUCTION	...	...	...
3	6-20-72	FOR CONSTRUCTION	...	...	...
4	5-1-70	FOR CONSTRUCTION	...	...	...

DALLAS POWER & LIGHT COMPANY TEXAS ELECTRIC SERVICE COMPANY TEXAS POWER & LIGHT COMPANY MONTICELLO STEAM ELECTRIC STATION 1874-1875 180 MW INSTALLATION ASH DISPOSAL SYSTEM GEN PLAN & MISC DETS	EBARSCO SERVICES INCORPORATED NEW YORK SCALE: 1/8"=1'-0" DATE: 1/18/72 INDG-9788 G-672
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------



REV.	DATE	BY	CHKD.	APPROV.	REMARKS
0	5-2-20	V.R.S.	D.C.		FOR BID CONSTRUCTION
1	5-27-20	V.R.S.	D.C.		FOR BID CONSTRUCTION SPEC. 129-1423-302
2	9-3-20	P.M.	D.C.		FOR BID CONSTRUCTION SPEC. 129-1423-302
3	5-11-21	P.M.	D.C.		AS BUILT TO 129-1423, T&E 12027

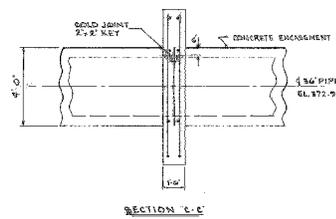
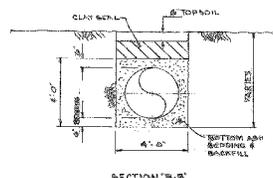
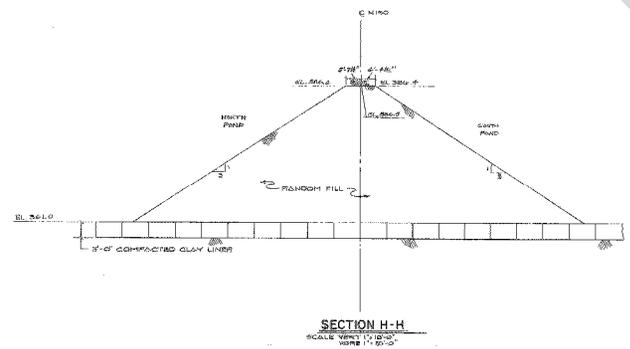
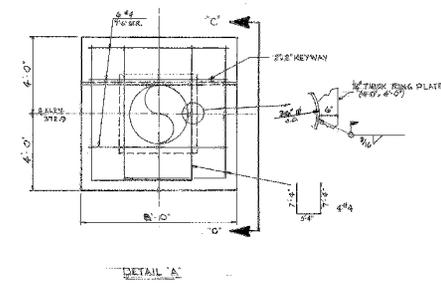
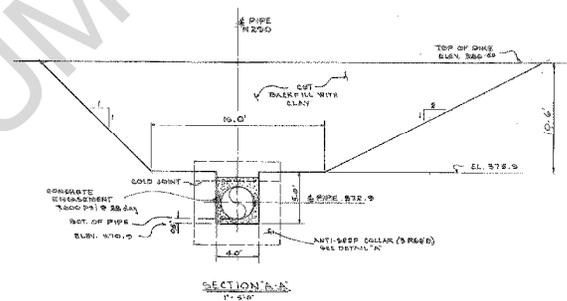
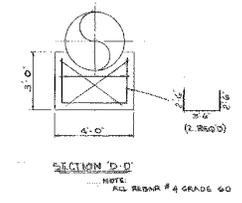
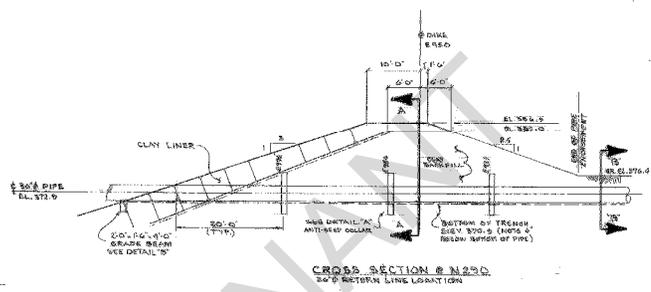
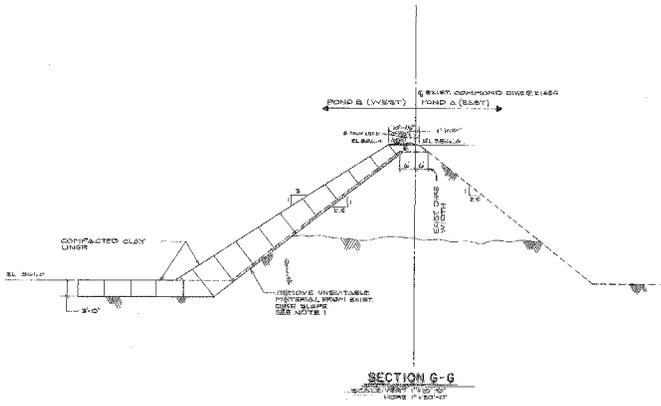
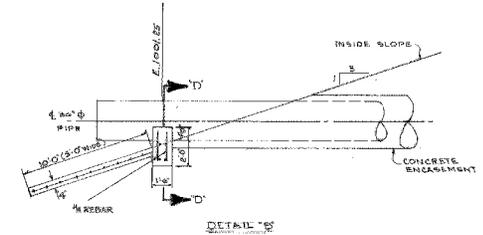
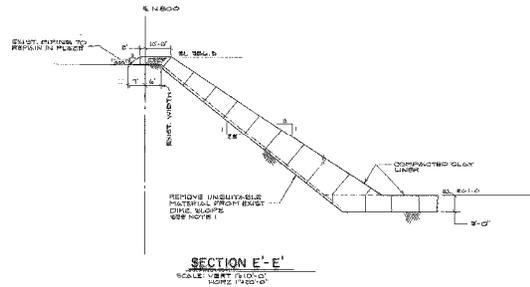
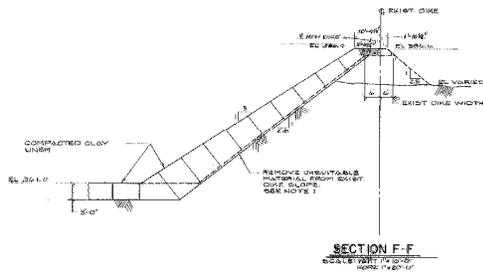
ASH POND SECTIONS & DETAILS

TU ELECTRIC
GENERATING DIVISION
MONTICELLO S.E.S. UNITS 1,2&3

DWG. NO. 129-1423-302

SH. NO. 02

REV. 3



- NOTES:**
- UNDESIRABLE MATERIALS SHALL CONSIST OF SOIL CONTAINING WOODS, LIMB OR REMAINS WITH BOTTOM ASH WATER MATERIAL REMOVED SHALL BE REPLACED WITH SOIL MEETING CLAY LINER REQUIREMENTS.
 - CLAY LINER MATERIAL SHALL MEET THE FOLLOWING REQUIREMENTS:
 PLASTICITY INDEX <math>PI < 10</math>
 PERMEABILITY <math>K < 1.0 \times 10^{-10}</math> CM/SEC
 --- EXIST. DIKE SLOPES

REFERENCE DRAWINGS:
 CON. DISPOSAL SYSTEM CON. PLAN & HORIZ. DETAILS:
 - S-17A
 - S-17B
 - C-15B1

MONTEICELLO S.E.S.
 BOTTOM ASH POND MODIFICATION
 ENBANKMENT CROSS SECTIONS
 TEXAS UTILITIES GENERATING CO.

NOTE:
 AT ROADWAY PIPE IS CONSIDERED SUCCESSOR FROM SECTION OF EXCAVATION TO FLOOR 'T' TOP OF GRAVING.

NO.	DATE	BY	CHK.	APP.	DESCRIPTION
1	10/10/88	NEW DRAWING			
2	10/10/88	REVISION			

123-1009-301-01



CREATE AMAZING.

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