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**Bullock, Bennett & Associates, LLC**

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www.bbaengineering.com  
165 N. Lampasas St. • Bertram, Texas 78605 • (512) 355-9198

**ANNUAL CCR UNITS INSPECTION**

**SAN MIGUEL ELECTRIC COOPERATIVE, INC.**

October 12, 2022

Prepared for:

**San Miguel Electric Cooperative, Inc.**  
6200 FM 3387  
Christine, Atascosa County, Texas 78012

Prepared by:

BULLOCK, BENNETT & ASSOCIATES, LLC  
165 N. Lampasas St., Bertram, Texas 78605  
[www.bbaengineering.com](http://www.bbaengineering.com)

Texas Engineering Firm Registration: F-8542

Texas Geoscience Firm Registration: 50127

BBA Project No. 21447

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## 1.0 INTRODUCTION

Bullock, Bennett, and Associates, LLC (BBA) was retained by the San Miguel Electric Cooperative, Inc. (SMECI) to perform their annual Coal Combustion Residuals (CCR) Units Inspection. The SMECI lignite-fired 440-megawatt (MW) power plant and associated mining facilities are located approximately six miles south of Christine, in Atascosa County in South Texas. CCR Units Inspection standards and guidance are set forth under the United States Environmental Protection Agency (USEPA) CCR Rule, 40 Code of Federal Regulations (CFR) §257.83(b) and §257.84(b), for surface impoundments and landfills, respectively. The federal CCR rules have been adopted by the Texas Commission on Environmental Quality (TCEQ) under 30 Texas Administrative Code (TAC) Chapter 352. The intent of this annual inspection is to summarize the visual observations made during the September 27, 2022 on-site inspection and provide the reader an engineering opinion on the condition, structural integrity, operational status, and maintenance of the CCR Units in accordance with the cited regulations.

As further described in later sections herein, the CCR Units inspected and reported on for this annual inspection report consists of the South Equalization Basin, Ash Pond A, and Ash Pond B, which are each regulated under the CCR rules as Surface Impoundments, and the Ash Pile which is covered under the CCR Landfill rules.

It should be noted that only the Ash Pile was inspected in 2021. Per 40 CFR 257.83 – Inspection requirements for CCR surface impoundments, in any calendar year in which both the periodic inspection by a qualified professional engineer and the quinquennial (occurring every 5 years) structural stability assessment by a qualified professional engineer are required to be completed, the annual inspection is not required, provided the structural stability assessment is completed during the calendar year. SMECI completed the five-year stability assessment in 2021, and therefore the annual engineering inspection of the impoundments were not required last year.

In 2020 Ash Pond B was partitioned into two sections, Ash Pond B and a new equalization pond. For distinction from the former equalization pond that has since been removed from service and capped (and therefore not included in this inspection), the new equalization pond is referenced herein as the South Equalization Basin (or, South EB, or SEB) and the former equalization pond is referenced as the Former East Equalization Pond. The table below provides a brief summary of inspection findings.

**Table 1 – CCR Unit Finding Summary**

CCR Unit	CCR Section Reference	Section Summary	CCR Unit Inspection Status
Ash Ponds A and B, and South Equalization Basin	§257.83(b)(1)	Annual Inspection	Requirements Met
	§257.83(b)(2)	Inspection report	Requirements Met
	§257.83(b)(3)	Inspection Frequency	Requirements Met
	§257.83(b)(4)	Observed Deficiencies	None
Ash Pile	§257.84(b)(1)	Annual Inspection	Requirements Met
	§257.84(b)(2)	Inspection report	Requirements Met
	§257.84(b)(3)	Inspection Frequency	Requirements Met

	§257.84(b)(4)	Observed Deficiencies	None
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## 2.0 CCR UNIT DESCRIPTIONS

The CCR Units are as shown in Figure 1 and briefly described below:

- **Ash Ponds A and B, and South Equalization Basin**

Ash Ponds A and B and the South Equalization Basin comprise a single impoundment structure (the Pond) with internal dividing dikes which serve to form the individual units. The Pond is located on the south portion of the plant property and the associated pump station is located to the west of the Pond. The Pond was designed and constructed as a side-hill impoundment with the north embankment at or near natural grade. The Pond is partitioned into three units, Ash Pond A, Ash Pond B and the South Equalization Basin. The Pond has a centrally located dike oriented from west to east that separates Ash Pond A on the north side of the dike, from Ash Pond B and the South Equalization Basin on the south side of the dike. A centrally located, north-south oriented, dike then separates Ash Pond B from the South Equalization Basin. Staff gauges are located in the southeast corner of Ash Pond A, on the weir that separates Ash Pond A from Ash Pond B, and on the west end of the South Equalization Basin (recently installed).

Ash Pond A and Ash Pond B (prior to partitioning of Ash Pond B) were completely emptied in 2020 and an engineer-designed high-density polyethylene (HDPE) flexible membrane liner (FML) system was installed. SMECI personnel indicated the existing Pond bottom and dike side slope elevations were not altered as part of the work and remain approximately the same as they were prior to the 2020 upgrade activities. As part of the 2020 upgrades, Ash Pond B was partitioned via construction of a lined separator dike located near the middle of former Ash Pond B. The east portion of this partition is still referred to and functions as Ash Pond B, while the west portion became the South Equalization Basin.

The perimeter of the Pond is approximately 5,750 feet with an approximate surface area of 26 acres. Based on the 2019 engineering design drawings (Newfields, 8/29/2019) for liner upgrades, the maximum pond depth is approximately 21 feet from the bottom elevation of 295.0 (NAVD88) to the top of the one foot thick clay layer (elevation 316.0 NAVD88) on the dike crest, underlying a 6-inch thick access road base material. The top of road base material is at elevation 316.5 (NAVD88). Interior side slopes are constructed at 2.5(Horizontal):1(Vertical) and exterior slopes range from 2.5(H):1(V) to 3(H):1(V). The normal pool water surface elevation is 313.0 feet (NAVD88). The crest is over 10 feet wide.

- **Ash Pile**

The Ash Pile is located in the northwest portion of the plant just north of the Ash Silos. The Ash Pile is considered a temporary storage area approximately 1 acre in size and is used to stage a stabilized mixture of fly ash and flue gas desulfurization (FGD) scrubber waste treatment sludge. The ash mixture is staged within concrete and metal walls



awaiting transport, via dump trucks, to the San Miguel surface lignite mines located southeast outside of the power plant boundary.

In 2018 SMECI adopted a new dust control procedure that included the addition of sprinklers and a chemical reagent (as-needed) to minimize dust migration. There is no permanently constructed cover over the Ash Pile due to the repetitive dump truck routes loading and hauling the Ash off-site.

### **3.0 ANNUAL INSPECTION REQUIREMENTS**

The following subsections outline the annual inspection requirements applicable to the CCR Units at the power plant. It is noted that information about operational and maintenance procedures were provided by SMECI plant personnel. SMECI personnel monitor the CCR Units on a regularly scheduled basis allowing for timely resolution of any identified maintenance needs.

#### **3.1 Ash Ponds A and B, and South Equalization Basin**

The annual inspection requirements for the equalization pond and ash ponds are the same. Each is subject to annual inspection by a qualified engineer, pursuant to 40 CFR §257.83(b)(1), “...to ensure that the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering standards”. Components of the inspection are described below:

- 40 CFR &257.83(b)(1)(i) – *A review of available information regarding the status and condition of the CCR unit, including, but not limited to, files available in the operating record (e.g., CCR unit design and construction information required by §257.73 (c)(1) and §257.74 (c)(1), previous periodic structural stability assessments required under §257.73 (d) and §257.74 (d), the results of inspections by a qualified person, and results of previous annual inspections).*
- 40 CFR §257.83(b)(1)(ii) – *A visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit.*

Inspection results are documented based on the reporting requirements outlined in 40 CFR §257.83(b)(2). Those requirements are outlined below:

- (i) - *Any changes in geometry of the impounding structure since the previous annual inspection.*
- (ii) - *The location and type of existing instrumentation and the maximum recorded readings of each instrument since the previous annual inspection*
- (iii) - *The approximate minimum, maximum, and present depth and elevation of the impounded water and CCR since the previous annual inspection*
- (iv) - *The storage capacity of the impounding structure at the time of the inspection.*
- (v) - *The approximate volume of the impounded water and CCR at the time of the inspection.*
- (vi) - *Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt*

*the operation and safety of the CCR unit and appurtenant structures.*  
(vii) - *Any other change(s) which may have affected the stability or operation of the impounding structure since the previous annual inspection.*

The following subsections outline the inspection frequency for the equalization basin and ash ponds covered under 40 CFR §257.83(b)(4).

*(i) - Except as provided for in paragraph (b)(4)(ii) of this section, the owner or operator of the CCR unit must conduct the inspection required by paragraphs (b)(1) and (2) of this section on an annual basis. The date of completing the initial inspection report is the basis for establishing the deadline to complete the first subsequent inspection. Any required inspection may be conducted prior to the required deadline provided the owner or operator places the completed inspection report into the facility's operating record within a reasonable amount of time. In all cases, the deadline for completing subsequent inspection reports is based on the date of completing the previous inspection report. For purposes of this section, the owner or operator has completed an inspection when the inspection report has been placed in the facility's operating record as required by §257.105 (g)(6).*

### **3.2 Ash Pile**

The Ash Pile is subject to annual inspection by a qualified engineer, pursuant to 40 CFR §257.84(b)(1), "...to ensure that the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering standards". Components of the inspection are described below:

- 40 CFR §257.84(b)(1)(i) – *A review of available information regarding the status and condition of the CCR unit, including, but not limited to, files available in the operating record (e.g., the results of inspections by a qualified person, and results of previous annual inspections).*
- 40 CFR §257.84(b)(1)(ii) – *A visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit.*

Results of the inspection must be documented pursuant to the inspection reporting requirements of 40 CFR §257.84(b)(2):

- (i) - Any changes in geometry of the structure since the previous annual inspection.*
- (ii) - The approximate volume of CCR contained in the unit at the time of the inspection*
- (iii) Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit.*
- (iv) Any other change(s) which may have affected the stability or operation of the CCR unit since the previous annual inspection.*

The following subsections outline the inspection frequency for the Ash Pile covered under 40 CFR §257.84(b)(4).

The owner or operator of the CCR unit must conduct the inspection required by paragraphs (b)(1) and (2) of this section on an annual basis. The date of completing the initial inspection report is the basis for establishing the deadline to complete the first subsequent inspection. Any required inspection may be conducted prior to the required deadline provided the owner or operator places the completed inspection report into the facility's operating record within a reasonable amount of time. In all cases, the deadline for completing subsequent inspection reports is based on the date of completing the previous inspection report. For purposes of this section, the owner or operator has completed an inspection when the inspection report has been placed in the facility's operating record as required by §257.105(g)(9).

#### 4.0 INSPECTION FINDINGS

BBA performed the most recent inspection at the SMECI power plant on September 27, 2022. A qualified engineer performed the CCR Unit inspection and SMECI personnel provided guidance and direction to BBA's questions. During the inspection, the CCR Units were readily accessible and free of obstructions. SMECI provided BBA with past CCR Unit Inspection reports and design documents for review.

During the inspection, Ash Pond A, Ash Pond B, and the South Equalization Basin were in operation. The East Equalization Pond was removed from service in 2020 and capping was reportedly completed by January 2021. Therefore, the Former Evaporation Pond was not inspected.

**Table 2 - Inspection Results: Ash Ponds and Equalization Basin**

<b>Regulatory Citation</b>	<b>Ash Ponds A and B</b>	<b>South Equalization Basin</b>
<i>40 CFR §257.83 (b)(2) (i) - Any changes in geometry of the impounding structure since the previous annual inspection.</i>	No changes in geometry were noted when compared to the 2020 inspection report (dated Jan. 1, 2021)	No changes in geometry were noted when compared to the 2020 inspection report
<i>40 CFR §257.83 (b)(2) (ii) - The location and type of existing instrumentation and the maximum recorded readings of each instrument since the previous annual inspection.</i>	<p>A staff gauge in the southeast corner of Ash Pond A, near the overflow weir with Ash Pond B.</p> <p>The maximum recorded water surface elevation reading since the previous annual inspection is 313.9 (NAVD88).</p>	<p>A staff gauge was installed in 2021, on the West end of the SEB.</p> <p>The maximum recorded water surface elevation reading since the previous annual inspection is 313.8 (NAVD88).</p>

<p>40 CFR §257.83 (b)(2)(iii) - The approximate minimum, maximum, and present depth and elevation of the impounded water and CCR since the previous annual inspection</p>	<p><u>Approximate Depth (ft) / Elevation (NAVD88)</u></p> <p style="text-align: center;"><u>Water</u></p> <p>Min.: 17.2 / 312.2  Max.: 18.9 / 313.9  Present: 17.2 / 312.2</p> <p style="text-align: center;"><u>CCR</u></p> <p>Min.: 5.0 / 300.0  Max.: 18.0 / 313.0  Present: 18.0 / 313.0</p>	<p><u>Approximate Depth (ft) / Elevation (NAVD88)</u></p> <p style="text-align: center;"><u>Water</u></p> <p>Min.: 15.8 / 310.8  Max.: 18.8 / 313.8  Present: 16.2 / 311.2</p> <p style="text-align: center;"><u>CCR</u></p> <p>Min.: 5.0 / 300.0  Max.: 15.0 / 310.0  Present: 15.0 / 310.0</p>
<p>40 CFR §257.83 (b)(2)(iv) - The storage capacity of the impounding structure at the time of the inspection.</p>	<p>The storage capacity is estimated to be 328 acre-feet.</p>	<p>The storage capacity is estimated to be 93 acre-feet.</p>
<p>40 CFR §257.83 (b)(2)(v) - The approximate volume of the impounded water and CCR at the time of the inspection</p>	<p>The approximate volume of impounded water at the time of the inspection was 280,000 cubic yards (cy). The estimated volume of CCR at the time of the inspection was estimated at 150,000 cy.</p>	<p>The approximate volume of impounded water at the time of the inspection was 90,000 cubic yards (cy). The estimated volume of CCR at the time of the inspection was estimated at 20,000 cy.</p>
<p>40 CFR §257.83 (b)(2)(vi) – Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit and appurtenant structures.</p>	<p>None observed.</p>	<p>None observed.</p>
<p>40 CFR §257.83 (b)(2)(vii) – Any other change(s) which may have affected the stability or operation of the impounding structure since the previous annual inspection.</p>	<p>None observed.</p>	<p>None observed.</p>

**Maintenance Items:**

BBA observed items to be addressed as part of standard ongoing maintenance, including the following:

- Clean the staff gauges (both locations) of solids build-up to facilitate water surface readings.
- Address minor erosion rills observed at various locations on the exterior dikes of the ash ponds and equalization ponds.
- Address minor rutting observed on the perimeter access roads.
- Address any localized areas with sparse vegetation due to dry conditions.
- Continue vegetation control program.
- Continue removal of ant beds when observed.

BBA will provide additional detail to assist SMECI in implementation of these ongoing maintenance items on an as-needed basis.

The results of the 2022 Annual Inspection for the Ash Pile are presented, as follows:

**Table 3 - Inspection Results: Ash Pile**

<b>Regulatory Citation</b>	<b>Ash Pile</b>
<i>40 CFR §257.84 (b)(2)(i) – Any changes in geometry of the structures since the previous annual inspection.</i>	None observed.
<i>40 CFR §257.84 (b)(2)(ii) – The approximate volume of CCR contained in the unit at the time of the inspection.</i>	3,200 cy
<i>40 CFR §257.84 (b)(2)(iii) – Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit.</i>	None observed.
<i>40 CFR §257.84 (b)(2)(iv) – Any other change(s) which may have affected the stability or operation of the CCR unit since the previous annual inspection.</i>	None observed.

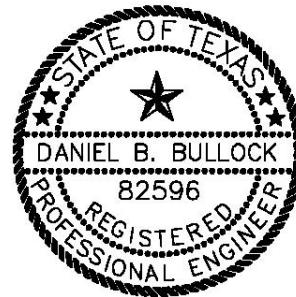
**Maintenance Items:**

- Continue maintenance grading as needed to maintain drainageways.
- Continue to maintain access haul roads in the area of the storage pile.
- Continue maintenance on concrete wall and steel plating, as needed.
- Continue maintenance of sprinkler/CCR moisture conditioning sprinklers and nozzles.

I, Dan Bullock, certify under penalty of law that the information submitted in this report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Texas. The information submitted, is to the best of my knowledge and belief, true, accurate and complete. Based on the annual inspection, the design, construction, operation, and maintenance of the CCR Unit is consistent with recognized and generally accepted good engineering standards.

*Daniel B. Bullock*

Dan Bullock, PE  
Texas PE No. 82596, Expires: 06/30/2023  
Date: 10/12/2022



10/12/2022

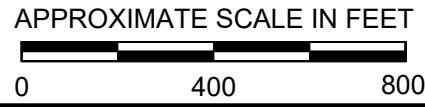
## ATTACHMENTS

- Figures 1-5





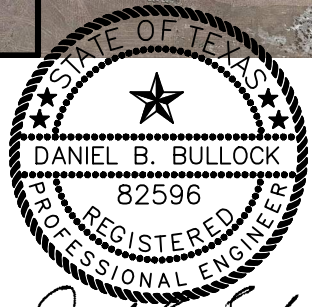
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**SOURCES:**

SITE IS USING TEXAS STATE PLANE  
 COORDINATE SYSTEM, SOUTH CENTRAL  
 ZONE, NAD83.  
  
 AERIAL BACKGROUND PROVIDED BY  
 PLEX-EARTH USING GOOGLE MAPS  
 (TAKEN 3-2022).

NOTE: AERIAL BACKGROUND PHOTO IS MOST RECENT  
 AVAILABLE, BUT IS NOT CURRENT AND DOES NOT REFLECT  
 CURRENT SITE CONDITIONS. PROVIDED FOR GENERAL  
 INFORMATIONAL PURPOSES ONLY.



*Daniel B. Bullock*  
 10-7-2022

**San Miguel Electric Cooperative Inc.**  
 Atascosas County, Texas

Figure 1  
**SITE MAP**

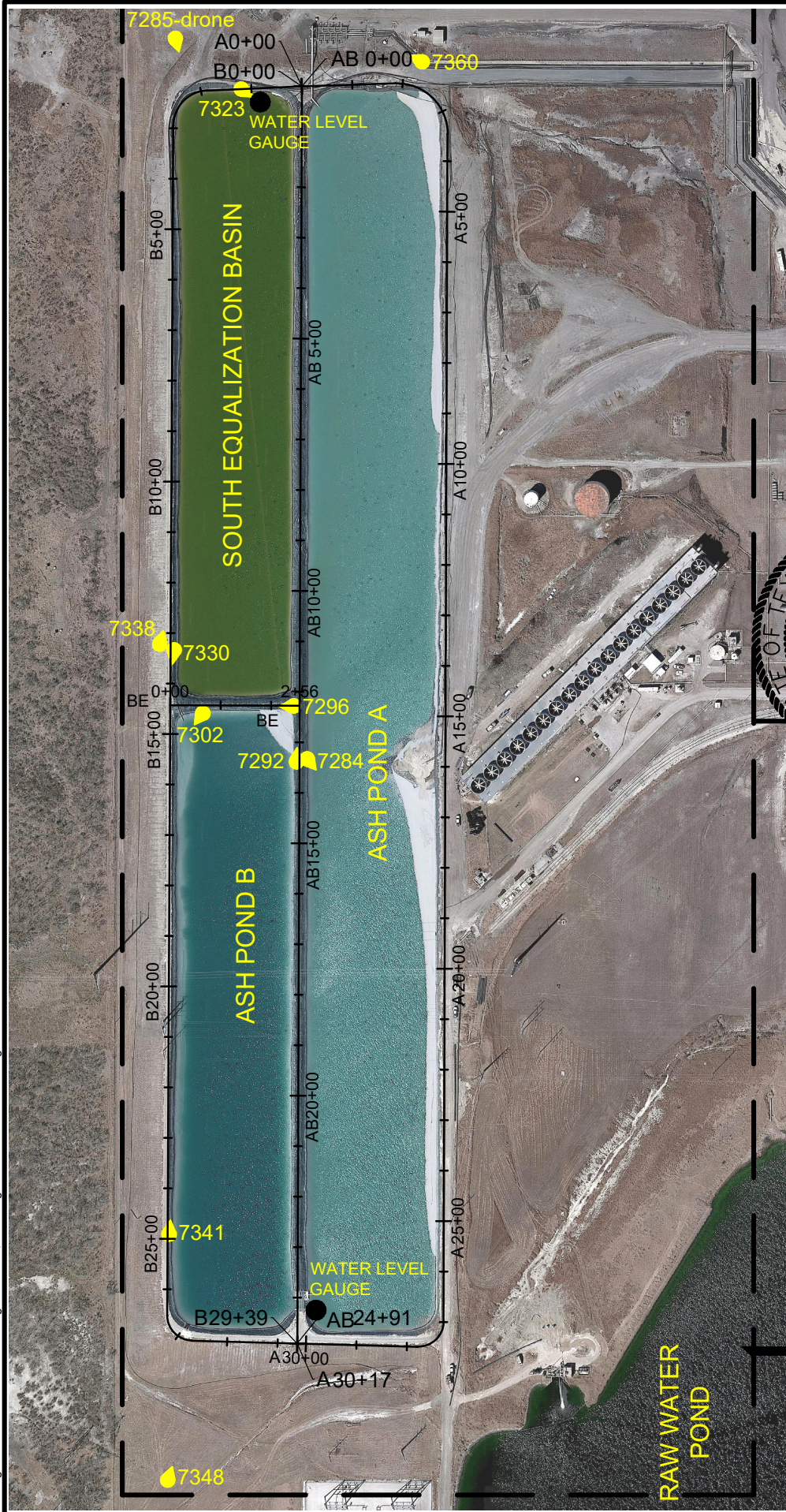
PROJECT: 21447 | BY: RCAD-RR | DATE: OCT 2022 | CHECKED: DBB

**Bullock, Bennett & Associates, LLC**  
 Engineering and Geoscience  
 Texas Registrations: Engineering F-8542, Geoscience 50127

APPROXIMATE —



Plot Date: 10/07/22 - 2:35pm, Plotted by: Admin  
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**EXPLANATION**

- 7296 PHOTO # AND DIRECTION OF PHOTO
- A10+00 POND STATIONING

APPROXIMATE SCALE IN FEET



SOURCE: AERIAL BACKGROUND PROVIDED BY PLEX-EARTH USING GOOGLE MAPS (TAKEN 3-2022).



*Daniel B. Bullock*  
 10-7-2022

**San Miguel Electric Cooperative Inc.**  
 Atascos County, Texas

Figure 2

**Ash Ponds A and B,  
 South EB Inspection Photos  
 (Sept 2022)**

PROJECT: 21447 BY: RCAD-RR DATE: OCT 2022 CHECKED: DBB

**Bullock, Bennett & Associates, LLC**  
 Engineering and Geoscience  
 Texas Registrations: Engineering F-8542, Geoscience 50127





7284 - Facing East. Ash Pond A and South Equalization Basin Interior Dike.



7285 - Facing Northeast. Aerial view of ponds.



7292 - Facing West. Ash Pond A and Ash Pond B, Interior Dike.



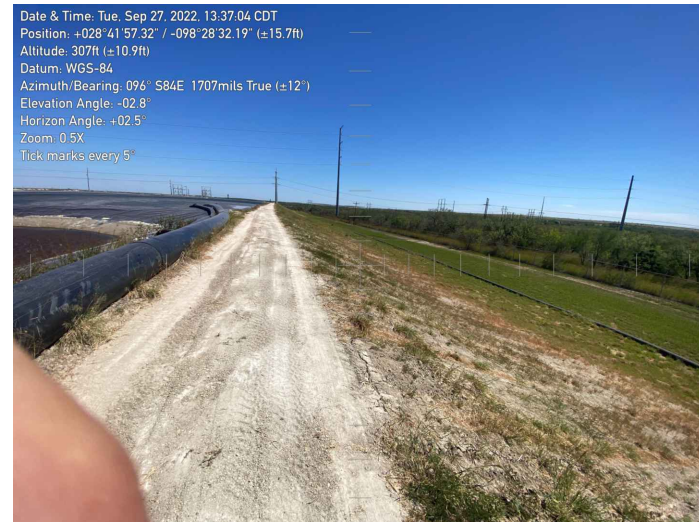
7296 - Facing South. Ash Pond B and South Equalization Basin Splitter Dike.



7302 - Facing Southeast. Ash Pond B Splitter Dike.



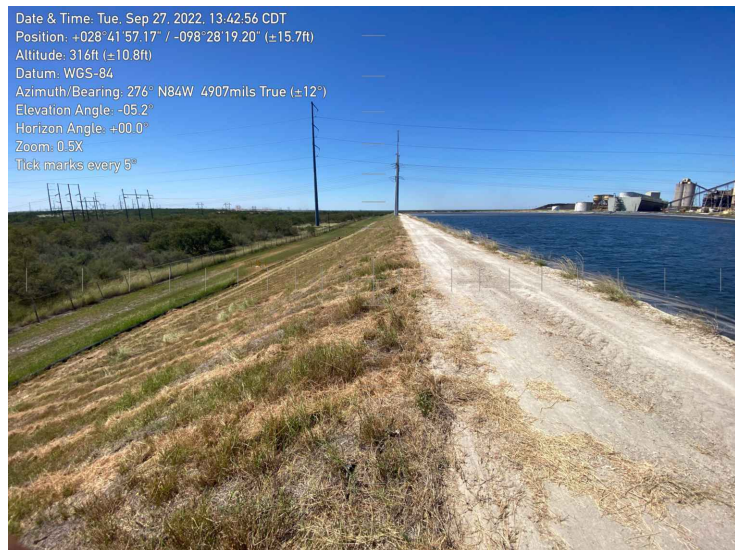
7323 - Facing North. South Equalization Basin Water Level Gauge.



7330 - Facing East. South Equalization Basin Exterior Slope.



7338 - Facing West. Ash Pond B, South Exterior Slope.



7341 - Facing West. Ash Pond B Dike Crest.



7348 - Facing West. Ash Pond B Exterior.



7360 - Facing South. Ash Pond A, West Exterior Slope.

Plot Date: 10/07/22 - 8:50am, Plotted by: Admin  
Drawing Path: K:\clients\bbat\San Miguel\214471, Drawing Name: G-GN-SD101.dwg

<b>San Miguel Electric Cooperative Inc.</b> Atascos County, Texas			
Figure 3			
<b>Ash Ponds A and B, South EB Inspection Photos (Sept 2022)</b>			
PROJECT: 21447	BY: RCAD-RR	DATE: OCT 2022	CHECKED: DBB
Bullock, Bennett & Associates, LLC Engineering and Geoscience Texas Registrations: Engineering F-8542, Geoscience 50127			

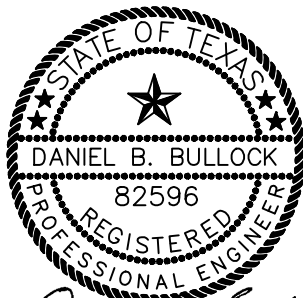




**EXPLANATION**

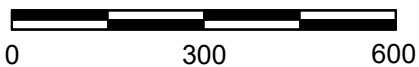
7200      PHOTO # AND DIRECTION  
      OF PHOTO

SOURCE: AERIAL BACKGROUND PROVIDED BY PLEX-EARTH USING GOOGLE MAPS (TAKEN 3-2022).



*Daniel B. Bullock*  
 10-7-2022

APPROXIMATE SCALE IN FEET



**San Miguel Electric Cooperative Inc.**  
 Atascosas County, Texas

Figure 4

**Ash Pile Inspection Photos**  
 (Sept 2022)

PROJECT: 21447    BY: RCAD-RR    DATE: OCT 2022    CHECKED: DBB

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 Texas Registrations: Engineering F-8542, Geoscience 50127

Plot Date: 10/07/22 - 2:36pm, Plotted by: Admin  
 Drawing Path: K:\clients\bbat\San Miguel\21447, Drawing Name: C-ST-PL-101.dwg





7200 - Facing Southwest. Ash Pile and Wall.



7201 - Facing Southwest. Ash Pile.



7246 - Facing Northeast. Ash Pile.



7250 - Facing East. Ash Pile and Wall.



7259 - Facing Southeast. Ash Pile and Wall.



7267 - Facing West. Ash Pile.



7273 - Facing West. Ash Pile and Sprinklers.

Plot Date: 10/07/22 - 8:51am, Plotted by: Admin  
 Drawing Path: K:\clients\bbat\San Miguel\21447, Drawing Name: G-GN-SD101.dwg

<b>San Miguel Electric Cooperative Inc.</b> Atascos County, Texas			
Figure 5			
<b>Ash Pile Inspection Photos</b> (Sept 2022)			
PROJECT: 21447	BY: RCAD-RR	DATE: OCT 2022	CHECKED: DBB
<b>Bullock, Bennett &amp; Associates, LLC</b> Engineering and Geoscience Texas Registrations: Engineering F-8542, Geoscience 50127			