

2019 Annual Inspection of CCR Units

**Limestone Electric Generating Station
Jewett, Texas**

January 2020

Prepared For

NRG Texas Power LLC

CERTIFICATION

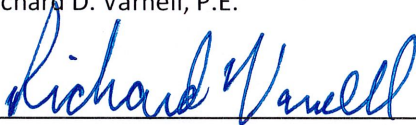
Annual Inspection of CCR Units

Limestone Electric Generating Station

I, the undersigned Texas Professional Engineer, hereby certify that I am familiar with the technical requirements of Title 40 Code of Federal Regulations Part 257 Subpart D (§257). I also certify that it is my professional opinion that, to the best of my knowledge, information, and belief, that the information in this demonstration is in accordance with current good and accepted engineering practice(s) and standard(s) and meets the requirements of §257.60 through §257.64. I certify that this Report was prepared by me and that I am a registered professional engineer under the laws of the State of Texas.

For the purpose of this document, "certify" and "certification" shall be interpreted and construed to be a "statement of professional opinion". The certification is understood and intended to be an expression of my professional opinion as a Texas Licensed Professional Engineer, based upon knowledge, information, and belief. The statement(s) of professional opinion are not and shall not be interpreted or construed to be a guarantee or a warranty of the analysis herein.

Richard D. Varnell, P.E.



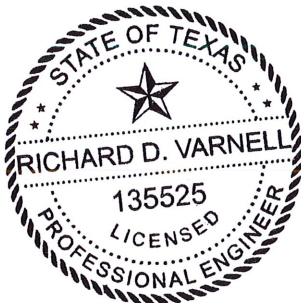
Signature of Professional Engineer

135525

Texas License Number

1/9/2020

Date



FIRM # 3775

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1. EXECUTIVE SUMMARY

On December 5, 2019, a representative of TRC Environmental Corporation (TRC) performed an inspection of the CCR landfill at the Limestone Electric Generating Station, located at 3964 FM 39, Jewett, Texas. This work was performed to satisfy the requirement for an Annual Inspection by a qualified professional engineer, as required by 40 CFR Part 257, the US Environmental Protection Agency rule on Disposal of Coal Combustion Residuals (CCR) From Electric Utilities, which is referred to herein as the Federal CCR Rule.

The applicable CCR units were visually inspected by Mr. Richard Varnell, P.E. (Licensed in Texas). The inspection included performing a visual inspection of the applicable CCR units to identify areas requiring maintenance and showing signs of distress or malfunction. TRC also reviewed the available documentation related to the CCR units at the Limestone Electric Generating Station.

This inspection evaluated the following CCR units:

- Active and uncapped portions of the Unit 004 Landfill; and
- Unit 003 Secondary E Pond.

TRC did not observe any evidence of ongoing or imminent failure of these CCR units. There were no structural deficiencies noted based on TRC's observations. No changes in geometry were noted.

No maintenance items were identified in this annual inspection. Ongoing maintenance efforts to promote grass vegetation, stabilize roads and slopes, and mitigate damage from feral hogs should continue.

Based on a review of available documents and the visual inspection, it is TRC's opinion that Unit 004 Landfill and Unit 003 Secondary E Pond have been designed, constructed, are currently operated, and are maintained in a manner that is consistent with and in accordance with recognized and generally accepted good engineering practice.

2. INTRODUCTION

This report presents the observations and findings of the 2019 calendar year inspection at the Limestone Electric Generating Station. The Limestone Electric Generating Station is located near Jewett, Texas. Specifically, the majority of the generating station is in Limestone County, while most of the CCR units are in Freestone County. The power station is owned and operated by NRG Texas Power, LLC.

The Limestone Electric Generating Station includes 2 coal fired generating units with a total rated net capacity of 1689 megawatts (MW). The station is fueled by coal imported from the Powder River Basin in Wyoming.

The general arrangement of the station and active landfill cells are depicted in Figure 1.

3. PURPOSE/OBJECTIVE

This document is prepared to provide compliance with the annual inspection requirements for CCR units as required by 40 CFR Part 257, the US Environmental Protection Agency rule on Disposal of Coal Combustion Residuals (CCR) From Electric Utilities (Reference 1). Specifically:

- Section 257.84(b) pertains to the annual inspection requirements for CCR landfills; and
- Section 257.83(b) pertains to the annual inspection requirements for CCR Surface Impoundments.

This document reports the annual inspection by a qualified professional engineer for the currently active landfills and impoundments (units that received CCR material after October 19, 2015). NRG provided prior reports and design drawings as inputs to this inspection. The following CCR units are considered in this annual inspection:

- Unit 004 Landfill, and
- Unit 003 Secondary E Pond.

3.1. LANDFILL INSPECTION

The tasks included with this annual report related to the CCR landfill inspection (40 CFR Part 257.84(b)) are listed below.

- Inspection of the landfill by a qualified professional engineer to evaluate if the design, construction, operation, and maintenance of the units are consistent with recognized and generally accepted good engineering practice.
- A review of available operational records and information concerning the status and condition of the landfill, including, but not limited to, files available in the operating record, the results of weekly inspections by a qualified person, and the prior annual inspection report.
- A visual inspection of the landfill to identify signs of distress or malfunction of the landfill.
- Preparation of this inspection report, as required by the CCR Rule, addresses the following:
 - Any changes in geometry of the landfill since the previous annual inspection;
 - The approximate volume of CCR contained in the landfill at the time of inspection;
 - Any appearances of actual or potential structural weaknesses of the landfill, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the landfill; and

- Any other change(s) which may have affected the stability or operation of the landfill since the previous annual inspection.

3.2. SURFACE IMPOUNDMENT INSPECTION

The tasks included with this annual report related to the surface impoundment inspection (40 CFR Part 257.83(b)) are listed below.

- Inspection of the surface impoundment units by a qualified professional engineer to evaluate if the design, construction, operation, and maintenance of the surface impoundments are consistent with recognized and generally accepted good engineering practice.
- Perform the following inspections on the surface impoundment:
 - A visual inspection to identify signs of distress or malfunction of the surface impoundment and appurtenant structures; and
 - A visual inspection of any hydraulic structures underlying the base of the surface impoundment or passing through the dike of the surface impoundment for structural integrity and continued safe and reliable operation.
- A review of available operational records and information concerning the status and condition of the surface impoundment, including, but not limited to, files available in the operating record, the results of weekly inspections by a qualified person, and the prior annual inspection report.
- Preparation of this inspection report, as required by the CCR Rule, addresses the following:
 - Any changes in geometry of the surface impoundment since the previous annual inspection;
 - The location and type of existing instrumentation on the impoundment and the maximum recorded readings of each instrument since the previous annual inspection.
 - The approximate minimum, maximum, and present depth and elevation of the impounded water and CCR since the previous annual inspection.
 - The storage capacity of the impounding structure at the time of the inspection.
 - The approximate volume of the impounded water and CCR at the time of the inspection.
 - Any appearances of actual or potential structural weaknesses of the surface impoundment, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the surface impoundment and appurtenant structures.
 - Any other change(s) which may have affected the stability or operation of the surface impoundment since the previous annual inspection.

4. CCR LANDFILL DESIGN & BACKGROUND

The following paragraphs summarize the design and construction of the CCR units (Unit 004 Landfill and Unit 003 Secondary E Pond) and evaluate the applicability of the Federal CCR Rule to each CCR unit.

4.1. UNIT 004 LANDFILL

The landfill is located east of FM 39. The landfill areas are designed as Class II Industrial Waste Landfill under the criteria of the Texas Commission on Environmental Quality (TCEQ). The landfill is managed using tracking areas indicated on Figure 2. These areas have no physical boundaries in the landfill and

are hydraulically connected. The areas are considered to be in one of three stages. The stages for the tracking areas are capped, uncapped, and future expansion areas.

The landfill liner consists of a compacted clay with a minimum thickness of 2 ft. Capped areas are compacted clay with a minimum thickness of 3 ft. covered with a minimum of 1 ft. of topsoil to aid in proper vegetation protection for the cover. NRG reports that quality control and assurance testing was performed on the liner and cover.

Stormwater runoff from capped and uncapped/active portions of the landfill is separated. Grassed berms located on the capped areas are used to prevent runoff from flowing from capped to uncapped areas. Instead, the stormwater runoff is directed with berms, surface grades, and concrete lined conveyances from capped areas to a perimeter ditch that drains to Lynn Creek.

An interceptor ditch surrounds the uncapped areas that contain CCR materials to intercept the stormwater runoff and any CCR material that is eroded from the uncapped areas. This interceptor ditch drains into Pond 002. Pond 002 is not considered a CCR surface impoundment.

4.2. UNIT 003 SECONDARY E POND

The Dewatered Sludge Disposal Area (Secondary E) Pond is also east of Highway 39 and was formerly used as a treatment pond to stabilize the blowdown from the FGD system. Historically, a fly ash product, Stable Mix D, was mixed with wastewater from the FGD sludge thickener overflow to allow a chemical reaction to stabilize the FGD blowdown. The resultant material is a rigid or cemented waste product. The solidified material was then excavated from the pond, dewatered and transported to the landfill for disposal.

The Secondary E Pond is approximately 645 ft. by 374 ft. and is bisected by an interior berm. The pond bottom is at elevation 476 ft. and the perimeter berm height elevation is 485 ft. The dike toe on the northern most point is at elevation 460 ft +/-.

A portion of the western and southern dikes have wider than typical dike crests. Portions of the southern and western dikes are 50 ft. to 80 ft. wide at the crest. The Secondary E Pond has a random fill (unclassified material) embankment topped with a 3 ft. thick clay liner. Construction quality control testing was performed during construction of the clay liner.

Since the Secondary E Pond is not fully incised, an annual inspection is required as documented in the subsequent sections of this report.

5. CCR UNIT INSPECTION OBSERVATIONS & FINDINGS

On December 5, 2019, Mr. Richard Varnell, PE (TX) along with Jason Scott of NRG, visually inspected the CCR landfill and surface impoundments (CCR units) at the Limestone Electric Generating Station. This visual inspection was performed to evaluate if the design, construction, operation, and maintenance of each applicable CCR unit is consistent with recognized and generally accepted good engineering practice.

5.1. UNIT 004 LANDFILL

The location and general arrangement of the landfill is depicted on Figure 2. The individual areas discussed in this report are also depicted on Figure 2.

The landfill at the Limestone Electric Generating Station is a single CCR unit that has distinct areas for waste storage. For this report, the landfill is considered in three distinct life cycle stages:

- Landfill areas that have been filled, capped and vegetated are considered as “capped areas.”
- Landfill areas that currently receive CCR waste or that have significant areas with exposed CCR waste are considered “uncapped areas.”
- Future expansion areas of the landfill. These are landfill areas where a clay liner has been installed for future CCR material storage. These areas were referred to as “areas under construction” in previous Annual Inspection Reports.

5.1.1. Capped Areas

Although landfill Areas 1, 2, 3, 5, 6, 9, and 10 are considered to be capped areas, exposed slopes of CCR material are present in areas 1, 3, 6, and 10, where uncapped and future expansion areas will abut the existing CCR material (Figure 2). The plateaued portion of the capped areas is well vegetated and generally well graded to prevent the impoundment of stormwater and to direct its flow as depicted in Photographs P-1 and P-2. Photograph P-1 also shows the grassed berms used to separate runoff from the capped versus uncapped areas.

Drainage structures constructed to transfer stormwater from the top of the capped areas down to the perimeter ditch consist of concrete lined rundown channels. One rundown channel is present in Area 1 and a second in Area 5. These channels do exhibit some cracks but are considered to be in good condition as shown in Photograph P-3.

The rundown channels drain into a perimeter drainage ditch that flows around the west and south sides of the landfill. Since the flow in these channels is stormwater off the capped section of the landfill and have not contacted with CCR materials, this flow is separated from the perimeter interceptor ditch that collects contact water from uncapped areas of the landfill.

The side slopes of the capped landfill areas are well vegetated and have appropriate perimeter ditches as depicted in Photographs P-3, P-4, and P-5.

Historical reports indicate that some water seepage was observed at the landfill toe near the southern corner of Area 9. A series of French drains were installed with drainage into a sump (Photograph P-4) as indicated in previous reports. The sump discharges to Pond 002 (Photograph P-5). TRC did not observe any evidence of ongoing seepage.

TRC did not observe visual evidence of slope instability in the capped portions of the landfill.

5.1.2. Uncapped Landfill Areas

Areas 4, 7, 8, 11, and 12A are considered to be uncapped areas. Areas 4, 7, and 8 have been partially closed, but are considered “uncapped” because significant portions of these areas have uncapped CCR slopes or surfaces. Area 11 is an active area where marketable CCR materials are stockpiled prior to their sale and off-site transportation. Finally, Area 12A is an active portion of the landfill where CCR materials and Class 2 wastes are currently being interred.

Given the dynamic nature of active landfill areas, the comments presented herein represent the TRC observations made on December 5, 2019 and may or may not represent the conditions present at other times. The “work in progress” nature of active landfill areas result in exposed slopes of CCR material

that will either be capped, or where future expansion areas will be filled and the existing CCR material slope will be abutted by material placed in the new area. These exposed CCR slopes are encompassed by the interceptor ditch that collects stormwater runoff from uncapped areas and collects any CCR material that erodes or sloughs off the exposed CCR material slopes. CCR material slopes can be steep (Photographs P-6 through P-9), but the stabilized material hardens to form an erosion and slough resistant slope.

As mentioned above, Areas 4, 7, and 8 have been partially closed (Photograph P-6), but are considered “uncapped” because significant portions of these areas have uncapped CCR slopes or surfaces. These slopes appear to be stable due to the cohesive nature of the waste material (Photographs P-6 through P-9). In particular, a large portion of Area 8 has been closed, and a drainage feature separates stormwater runoff from the capped portion of this area from the uncapped portion. This feature bridges the interceptor ditch used to capture CCR contact water (Photograph P-10).

Area 11 is an actively managed area where marketable CCR materials are stockpiled prior to their sale and off-site transportation. Photograph P-8 depicts the conditions present in this area during TRC’s site visit. Area 12A (Photograph P-9) is an active portion of the landfill where CCR materials and Class 2 wastes are currently being interred.

There are currently two haul roads used to transport CCR materials to the active portions of the landfill. The road passing through Areas 11, 7, 8, and 12A is shown in Photographs P-7 and P-8. The second haul road passes through Area 12A. Both roads have been improved with bottom ash and neither had significant rutting.

Contact water from all of the uncapped CCR slopes and disposal areas drains down into the interceptor ditch as shown in Photographs P-10 and P-11. The interceptor ditch is located adjacent to the outer perimeter of these areas and directs the stormwater runoff and any eroded CCR material to Pond 002.

Since this area is a work in progress and since the interceptor ditch is functioning to collect contact water and eroded CCR materials, it is TRC’s opinion that this area is operated in accordance with generally accepted industry standards.

5.1.3. Future Expansion Areas

Areas 12B, 12C, and 13 through 20 are future expansion areas. A clay liner and a cover layer of top soil has been constructed in these areas. As shown in Photographs P-6 and P-9 the cover layer has been well vegetated with grass.

5.1.4. Changes in Geometry

There are on-going internal changes in the active portions of the landfill. However, TRC observed no changes in the geometry of the limits of the Unit 004 Landfill.

5.1.5. Review of CCR Inventory

As required by the Federal CCR Rule, the approximate volume of stored CCR in the landfill, as provided by NRG, is:

- Unit 004 Landfill: Approximately 30.26 Million cubic yards

Approximately 240,700 cubic yards were added to Unit 004 in 2019.

5.2. UNIT 003 SECONDARY E POND

The location and general arrangement of the Secondary E Pond is depicted on Figure 3.

The pond is separated by a central berm into two sections roughly equal in size and depth. During TRC's site visit the northern section was mostly filled with hardened CCR waste material (Photographs P-12 and P-13). This material had been partially removed – some of the waste previously located along the perimeter of the northern half of the pond had been excavated, but the hardened waste in the center of the pond was still in place. The stabilized, rigid waste in the pond has sheer sidewalls. Its surface projects to approximately the same height as the berm crest.

Some of the excavated waste from the perimeter of the north half was stockpiled inside the pond (Photograph P-13). The height of this stockpiled material extended above the dike crest in the northern half of the impoundment. Due to the nature of this material TRC does not consider this stockpile to be an operational or safety issue for the facility. There was also a small amount of water (approximately one foot) in the excavated portions of the northern half of the pond.

The southern section appeared to contain a low level (1 to 2 feet) of stormwater (Photograph P-14). No CCR waste material was observed in the southern half of the impoundment.

At the time of the TRC inspection, the freeboard appeared to be more than six feet on both the north and south sides. Based on these observations, TRC believes maintenance of pond level is satisfactory to allow sufficient freeboard for precipitation.

5.2.1. Changes in Geometry

Federal CCR Rule Reference: 40 CFR 257.83(b)(2)(i)

Other than maintenance and solids removal from select impoundments, no noticeable changes in geometry were observed while performing the visual inspection of dikes and CCR surface impoundments.

5.2.2. Review of Existing Instrumentation

Federal CCR Rule Reference: 40 CFR 257.83(b)(2)(ii)

NRG staff estimates the freeboard in the surface impoundment on a weekly basis. Maximum staff estimates, since the previous annual inspection, are reported in the next section.

5.2.3. Impoundment Parameters

Federal CCR Rule Reference: 40 CFR 257.83(b)(2)(iii), 257.83(b)(2)(iv), 257.83(b)(2)(v)

Tables 1, 2 and 3 provide various measurable impoundment parameters required by 40 CFR 257.83(b)(2)(iii) through (v) that have been recorded since the last annual inspection (November 6, 2018) and at the time this annual inspection was performed (December 5, 2019).

**TABLE 1: APPROXIMATE WATER DEPTH AND WATER SURFACE ELEVATION
OF CCR SURFACE IMPOUNDMENTS**

CCR Surface Impoundment	Minimum Depth ¹ (ft)	Maximum Depth ¹ (ft)	Present Depth ² (ft)	Minimum Elevation ¹ (ft)	Maximum Elevation ¹ (ft)	Present Elevation ² (ft)
Unit 003 Secondary E Pond	2	7	2	478	483	483

Notes:

- 1) Since the previous annual inspection on November 6, 2018.
- 2) At time of inspection on December 5, 2019.

**TABLE 2: APPROXIMATE AVERAGE CCR DEPTH AND AVERAGE CCR SURFACE ELEVATION WITHIN CCR
SURFACE IMPOUNDMENTS**

CCR Surface Impoundment	Portion of Pond	Minimum Depth ¹ (ft)	Maximum Depth ¹ (ft)	Present Depth ² (ft)	Minimum Elevation ¹ (ft)	Maximum Elevation ¹ (ft)	Present Elevation ² (ft)
Unit 003 Secondary E Pond	North half	5.6	7.1	7.1	481.6	483.1	483.1
	South half	0	0	0	NA	NA	NA

Notes:

- 1) Since the previous annual inspection on November 6, 2018.
- 2) At time of inspection on December 5, 2019.
- 3) Depths and elevations presented are averages over the aerial extent of each portion of the impoundment.
- 4) NA = Not Applicable.

**TABLE 3: APPROXIMATE STORAGE CAPACITY AND VOLUME OF IMPOUNDED WATER AND CCR AT TIME
OF INSPECTION**

CCR Surface Impoundment	Approximate Total Storage Capacity (ac-ft) ¹	Approximate Total Available Storage Capacity ² (ac-ft)	Approximate Actual Volume of Impounded Water (ac-ft)	Approximate Actual Volume of Impounded CCR (ac-ft)
Unit 003 Secondary E Pond	45	23.26	4	12.2

Notes:

- 1) As reported by NRG.
- 2) The capacities utilized herein, consider 1 ft of freeboard.

5.2.4. Visual Indication of Actual or Potential Structural Weaknesses

Federal CCR Rule Reference: 40 CFR 257.83(b)(2)(vi)

TRC observed the exposed interior and exterior slopes, toes of slopes and crests of slopes for the applicable CCR surface impoundments and did not observe any evidence of existing conditions that are disrupting or could plausibly have the potential to disrupt the operation and safety of the applicable CCR surface impoundments.

5.2.5. Other Changes

Federal CCR Rule Reference: 40 CFR 257.83(b)(2)(vii)

No other changes were observed which may have affected the stability or operation of the applicable CCR Impoundments since the prior annual inspection.

6. REVIEW OF WEEKLY INSPECTIONS

The weekly inspections by a qualified person (by NRG) have been performed and TRC has reviewed the reports. The inspections appear to be thorough and appropriately executed. Maintenance items were identified, resolved and documented in subsequent inspections.

7. MAINTENANCE RECOMMENDATIONS

At the time of this inspection, there are no repairs needed that pose immediate operational or safety concerns for the CCR units inspected. Based on the observations made by TRC on December 5, 2019, TRC recommends that the current maintenance practices be continued. These practices include control of vegetation and feral hogs, and repair of minor erosion areas before they become significant.

8. CRITERIA

This inspection been performed in accordance with the inspection requirements of the Federal CCR Rule (Reference 1) and generally accepted engineering practice. The TCEQ Guidelines for Operation and Maintenance of Dams in Texas (Reference 2) is considered to represent generally accepted practices and is considered to be an applicable criterion.

9. LIMITATIONS

Given the visual nature of this inspection, it must be recognized that latent conditions may be present that are not visually evident.

TRC reviewed operation and maintenance records provided by the facility. TRC is not responsible for the content, accuracy, or comprehensiveness of the records provided. Records were reviewed for completeness and compliance with the regulations and permit conditions.

Given the work in progress nature of active pond and landfilling operations, this document only considers the conditions present at the time of the field inspection and information provided by NRG.

10. REFERENCES

- 1) 40 CFR Part 257, Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals From Electric Utilities; Final Rule, April 17, 2015.
- 2) Texas Commission on Environmental Quality, Guidelines for Operation and Maintenance of Dams in Texas, November 2006.
- 3) Sargent & Lundy, Annual Inspection of CCR Impoundments and Landfill, January 15, 2016.

11. CONCLUSIONS

This annual inspection considered the following CCR units:

- Unit 004 Landfill, and
- Unit 003 Secondary E Pond

TRC did not identify any evidence of ongoing or imminent failure of the CCR units. No structural deficiencies were noted during the 2019 inspection.

Based on the review of available documents and the visual inspection, it is TRC's opinion that Unit 004 Landfill and Unit 003 Secondary E Pond have been designed, constructed, are currently operated, and are maintained in a manner that is consistent with recognized and generally accepted good engineering practice.

As discussed in Section 7, the ongoing maintenance efforts to promote grass vegetation, control erosion, and mitigate damage from feral hogs should continue. No other maintenance items were identified in this annual inspection.

FIGURES



SOURCE: (09/30/2016) USDA FARM SERVICE, NAIP IMAGERY



1" = 850'
1:10,195



Legend

SITE BOUNDARY



505 East Huntland Drive
Suite #250
Austin, TX 78752
Phone: 512.329.6080

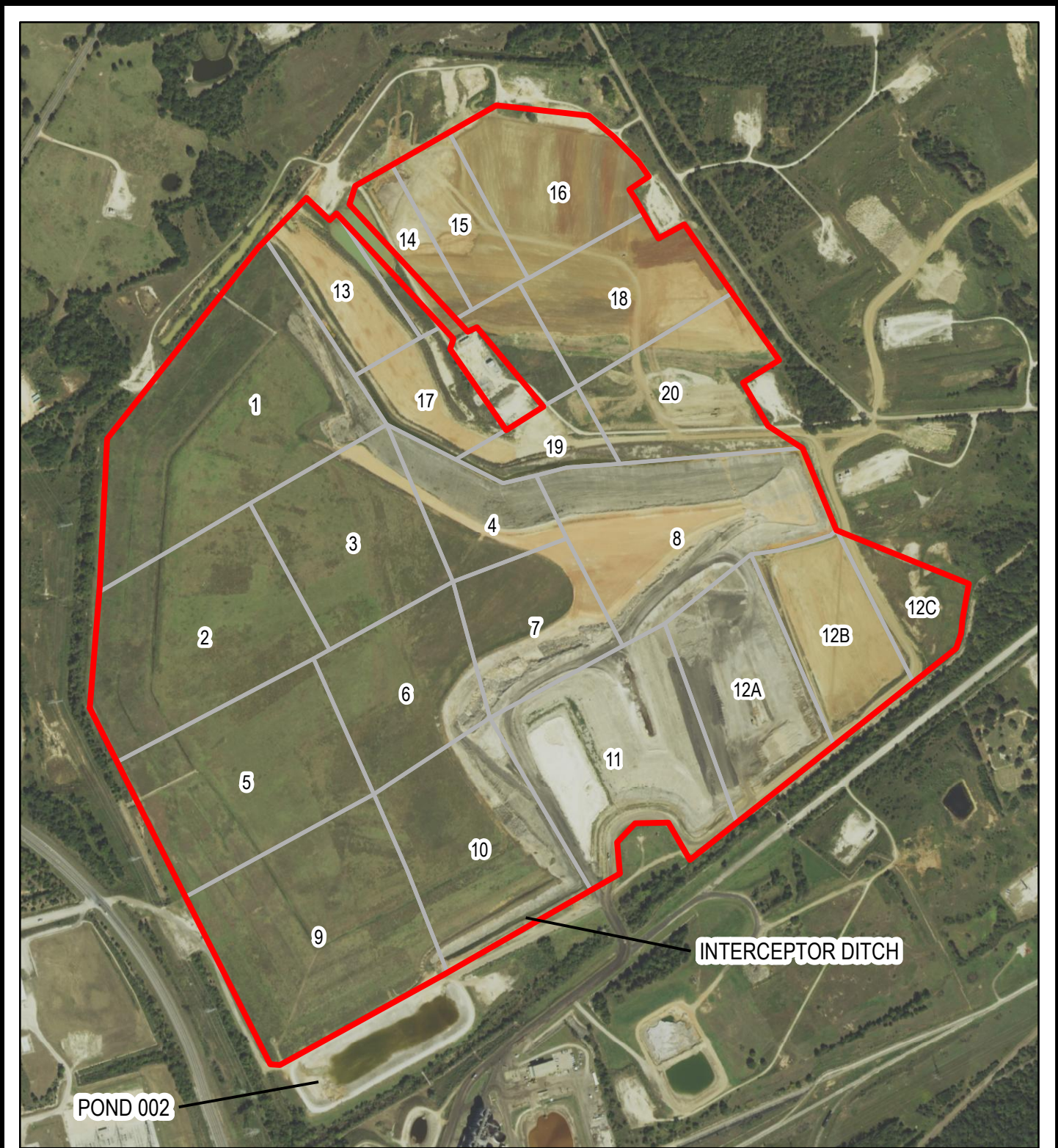
TRC - GIS

PROJECT: **NRG
LIMESTONE ELECTRIC GENERATING STATION**

TITLE: **LOCATION OF CCR LANDFILL AND
IMPOUNDMENTS**

DRAWN BY:	MJAGOE
CHECKED BY:	RDV
APPROVED BY:	
DATE:	JANUARY 2020
PROJ. NO.:	298367.1000
FILE:	298367_Figure1.mxd

FIGURE 1



SOURCE: (09/30/2016) USDA FARM SERVICE, NAIP IMAGERY



1" = 850'
1:10,195



Legend

- SITE BOUNDARY
- LANDFILL AREAS



505 East Huntland Drive
Suite #250
Austin, TX 78752
Phone: 512.329.6080

TRC - GIS

PROJECT: **NRG
LIMESTONE ELECTRIC GENERATING STATION**

TITLE: **AERIAL VIEW OF UNIT 004 LANDFILL**

DRAWN BY:	MJAGOE
CHECKED BY:	RPV
APPROVED BY:	
DATE:	JANUARY 2020
PROJ. NO.:	298637.1000
FILE:	298367_Figure2.mxd

FIGURE 2



SOURCE: (09/30/2016) USDA FARM SERVICE, NAIP IMAGERY



505 East Huntland Drive
Suite #250
Austin, TX 78752
Phone: 512.329.6080

TRC - GIS

PROJECT:	NRG LIMESTONE ELECTRIC GENERATING STATION
TITLE:	AERIAL VIEW OF UNIT 003 SECONDARY E POND

DRAWN BY:	MJAGOE
CHECKED BY:	RDV
APPROVED BY:	
DATE:	JANUARY 2020
PROJ. NO.:	298367.1000
FILE:	298367_Figure3.mxd
FIGURE 3	

PHOTOGRAPHS

Photographic Log – 2019 Limestone Annual Inspection of CCR Units



Photograph P-1: View looking north of berm on top of landfill. This berm separates runoff from the capped and closed portion of the landfill from the uncapped portion. This berm is located in Area 3.



Photograph P-2: View looking south from top of Area 2. There is a drainage ditch that captures runoff from the top of the landfill and diverts it to one of two concrete drainage features.

Photographic Log – 2019 Limestone Annual Inspection of CCR Units



Photograph P-3: View looking southeast at Area 1 of the Unit 004 Landfill. The landfill slopes were well vegetated. The concrete drainage structure conveys runoff from the top of the Unit. It empties into an unseen drainage ditch separated from the viewer by a berm.



Photograph P-4: View looking north-northwest of sump on southwest corner of Unit 004 Landfill. A French drain system empties into the concrete sump, which is then pumped through the black pipe (bottom center) into Pond 002.

Photographic Log – 2019 Limestone Annual Inspection of CCR Units



Photograph P-5: View looking north from equipment skid across Pond 002 at sidewall of the Unit 004 Landfill. The sidewalls of Areas 9 and 10 are visible in this photograph.



Photograph P-6: View looking northwest of sidewall of Area 4. The top of this area (far left of photograph) is capped. The sidewall of Area 4 (center of photograph) is not capped. The exposed waste is rigid CCR waste. The contact water interceptor ditch is visible on the right side of the photograph. Area 17 is visible to the right of the interceptor ditch.

Photographic Log – 2019 Limestone Annual Inspection of CCR Units



Photograph P-7: View looking east at uncapped CCR waste material and a CCR material berm/sidewall in Area 7. One of the landfill haul roads (improved with bottom ash) with no significant rutting is visible to the left. As evidenced by the sheer sidewall visible here, the CCR waste is a rigid material.



Photograph P-8: View looking north of CCR material. Uncapped CCR slopes in Areas 6 and 10 and the haul road are visible to the left, the marketable CCR material stackout area in Area 11 is visible in the right foreground, and bermed CCR material in Areas 7 and 8 is visible in the center and right background.

Photographic Log – 2019 Limestone Annual Inspection of CCR Units



Photograph P-9: View looking southeast from Area 8 of active waste disposal in Area 12A. Area 12B is visible in the left background of this photograph. The stabilized slope of CCR material from Area 8 towards Area 12A is also visible (bottom of photograph).



Photograph P-10: View looking east-northeast of CCR contact water interceptor ditch. The interceptor ditch is bridged in this location by a second drainage feature that conveys stormwater from the capped portion of Area 8 to the non-contact water drainage ditch.

Photographic Log – 2019 Limestone Annual Inspection of CCR Units



Photograph P-11: View looking west of CCR contact water interceptor ditch. The sidewall of Area 10 is visible on the right side of this photograph. The sidewall is either well vegetated or stabilized to prevent erosion.



Photograph P-12: View looking east-northeast of the northern half of the Unit 003 Secondary E Pond. The central, separating berm is visible on the right and the rigid stabilized waste material is visible on the left. The waste has been partially excavated from the perimeter of this portion of the pond. The stockpile (left background) is CCR waste material stockpiled inside of the pond.

Photographic Log – 2019 Limestone Annual Inspection of CCR Units



Photograph P-13: View looking northwest of the CCR waste stockpiled in the Unit 003 Secondary E Pond. The sidewall of the Unit 004 Landfill is visible in the background of this photograph.



Photograph P-14: View looking northeast of the water in the southern half of the Unit 003 Secondary E Pond. The interior berm sidewalls were in good condition, the exterior berm sidewalls were vegetated with grass.