## Texas Commission on Environmental Quality

# Waste Permits Division Correspondence Cover Sheet

Date: 1/18/2024
Facility Name: Fayette Power Project
Permit or Registration No.: 31575

Nature of Correspondence:
☐ Initial/New
☒ Response/Revision to TCEQ Tracking No.: 27214088 (from subject line of TCEQ letter regarding initial submission)

Affix this cover sheet to the front of your submission to the Waste Permits Division. Check appropriate box for type of correspondence. Contact WPD at (512) 239-2335 if you have questions regarding this form.

**Table 1 - Municipal Solid Waste Correspondence**

| Applications | Reports and Notifications |
|---|---|
| ☐ New Notice of Intent | ☐ Alternative Daily Cover Report |
| ☐ Notice of Intent Revision | ☐ Closure Report |
| ☐ New Permit (including Subchapter T) | ☐ Compost Report |
| ☐ New Registration (including Subchapter T) | ☐ Groundwater Alternate Source Demonstration |
| ☐ Major Amendment | ☐ Groundwater Corrective Action |
| ☐ Minor Amendment | ☐ Groundwater Monitoring Report |
| ☐ Limited Scope Major Amendment | ☐ Groundwater Background Evaluation |
| ☐ Notice Modification | ☐ Landfill Gas Corrective Action |
| ☐ Non-Notice Modification | ☐ Landfill Gas Monitoring |
| ☐ Transfer/Name Change Modification | ☐ Liner Evaluation Report |
| ☐ Temporary Authorization | ☐ Soil Boring Plan |
| ☐ Voluntary Revocation | ☐ Special Waste Request |
| ☐ Subchapter T Disturbance Non-Enclosed Structure | ☐ Other: |
| ☐ Other: | |

**Table 2 - Industrial & Hazardous Waste Correspondence**

| Applications | Reports and Responses |
|---|---|
| ☒ New | ☐ Annual/Biennial Site Activity Report |
| ☐ Renewal | ☐ CPT Plan/Result |
| ☐ Post-Closure Order | ☐ Closure Certification/Report |
| ☐ Major Amendment | ☐ Construction Certification/Report |
| ☐ Minor Amendment | ☐ CPT Plan/Result |
| ☒ CCR Registration | ☐ Extension Request |
| ☐ CCR Registration Major Amendment | ☐ Groundwater Monitoring Report |
| ☐ CCR Registration Minor Amendment | ☐ Interim Status Change |
| ☐ Class 3 Modification | ☐ Interim Status Closure Plan |
| ☐ Class 2 Modification | ☐ Soil Core Monitoring Report |
| ☐ Class 1 ED Modification | ☐ Treatability Study |
| ☐ Class 1 Modification | ☐ Trial Burn Plan/Result |
| ☐ Endorsement | ☐ Unsaturated Zone Monitoring Report |
| ☐ Temporary Authorization | ☐ Waste Minimization Report |
| ☐ Voluntary Revocation | ☐ Other: |
| ☐ 335.6 Notification | |
| ☐ Other: | |

January 18, 2024

Daniela Ortiz de Montellano, Project Manager
Industrial and Hazardous Waste Permits Section
Waste Permits Division
Texas Commission on Environmental Quality

RE: New Coal Combustion Residuals (CCR) Registration No. CCR1
Technical NOD Response – Request for Clarification
Lower Colorado River Authority Fayette Power Project – La Grange, Fayette County
Industrial Solid Waste Registration No. 31575
EPA Identification No. TXD083566547
Tracking No. 27214088; RN100226844/CN600253637

Dear Ms. Ortiz de Montellano,

The Lower Colorado River Authority is in receipt of your email dated December 19, 2023, outlining TCEQ's request for additional information and clarification of previously submitted information regarding the Coal Combustion Residuals registration application for the above referenced facility (dated January 24, 2022, revised October 28, 2022, September 14, 2023, and October 27, 2023). Our responses are outlined below, corresponding to the numbers in your email. Attached are a redline/strike out version of the application changes as well as clean replacement pages.

1. Application Table I.6

Revise Table I.6 to add capacities for each active and proposed Combustion By-product Landfill (CBL) cells.

**The capacities for the active and proposed cells of the CBL landfill on Table I.6 has been updated.**

2. Application Section IV.25 and VI.27

Revise the application to address the following accordingly:

**a.** Section IV.25 of TCEQ application form, Attachment 7 of application: Include a statement indicating that an amendment to the application and registration will be submitted to request updates of the proposed CBL lateral expansion liner design with site specific geotechnical data prior to construction for review and approval;

**A statement indicating that prior to the start of any construction activities, an amendment to the application and registration will be submitted to the TCEQ to request approval of proposed updates of the CBL lateral expansion liner design with site specific geotechnical data.**

b. Section VI.27 of the TCEQ application form:

   i. Include a narrative that describes how the groundwater monitoring network will be installed at the waste boundary of the proposed CBL lateral expansion.

   **Information has been added to Attachment 4 stating that should lateral expansion of the landfill be necessary in the future, the groundwater monitoring network will be adjusted. The same general well design as current monitoring wells will be used to construct any future wells that may be needed. A schematic diagram has been added in Attachment 4 as Figure 2.**

   ii. Provide a drawing of the CBL that depicts the location of the proposed groundwater monitoring wells at the waste boundary of the CBL proposed expansion area.

   **A drawing showing the proposed groundwater monitoring network at the future waste boundary is attached for inclusion in Attachment 4 as Figure 3.**

   iii. Include a statement indicating that an amendment to the application and registration will be submitted to request updates in the current or proposed CBL lateral expansion groundwater monitoring system prior to construction for review and approval, if applicable.

   **A statement has been added to Section VI.27 of the application that should lateral expansion of the landfill be necessary in the future, the groundwater monitoring network will be adjusted. A drawing showing the proposed groundwater monitoring network at the future waste boundary is included as Attachment 4 Figure 3. If applicable, an amendment to the application and registration will be submitted for review and approval of any updates to the current or proposed CBL lateral expansion groundwater monitoring system prior to construction.**

c. Section VII.31 of TCEQ application form, Attachment 12 of application: Include a statement indicating that an amendment to the application and registration will be submitted to request updates of the final cover settlement analysis, final cover materials testing data, final cover design, and final slope stability analysis with site specific geotechnical data prior to construction for review and approval.

   **In Section VII.31 of the application form a statement indicating that if any deviation from the final cover system as described in Attachment 12 is planned, an amendment to the application and registration will be submitted to the TCEQ to request approval of the proposed updates of the final cover settlement analysis, final cover materials testing data, final cover design, and final slope stability analysis with site specific geotechnical data prior to the start of construction.**

If you have any questions or would like additional information, please feel free to contact me at 512-578-3205.

Sincerely,

Kate McCarthy

Kate McCarthy, P.G.
Senior Environmental Coordinator

Enclosures:
- Table I.6 – Redline/Strikeout
- Revised Table I.6
- Section IV.25 – Redline/Strikeout
- Revised Section IV.25
- Section VI.27 – Redline/Strikeout
- Revised Section VI.27
- Attachment 4 – Redline/Strikeout
- Revised Attachment 4
- New Attachment 4 Figures 2 and 3
- Section VII.31 – Redline/Strikeout
- Revised Section VII.31

**Signature Page**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

**Applicant** Signature: _____ Date: 2/14/2024

Name and Official Title (type or print): **Andrew S. Valencia, Senior VP, Generation**

**Owner or Operator** Signature: _____ Date: 2/14/2024

Name and Official Title (type or print): **Andrew S. Valencia, Senior VP, Generation**

To be completed by the owner or operator if the application is signed by an authorized representative for the operator

I, _____ hereby designate _____
(operator) (authorized representative)

as my representative and hereby authorize said representative to sign any application, submit additional information as may be requested by the Commission; and/or appear for me at any hearing or before the Texas Commission on Environmental Quality in conjunction with this request for a CCR waste management registration. I further understand that I am responsible for the contents of this application, for oral statements given by my authorized representative in support of the application, and for compliance with the terms and conditions of any registration which might be issued based upon this application.

**Andrew S. Valencia, Senior VP, Generation**
Printed or Typed Name of Applicant or Principal Executive Officer

_____
Signature

(Note: Application Must Bear Signature & Seal of Notary Public)

**Subscribed and sworn** to before me by the said Andrew Valencia on this 14 day of February, 2024

My commission expires on the 13 day of April, 2024

(Seal) Notary Public in and for Travis County, Texas

TARA LISNOW
Notary Public, State of Texas
Comm. Expires 04-13-2024
Notary ID 132435881

**Table I.6 – Redline/Strikeout and Revised**

**Table I.6. – CCR Waste Management Units**

| CCR Unit No.[1] | Unit Name | N.O.R. No.[1] | Unit Description[3] | Capacity | Unit Status[2] |
|---|---|---|---|---|---|
| CCR-1 | Combustion Byproduct Landfill (CBL) | 013 | Cells 1 and 2D | ~~1~~2,400,000 Cu yds | Active |
| | | | Cells 2A, 2B, 2C and 3 | 10,000,000 Cu yds | Proposed[4] |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

1 Registered Unit No. and N.O.R. No. cannot be reassigned to new units or used more than once.
2 Unit Status options: Active, Closed, Inactive (built but not managing waste), Proposed (not yet built), Never Built, Transferred, Post-Closure.
3 If a unit has been transferred, the applicant should indicate which facility/permit it has been transferred to in the Unit Description column.
4 No schedule for development at the time of application submittal.

**Table I.6. – CCR Waste Management Units**

| CCR Unit No.[1] | Unit Name | N.O.R. No.[1] | Unit Description[3] | Capacity | Unit Status[2] |
|---|---|---|---|---|---|
| CCR-1 | Combustion Byproduct Landfill (CBL) | 013 | Cells 1 and 2D | 2,400,000 Cu yds | Active |
| | | | Cells 2A, 2B, 2C and 3 | 10,000,000 Cu yds | Proposed[4] |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

1 Registered Unit No. and N.O.R. No. cannot be reassigned to new units or used more than once.
2 Unit Status options: Active, Closed, Inactive (built but not managing waste), Proposed (not yet built), Never Built, Transferred, Post-Closure.
3 If a unit has been transferred, the applicant should indicate which facility/permit it has been transferred to in the Unit Description column.
4 No schedule for development at the time of application submittal.

**Section IV.25 – Redline/Strikeout and Revised**

### 23. Geology Summary Report

Submit a summary of the geologic conditions at the facility, including the relation of the geologic condition to each CCR unit. The summary must include enough information and data and include sources and references for the information. Include all groundwater monitoring data required by 40 CFR Part 257, Subpart D, (30 TAC §352.241, §352.601, §352.621, §352.631, and §352.641) and submitted in accordance with 30 TAC §352.4.

**Note:** Previously prepared documents may be submitted but must be supplemented or updated as necessary to provide the requested information (30 TAC §352.241(b)).

**The Geology and Groundwater Monitoring System Report can be found as Attachment 4.**

**Groundwater monitoring data is included in Attachment 11.**

# III. Fugitive Dust Control Plan

### 24. Fugitive Dust Control Plan

A. **Submit a copy of the CCR Fugitive Dust Control Plan** (30 TAC §352.801) (40 CFR §257.80(b)), or the most recently amended plan. The initial plan or subsequent amended plan must be certified by a qualified Texas licensed professional engineer (Texas P.E.) that the plan meets the requirements of 30 TAC Chapter 352.

**The CCR Fugitive Dust Control Plan is included as Attachment 5.**

B. **Submit the most recent Annual CCR Fugitive Dust Control Report** (30 TAC §352.801) (40 CFR §257.80(c)) and include the report information.

**The 2021 Annual CCR Fugitive Dust Control Report is included as Attachment 6.**

# IV. Landfill Criteria

See Instructions and Technical Guidance – No. 30 Coal Combustion Residuals Landfill

### 25. Landfill(s) for CCR Waste

Provide the following information below if there is a landfill; if there is more than one landfill, separate information is required for each landfill.

## A. Landfill Characteristics

Describe the design, installation, construction, and operation of the landfill and submit a completed Table IV.A. – Landfill Characteristics.

Design and Installation
The CBL is registered with the Texas Commission on Environmental Quality (TCEQ) as an on-site nonhazardous industrial waste landfill (TCEQ Registration No. 31575) and an on-site waste management unit (Notice of Waste Registration No. MU013) at the FPP. The CBL currently receives Coal Combustion Residuals (CCR) generated during the operation and maintenance of three coal-fired units at FPP as described Tables I.6.A. and I.6.B.

The CBL consists of existing Cell 1 and Subcell 2D, and proposed Cells 2A, 2B, 2C and 3. The design of Cell 1 was reviewed and approved by TCEQ in a letter dated January 18, 1988, and Cell 1 was constructed in 1988. A clay perimeter berm was installed around the north, west, and east sides of Cell 1, and a clay cell separation berm was constructed along the south boundary of the cell. The floor of the cell was constructed at natural grade with minimal excavation. The upper 12 in. of the clay was excavated and recompacted to achieve a hydraulic conductivity of $1x10^{-7}$ centimeter/second (cm/sec) in accordance with TCEQ Technical Guidance 3 (12/19/83). The hydraulic conductivity of the underlying clay at a depth from approximately 0- 25 ft below grade was documented to be in the range of $1.3 \times 10^{-7}$ to $1.8 \times 10^{-9}$. (Fayette Power Project, Combustion By-product Disposal Area Geotechnical Investigation, May 1992, Jones and Neuse, Inc.). In 1992, the north portion of Cell 1 was closed with a final cover system consisting of a 2-ft thick compacted clay layer (with hydraulic conductivity no greater than $1 \times 10^{-7}$ cm/s) overlain by 1 ft of general fill and at least 1 ft of topsoil. In 2013 LCRA submitted a request to raise the maximum elevation of the CBL from approximately 430 ft msl to 470 ft msl. The request was approved by TCEQ by letter dated June 12, 2013. With this revision, the maximum elevation of CCRs placed in the landfill for final disposal will be 465.5 or 467 ft msl, depending on the thickness of the selected final cover, with a final elevation of 470 ft. msl.

By letter dated July 14, 2012, TCEQ approved the design and construction of Subcell 2D. Subcell 2D was constructed with a 3-ft compacted clay liner with a hydraulic conductivity less than $1 \times 10^{-7}$ cm/sec, meeting the recommendations of TCEQ Technical Guidance No.3 (2015). Cell 1 and Subcell 2D are existing CCR landfill areas under 40 CFR §257.53. If the remainder of Cell 2 and Cell 3 are constructed, the remainder of Cell 2 and Cell 3 will be constructed with a liner system that meets the requirements of 40 CFR §257.70(b) and (d), which includes a leachate collection system and underlying geomembrane/compacted clay composite liner. See Attachment 7. Prior to construction, a minor amendment to the application and registration will be submitted to the TCEQ to request approval of proposed updates of the CBL lateral expansion liner design with site specific geotechnical data.

Operation
LCRA contracts with a third party for the marketing of CCRs for beneficial use and for a portion of CBL operation. Under the terms of the contract, LCRA oversees the contractor's activities. Currently, CCRs are being harvested from Cell 1 for sale in beneficial use markets and the volume of material in Cell 1 is being reduced. Subcell 2D is being used as a waste storage area for CCRs /product preparation area prior to sale for beneficial use.

Since the CBL was constructed at grade and will reach a maximum height of 470 ft, waste is not deposited in conventional landfill trenches.
During active marketing of CCRs, the material is sprayed with water to minimize dust in accordance with the CCR Fugitive Dust Control Plan. When the material is sprayed, it forms a thin crust, making the need for interim cover unnecessary.

When waste is being placed for final disposal, the material will be graded to promote drainage (i.e., 2%) and interim waste grades no steeper than 3.5H:1V. Fly ash and synthetic gypsum will be spread in 12 in. lifts and compacted. All compaction will be completed the same day waste is placed and will be to at least 90% of the Standard Proctor maximum dry density. Results of compaction tests will be maintained on-site. For bottom ash, compaction will consist of tracking with a CAT D6 dozer, and no compaction testing will be required.

The third-party marketing contractor is responsible for implementing the procedures contained in the Fugitive Dust Control Plan (see Attachment 5) and the Run-on and Run-off Control Plan (see Attachment 8).

## B. Liner Design

1. For existing landfills, provide attachments describing how the facility will comply with 30 TAC 352, Subchapter F (Design Criteria).

   **Both Cell 1 and Subcell 2D are existing units and therefore the liner design criteria in 30 TAC 352, Subchapter F are not applicable.**
   **For Cells 2A, 2B, 2C and 3, see the Geosyntec Composite Liner Design and Operating Criteria Report included as Attachment 7. Prior to construction, a minor amendment to the application and registration will be submitted to the TCEQ to request approval of proposed updates of the CBL lateral expansion liner design with site specific geotechnical data.**

2. For new landfills or lateral expansions of existing landfills, submit pages describing how the facility will comply with 30 TAC §352.261 and 30 TAC §352.701.

   **For Cells 2A, 2B, 2C and 3, see the Geosyntec Composite Liner Design and Operating Criteria Report included as Attachment 7. Prior to construction, a minor amendment to the application and registration will be submitted to the TCEQ to request approval of proposed updates of the CBL lateral expansion liner design with site specific geotechnical data.**

3. Complete Table IV.B. - Landfill Liner System and specify the type of liner used for the landfill.

4. Provide attachments describing the design, installation, and operation of the liner and leak detection system. The description must demonstrate that the liner and leak detection system will prevent discharge to the land, groundwater, and surface water. Submit a quality assurance project plan (QAPP) to ensure that each analysis is performed appropriately.

   **For Cells 2A, 2B, 2C and 3, see the Geosyntec Composite Liner Design and Operating Criteria Report included as Attachment 7. Prior to construction, a minor amendment to the application and registration will be submitted to the TCEQ to request approval of proposed updates of the CBL lateral expansion liner design with site specific geotechnical data.**

## C. Leachate Collection and Removal

Submit design information and description of leachate collection and removal system in accordance with 30 TAC §352.701.

Complete Table IV.C. - Landfill Leachate Collection System

**For Cells 2A, 2B, 2C and 3, see the Geosyntec Composite Liner Design and Operating Criteria Report included as Attachment 7.**

## D. Design of Liner and Leachate Collection and Removal System.

For a new landfill or lateral expansion of a CCR landfill, provide a qualified Texas P.E. certification and technical report that the design of the liner and the leachate collection and removal system meets the requirements of 30 TAC §352.711.

**For Cells 2A, 2B, 2C and 3, see the Geosyntec Composite Liner Design and Operating Criteria Report included as Attachment 7.**

## E. Run-on and Run-off Controls

At time of application, attach pages describing how the facility will comply with the run-on and run-off system plan for an existing, new, or lateral expansion of a CCR landfill information. Provide a qualified Texas P.E. certification and technical report that the run-on and run-off control system plans meet the requirements of 30 TAC §352.811.

**The 2021 Run-on and Run-off Control Plan is included as Attachment 8.**

**F. Inspection for Landfills**

At time of application, attach pages describing how the facility will comply 30 TAC §352.841 and complete Table IV.D. – Inspection Schedule for Landfills. For existing CCR landfills, provide the most recent inspection report. All CCR landfills and any lateral expansions of a CCR landfill must be inspected for any structural weakness, malfunction, deterioration conditions which are disrupting or have the potential to disrupt the operation or safety of the CCR unit, or any other conditions which may cause harm to human health and environment at a frequency specified in 40 CFR §257.84(a) and (b).

In accordance with 40 CFR 257.84 and 30 TAC 352.841, weekly and annual inspections of the CBL are required.

Weekly inspections are conducted to identify any actual or potential structural weakness and other conditions which are disrupting or have the potential to disrupt the operation or safety of the CBL. Weekly inspections are conducted by a qualified person who has attended the TCEQ Dam Safety Training Course and has been trained by the qualified professional engineer conducting the annual inspections. A copy of the weekly inspection form is retained in the facility's operating record.

The CBL is inspected once per calendar year by a qualified professional engineer in the state of Texas, who has attended the TCEQ Dam Safety Training Course. The annual inspection is conducted to verify that the design, construction, operation, and maintenance of the CBL is consistent with recognized and generally accepted good engineering standards. The inspection includes a review of available information regarding the status and condition of the CBL, including files available in the facility's operating record, and a visual inspection of the CBL to identify signs of distress or malfunction of the CBL. The professional engineer prepares a report following each annual inspection that addresses changes in geometry of the structure since the previous annual inspection, the approximate volume of waste contained in the CBL at the time of the inspection, any appearances of an actual or potential structural weakness of the CBL, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CBL, and any other change(s) which may affect the stability or operation of the CBL since the previous annual inspection. Following completion of the annual inspection, the completed annual report and checklist are placed and maintained in the facility's operating record and the CBL's publicly accessible website.

Consistent with 30 TAC §352.841(b), the LCRA will verbally notify the TCEQ within 24 hours and in writing within five (5) days if a deficiency is observed during a weekly or annual inspection that could result in harm to human health, the environment, or has resulted in a release. Additionally, the TCEQ will be notified in writing within 14 days of all other deficiencies following annual inspections that could have the potential to disrupt operation of the CBL. If a waste release or deficiency is found, the LCRA will prepare a written corrective action plan to remedy the release or deficiency as soon as feasible consistent with 40 CFR §257.84(b)(5). Notifications and correction action plans will be placed in the facility's operating record and on the LCRA's publicly accessible website.

The weekly inspection checklist and the 2021 Annual Inspection Report are provided in Attachment 9.

### 23. Geology Summary Report

Submit a summary of the geologic conditions at the facility, including the relation of the geologic condition to each CCR unit. The summary must include enough information and data and include sources and references for the information. Include all groundwater monitoring data required by 40 CFR Part 257, Subpart D, (30 TAC §352.241, §352.601, §352.621, §352.631, and §352.641) and submitted in accordance with 30 TAC §352.4.

**Note:** Previously prepared documents may be submitted but must be supplemented or updated as necessary to provide the requested information (30 TAC §352.241(b)).

**The Geology and Groundwater Monitoring System Report can be found as Attachment 4.**

**Groundwater monitoring data is included in Attachment 11.**

# III. Fugitive Dust Control Plan

### 24. Fugitive Dust Control Plan

A. **Submit a copy of the CCR Fugitive Dust Control Plan** (30 TAC §352.801) (40 CFR §257.80(b)), or the most recently amended plan. The initial plan or subsequent amended plan must be certified by a qualified Texas licensed professional engineer (Texas P.E.) that the plan meets the requirements of 30 TAC Chapter 352.

**The CCR Fugitive Dust Control Plan is included as Attachment 5.**

B. **Submit the most recent Annual CCR Fugitive Dust Control Report** (30 TAC §352.801) (40 CFR §257.80(c)) and include the report information.

**The 2021 Annual CCR Fugitive Dust Control Report is included as Attachment 6.**

# IV. Landfill Criteria

See Instructions and Technical Guidance – No. 30 Coal Combustion Residuals Landfill

### 25. Landfill(s) for CCR Waste

Provide the following information below if there is a landfill; if there is more than one landfill, separate information is required for each landfill.

## A. Landfill Characteristics

Describe the design, installation, construction, and operation of the landfill and submit a completed Table IV.A. – Landfill Characteristics.

Design and Installation
The CBL is registered with the Texas Commission on Environmental Quality (TCEQ) as an on-site nonhazardous industrial waste landfill (TCEQ Registration No. 31575) and an on-site waste management unit (Notice of Waste Registration No. MU013) at the FPP. The CBL currently receives Coal Combustion Residuals (CCR) generated during the operation and maintenance of three coal-fired units at FPP as described Tables I.6.A. and I.6.B.

The CBL consists of existing Cell 1 and Subcell 2D, and proposed Cells 2A, 2B, 2C and 3. The design of Cell 1 was reviewed and approved by TCEQ in a letter dated January 18, 1988, and Cell 1 was constructed in 1988. A clay perimeter berm was installed around the north, west, and east sides of Cell 1, and a clay cell separation berm was constructed along the south boundary of the cell. The floor of the cell was constructed at natural grade with minimal excavation. The upper 12 in. of the clay was excavated and recompacted to achieve a hydraulic conductivity of $1x10^{-7}$ centimeter/second (cm/sec) in accordance with TCEQ Technical Guidance 3 (12/19/83). The hydraulic conductivity of the underlying clay at a depth from approximately 0- 25 ft below grade was documented to be in the range of $1.3 \times 10^{-7}$ to $1.8 \times 10^{-9}$. (Fayette Power Project, Combustion By-product Disposal Area Geotechnical Investigation, May 1992, Jones and Neuse, Inc.). In 1992, the north portion of Cell 1 was closed with a final cover system consisting of a 2-ft thick compacted clay layer (with hydraulic conductivity no greater than $1 \times 10^{-7}$ cm/s) overlain by 1 ft of general fill and at least 1 ft of topsoil. In 2013 LCRA submitted a request to raise the maximum elevation of the CBL from approximately 430 ft msl to 470 ft msl. The request was approved by TCEQ by letter dated June 12, 2013. With this revision, the maximum elevation of CCRs placed in the landfill for final disposal will be 465.5 or 467 ft msl, depending on the thickness of the selected final cover, with a final elevation of 470 ft. msl.

By letter dated July 14, 2012, TCEQ approved the design and construction of Subcell 2D. Subcell 2D was constructed with a 3-ft compacted clay liner with a hydraulic conductivity less than $1 \times 10^{-7}$ cm/sec, meeting the recommendations of TCEQ Technical Guidance No.3 (2015). Cell 1 and Subcell 2D are existing CCR landfill areas under 40 CFR §257.53. If the remainder of Cell 2 and Cell 3 are constructed, the remainder of Cell 2 and Cell 3 will be constructed with a liner system that meets the requirements of 40 CFR §257.70(b) and (d), which includes a leachate collection system and underlying geomembrane/compacted clay composite liner. See Attachment 7. Prior to construction, a minor amendment to the application and registration will be submitted to the TCEQ to request approval of proposed updates of the CBL lateral expansion liner design with site specific geotechnical data.

Operation
LCRA contracts with a third party for the marketing of CCRs for beneficial use and for a portion of CBL operation. Under the terms of the contract, LCRA oversees the contractor's activities. Currently, CCRs are being harvested from Cell 1 for sale in beneficial use markets and the volume of material in Cell 1 is being reduced. Subcell 2D is being used as a waste storage area for CCRs /product preparation area prior to sale for beneficial use.

Since the CBL was constructed at grade and will reach a maximum height of 470 ft, waste is not deposited in conventional landfill trenches.
During active marketing of CCRs, the material is sprayed with water to minimize dust in accordance with the CCR Fugitive Dust Control Plan. When the material is sprayed, it forms a thin crust, making the need for interim cover unnecessary.

When waste is being placed for final disposal, the material will be graded to promote drainage (i.e., 2%) and interim waste grades no steeper than 3.5H:1V. Fly ash and synthetic gypsum will be spread in 12 in. lifts and compacted. All compaction will be completed the same day waste is placed and will be to at least 90% of the Standard Proctor maximum dry density. Results of compaction tests will be maintained on-site. For bottom ash, compaction will consist of tracking with a CAT D6 dozer, and no compaction testing will be required.

The third-party marketing contractor is responsible for implementing the procedures contained in the Fugitive Dust Control Plan (see Attachment 5) and the Run-on and Run-off Control Plan (see Attachment 8).

## B. Liner Design

1. For existing landfills, provide attachments describing how the facility will comply with 30 TAC 352, Subchapter F (Design Criteria).

   **Both Cell 1 and Subcell 2D are existing units and therefore the liner design criteria in 30 TAC 352, Subchapter F are not applicable.**
   **For Cells 2A, 2B, 2C and 3, see the Geosyntec Composite Liner Design and Operating Criteria Report included as Attachment 7. Prior to construction, a minor amendment to the application and registration will be submitted to the TCEQ to request approval of proposed updates of the CBL lateral expansion liner design with site specific geotechnical data.**

2. For new landfills or lateral expansions of existing landfills, submit pages describing how the facility will comply with 30 TAC §352.261 and 30 TAC §352.701.

   **For Cells 2A, 2B, 2C and 3, see the Geosyntec Composite Liner Design and Operating Criteria Report included as Attachment 7. Prior to construction, a minor amendment to the application and registration will be submitted to the TCEQ to request approval of proposed updates of the CBL lateral expansion liner design with site specific geotechnical data.**

3. Complete Table IV.B. - Landfill Liner System and specify the type of liner used for the landfill.

4. Provide attachments describing the design, installation, and operation of the liner and leak detection system. The description must demonstrate that the liner and leak detection system will prevent discharge to the land, groundwater, and surface water. Submit a quality assurance project plan (QAPP) to ensure that each analysis is performed appropriately.

   **For Cells 2A, 2B, 2C and 3, see the Geosyntec Composite Liner Design and Operating Criteria Report included as Attachment 7. Prior to construction, a minor amendment to the application and registration will be submitted to the TCEQ to request approval of proposed updates of the CBL lateral expansion liner design with site specific geotechnical data.**

## C. Leachate Collection and Removal

Submit design information and description of leachate collection and removal system in accordance with 30 TAC §352.701.

Complete Table IV.C. - Landfill Leachate Collection System

**For Cells 2A, 2B, 2C and 3, see the Geosyntec Composite Liner Design and Operating Criteria Report included as Attachment 7.**

## D. Design of Liner and Leachate Collection and Removal System.

For a new landfill or lateral expansion of a CCR landfill, provide a qualified Texas P.E. certification and technical report that the design of the liner and the leachate collection and removal system meets the requirements of 30 TAC §352.711.

**For Cells 2A, 2B, 2C and 3, see the Geosyntec Composite Liner Design and Operating Criteria Report included as Attachment 7.**

## E. Run-on and Run-off Controls

At time of application, attach pages describing how the facility will comply with the run-on and run-off system plan for an existing, new, or lateral expansion of a CCR landfill information. Provide a qualified Texas P.E. certification and technical report that the run-on and run-off control system plans meet the requirements of 30 TAC §352.811.

**The 2021 Run-on and Run-off Control Plan is included as Attachment 8.**

**F. Inspection for Landfills**

At time of application, attach pages describing how the facility will comply 30 TAC §352.841 and complete Table IV.D. – Inspection Schedule for Landfills. For existing CCR landfills, provide the most recent inspection report. All CCR landfills and any lateral expansions of a CCR landfill must be inspected for any structural weakness, malfunction, deterioration conditions which are disrupting or have the potential to disrupt the operation or safety of the CCR unit, or any other conditions which may cause harm to human health and environment at a frequency specified in 40 CFR §257.84(a) and (b).

In accordance with 40 CFR 257.84 and 30 TAC 352.841, weekly and annual inspections of the CBL are required.

Weekly inspections are conducted to identify any actual or potential structural weakness and other conditions which are disrupting or have the potential to disrupt the operation or safety of the CBL. Weekly inspections are conducted by a qualified person who has attended the TCEQ Dam Safety Training Course and has been trained by the qualified professional engineer conducting the annual inspections. A copy of the weekly inspection form is retained in the facility's operating record.

The CBL is inspected once per calendar year by a qualified professional engineer in the state of Texas, who has attended the TCEQ Dam Safety Training Course. The annual inspection is conducted to verify that the design, construction, operation, and maintenance of the CBL is consistent with recognized and generally accepted good engineering standards. The inspection includes a review of available information regarding the status and condition of the CBL, including files available in the facility's operating record, and a visual inspection of the CBL to identify signs of distress or malfunction of the CBL. The professional engineer prepares a report following each annual inspection that addresses changes in geometry of the structure since the previous annual inspection, the approximate volume of waste contained in the CBL at the time of the inspection, any appearances of an actual or potential structural weakness of the CBL, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CBL, and any other change(s) which may affect the stability or operation of the CBL since the previous annual inspection. Following completion of the annual inspection, the completed annual report and checklist are placed and maintained in the facility's operating record and the CBL's publicly accessible website.

Consistent with 30 TAC §352.841(b), the LCRA will verbally notify the TCEQ within 24 hours and in writing within five (5) days if a deficiency is observed during a weekly or annual inspection that could result in harm to human health, the environment, or has resulted in a release. Additionally, the TCEQ will be notified in writing within 14 days of all other deficiencies following annual inspections that could have the potential to disrupt operation of the CBL. If a waste release or deficiency is found, the LCRA will prepare a written corrective action plan to remedy the release or deficiency as soon as feasible consistent with 40 CFR §257.84(b)(5). Notifications and correction action plans will be placed in the facility's operating record and on the LCRA's publicly accessible website.

The weekly inspection checklist and the 2021 Annual Inspection Report are provided in Attachment 9.

**Section VI.27 – Redline/Strikeout and Revised**
**Attachment 4 Redline/Strikeout and Revised Pages**
**New Attachment 4 Figures 2 and 3**

# VI. Groundwater Monitoring and Corrective Action (30 TAC 352, Subchapter H)

See Instructions and Technical Guidance – No. 32 Coal Combustion Residuals Groundwater Monitoring and Corrective Action

## 27. Groundwater Monitoring System

**A.** Complete Table VI.A. - Unit Groundwater Detection Monitoring System.

**B.** Provide a map showing location of wells, groundwater elevations, and groundwater flow direction.

**C.** Provide attachments describing how the facility will comply with the requirements in 30 TAC §352.911 and provide a certification by a qualified Texas P.E or qualified Texas P.G. that the groundwater monitoring system design and construction meet the requirements of 30 TAC Chapter 352.

**D.** Provide a figure showing the geologic units and fill materials overlying the uppermost aquifer, materials comprising the uppermost aquifer, and materials comprising the confining unit defining the lower boundary of the uppermost aquifer, including, but not limited to, thicknesses, stratigraphy, lithology, hydraulic conductivities, porosities and effective porosities.

**E.** For a multiunit groundwater monitoring system, demonstrate that the groundwater monitoring system will be equally as capable of detecting monitored constituents at the waste boundary of the CCR unit as the individual groundwater monitoring system for each CCR unit by providing at minimum the following information: Not Applicable

1. Number, spacing, and orientation of each CCR unit;
2. Hydrogeologic setting; and
3. Site history.

**F.** Has there been any sampling concentrations of one or more constituents listed in Appendix IV detected at statistically significant levels above the groundwater protection standard (GWPS)? ☐ Yes ☒ No

**G.** Provide information on how monitoring wells have been constructed and cased in a manner that maintains the integrity of the monitoring well borehole and to prevent contamination of samples and the groundwater.

**The Geology and Groundwater Monitoring System Report can be found as Attachment 4.**
**Should lateral expansion of the landfill be necessary in the future, the groundwater monitoring network will be adjusted. A drawing showing the proposed groundwater monitoring network at the future waste boundary is included as Attachment 4 Figure 3. If applicable, a minor amendment to the application and registration will be submitted for review and approval of any updates to the current or proposed CBL lateral expansion groundwater monitoring system prior to construction.**

## 28. Groundwater Monitoring Sampling and Analysis Program

Provide a sampling and analysis plan that includes procedures and techniques; sampling and analytical methods that are appropriate for groundwater sampling; and that address the requirements of 30 TAC §352.931 and 40 CFR §257.93. Provide a P.E or P.G. certification that describes the statistical method selected to evaluate the groundwater monitoring data and certifies that the selected statistical method is appropriate for evaluating the groundwater monitoring data for the CCR management area. Refer to TG-32 for information and guidance.

The CCR Groundwater Sampling and Analysis Plan is included as Attachment 10.

# VI. Groundwater Monitoring and Corrective Action (30 TAC 352, Subchapter H)

See Instructions and Technical Guidance – No. 32 Coal Combustion Residuals Groundwater Monitoring and Corrective Action

## 27. Groundwater Monitoring System

**A.** Complete Table VI.A. - Unit Groundwater Detection Monitoring System.

**B.** Provide a map showing location of wells, groundwater elevations, and groundwater flow direction.

**C.** Provide attachments describing how the facility will comply with the requirements in 30 TAC §352.911 and provide a certification by a qualified Texas P.E or qualified Texas P.G. that the groundwater monitoring system design and construction meet the requirements of 30 TAC Chapter 352.

**D.** Provide a figure showing the geologic units and fill materials overlying the uppermost aquifer, materials comprising the uppermost aquifer, and materials comprising the confining unit defining the lower boundary of the uppermost aquifer, including, but not limited to, thicknesses, stratigraphy, lithology, hydraulic conductivities, porosities and effective porosities.

**E.** For a multiunit groundwater monitoring system, demonstrate that the groundwater monitoring system will be equally as capable of detecting monitored constituents at the waste boundary of the CCR unit as the individual groundwater monitoring system for each CCR unit by providing at minimum the following information: Not Applicable

1. Number, spacing, and orientation of each CCR unit;
2. Hydrogeologic setting; and
3. Site history.

**F.** Has there been any sampling concentrations of one or more constituents listed in Appendix IV detected at statistically significant levels above the groundwater protection standard (GWPS)? ☐ Yes ☒ No

**G.** Provide information on how monitoring wells have been constructed and cased in a manner that maintains the integrity of the monitoring well borehole and to prevent contamination of samples and the groundwater.

**The Geology and Groundwater Monitoring System Report can be found as Attachment 4. Should lateral expansion of the landfill be necessary in the future, the groundwater monitoring network will be adjusted. A drawing showing the proposed groundwater monitoring network at the future waste boundary is included as Attachment 4 Figure 3. If applicable, a minor amendment to the application and registration will be submitted for review and approval of any updates to the current or proposed CBL lateral expansion groundwater monitoring system prior to construction.**

## 28. Groundwater Monitoring Sampling and Analysis Program

Provide a sampling and analysis plan that includes procedures and techniques; sampling and analytical methods that are appropriate for groundwater sampling; and that address the requirements of 30 TAC §352.931 and 40 CFR §257.93. Provide a P.E or P.G. certification that describes the statistical method selected to evaluate the groundwater monitoring data and certifies that the selected statistical method is appropriate for evaluating the groundwater monitoring data for the CCR management area. Refer to TG-32 for information and guidance.

The CCR Groundwater Sampling and Analysis Plan is included as Attachment 10.

**LOWER COLORADO RIVER AUTHORITY**

~~**Dallas, Texas**~~

# GEOLOGY AND GROUNDWATER MONITORING SYSTEM SUMMARY REPORT
# COMBUSTION BYPRODUCTS LANDFILL
# FAYETTE POWER PROJECT
# LA GRANGE, TEXAS

January~~,~~ 202~~1~~2~~1~~

Revised January 2024


*1/12/2024*

**Bullock, Bennett & Associates, LLC**
**Engineering and Geoscience**
**Registrations: Engineering F-8542, Geoscience 50127**
**www.bbaengineering.com**

# Table of Contents



## Figures



## Appendices

the Intermediate Sand. As such, LCRA is using Intrawell evaluation to determine the presence or absence of a Statistically Significant Increase (SSI).

- Each well is constructed as follows:
  - Two-inch diameter polyvinyl chloride (PVC) riser and screen, fitted with PVC end cap at the base.
  - Screened intervals (0.010-inch mill-slotted casing) are placed to span the saturated portion of the Intermediate Sand GWBU.
  - Annular material in the screened interval is a silica sand filter pack. The filter pack interval is extended two to six feet above the screened interval.
  - Annular material above the filter pack is bentonite, placed to a level approximately two feet below grade.
  - The surface completion consists of a 4-ft by 4-ft concrete well pad with steel protective casing. The concrete placement sits above the top of the bentonite seal.

  Well construction diagrams are provided in Appendix K. The same general design will be used to construct any new or replacement wells added to the monitoring program (see Figure 2). Should lateral expansion of the landfill be necessary in the future, the groundwater monitoring network will be adjusted. A drawing showing the proposed groundwater monitoring network at the future waste boundary is included as Figure 3.

- LCRA has obtained the required GWMS certifications from a Professional Engineer and a Professional Geoscientist as appropriate. Copies of these certifications are provided in Appendix M.

- LCRA continues to comply with the recordkeeping requirements specified in §257.106(h).

- **40 CFR §257.93:** LCRA has prepared and follows a Groundwater Monitoring Sampling and Analysis plan. The plan is included in each Annual Groundwater Monitoring and Corrective Action report, which is posted on the LCRA's CCR Compliance website for public review and submitted to the TCEQ in accordance with 30 TAC §352.902
- **40 CFR §257.94:** LCRA is presently conducting the CBL Detection Monitoring Program. The Detection Monitoring Program includes the gauging of all GWMS wells for water levels, and the collection and analysis of groundwater samples for Appendix III analytes. Groundwater analytical data is subsequently evaluated for data usability, and then is evaluated under the Intrawell Control Charts procedure described in 40 C.F.R. §257.93 (f)(4). In the event an initial SSI is identified, LCRA conducts an ASD as needed, to further evaluate the SSI to determine if corrective measures and implementation of an Assessment Monitoring Program are required.
- **40 CFR §257.95 - 40 CFR §257.98:** Not Applicable. LCRA continues to evaluate CBL groundwater conditions under the Detection Monitoring Program.

Under the GWMP, groundwater potentiometric surface maps are generated for each monitoring event, and groundwater flow direction, gradient, and velocity are calculated. A statistical analysis of the Detection Monitoring analytical data is conducted to evaluate for the presence of a Statistically Significant Increase (SSI) in analyte concentrations. When indicated, preliminary SSIs are re-evaluated by resampling of wells as needed, and/or by conducting an Alternate Source

**LOWER COLORADO RIVER AUTHORITY**

# GEOLOGY AND GROUNDWATER MONITORING SYSTEM SUMMARY REPORT
## COMBUSTION BYPRODUCTS LANDFILL
## FAYETTE POWER PROJECT
## LA GRANGE, TEXAS

January 2022
Revised January 2024


*1/12/2024*

**Bullock, Bennett & Associates, LLC**
**Engineering and Geoscience**
**Registrations: Engineering F-8542, Geoscience 50127**
**www.bbaengineering.com**

# Table of Contents



## Figures



## Appendices

the Intermediate Sand. As such, LCRA is using Intrawell evaluation to determine the presence or absence of a Statistically Significant Increase (SSI).

- Each well is constructed as follows:
  - Two-inch diameter polyvinyl chloride (PVC) riser and screen, fitted with PVC end cap at the base.
  - Screened intervals (0.010-inch mill-slotted casing) are placed to span the saturated portion of the Intermediate Sand GWBU.
  - Annular material in the screened interval is a silica sand filter pack. The filter pack interval is extended two to six feet above the screened interval.
  - Annular material above the filter pack is bentonite, placed to a level approximately two feet below grade.
  - The surface completion consists of a 4-ft by 4-ft concrete well pad with steel protective casing. The concrete placement sits above the top of the bentonite seal.

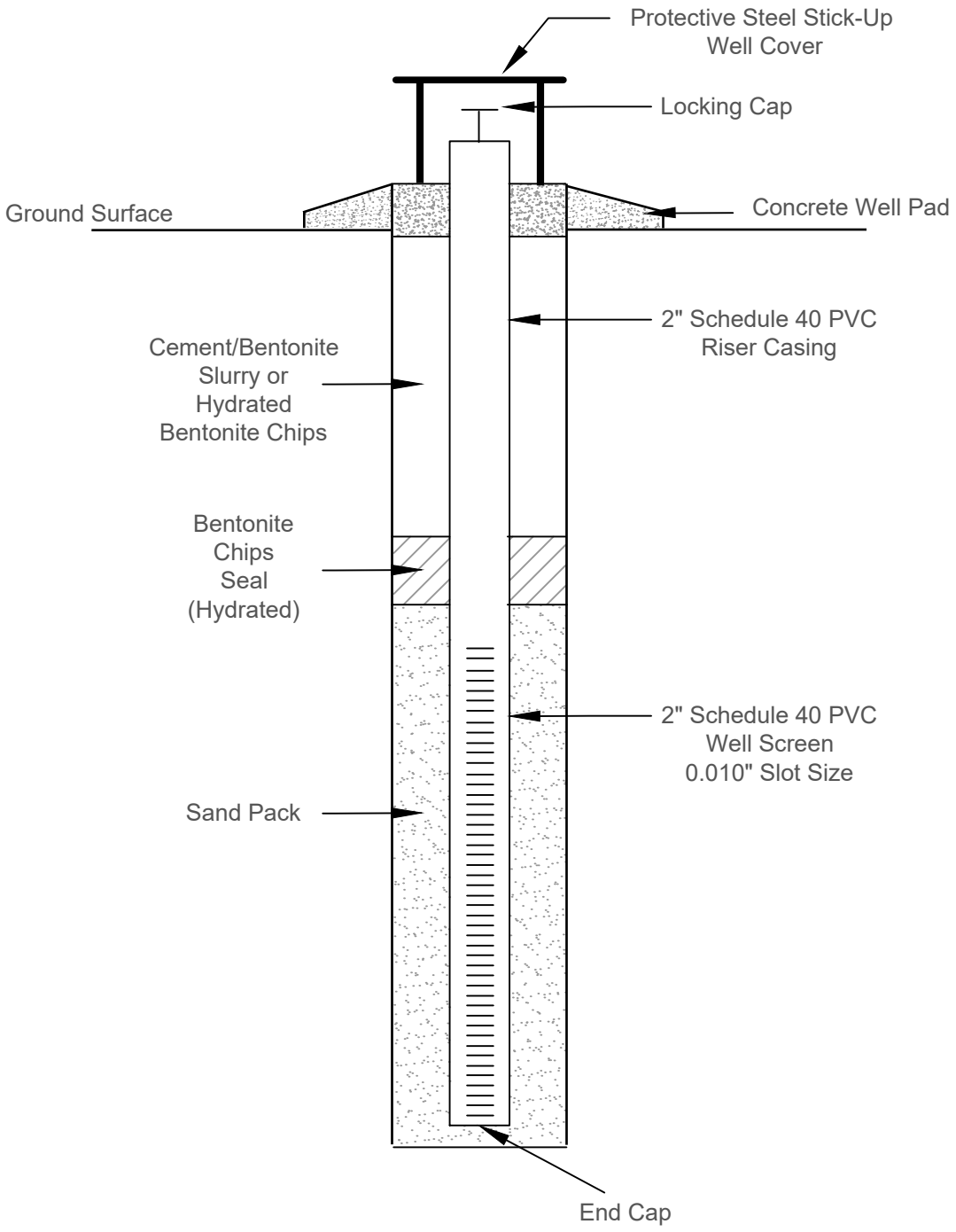
  Well construction diagrams are provided in Appendix K. The same general design will be used to construct any new or replacement wells added to the monitoring program (see Figure 2). Should lateral expansion of the landfill be necessary in the future, the groundwater monitoring network will be adjusted. A drawing showing the proposed groundwater monitoring network at the future waste boundary is included as Figure 3.

- LCRA has obtained the required GWMS certifications from a Professional Engineer and a Professional Geoscientist as appropriate. Copies of these certifications are provided in Appendix M.

- LCRA continues to comply with the recordkeeping requirements specified in §257.106(h).

- **40 CFR §257.93:** LCRA has prepared and follows a Groundwater Monitoring Sampling and Analysis plan. The plan is included in each Annual Groundwater Monitoring and Corrective Action report, which is posted on the LCRA's CCR Compliance website for public review and submitted to the TCEQ in accordance with 30 TAC §352.902
- **40 CFR §257.94:** LCRA is presently conducting the CBL Detection Monitoring Program. The Detection Monitoring Program includes the gauging of all GWMS wells for water levels, and the collection and analysis of groundwater samples for Appendix III analytes. Groundwater analytical data is subsequently evaluated for data usability, and then is evaluated under the Intrawell Control Charts procedure described in 40 C.F.R. §257.93 (f) (4). In the event an initial SSI is identified, LCRA conducts an ASD as needed, to further evaluate the SSI to determine if corrective measures and implementation of an Assessment Monitoring Program are required.
- **40 CFR §257.95 - 40 CFR §257.98:** Not Applicable. LCRA continues to evaluate CBL groundwater conditions under the Detection Monitoring Program.

Under the GWMP, groundwater potentiometric surface maps are generated for each monitoring event, and groundwater flow direction, gradient, and velocity are calculated. A statistical analysis of the Detection Monitoring analytical data is conducted to evaluate for the presence of a Statistically Significant Increase (SSI) in analyte concentrations. When indicated, preliminary SSIs are re-evaluated by resampling of wells as needed, and/or by conducting an Alternate Source

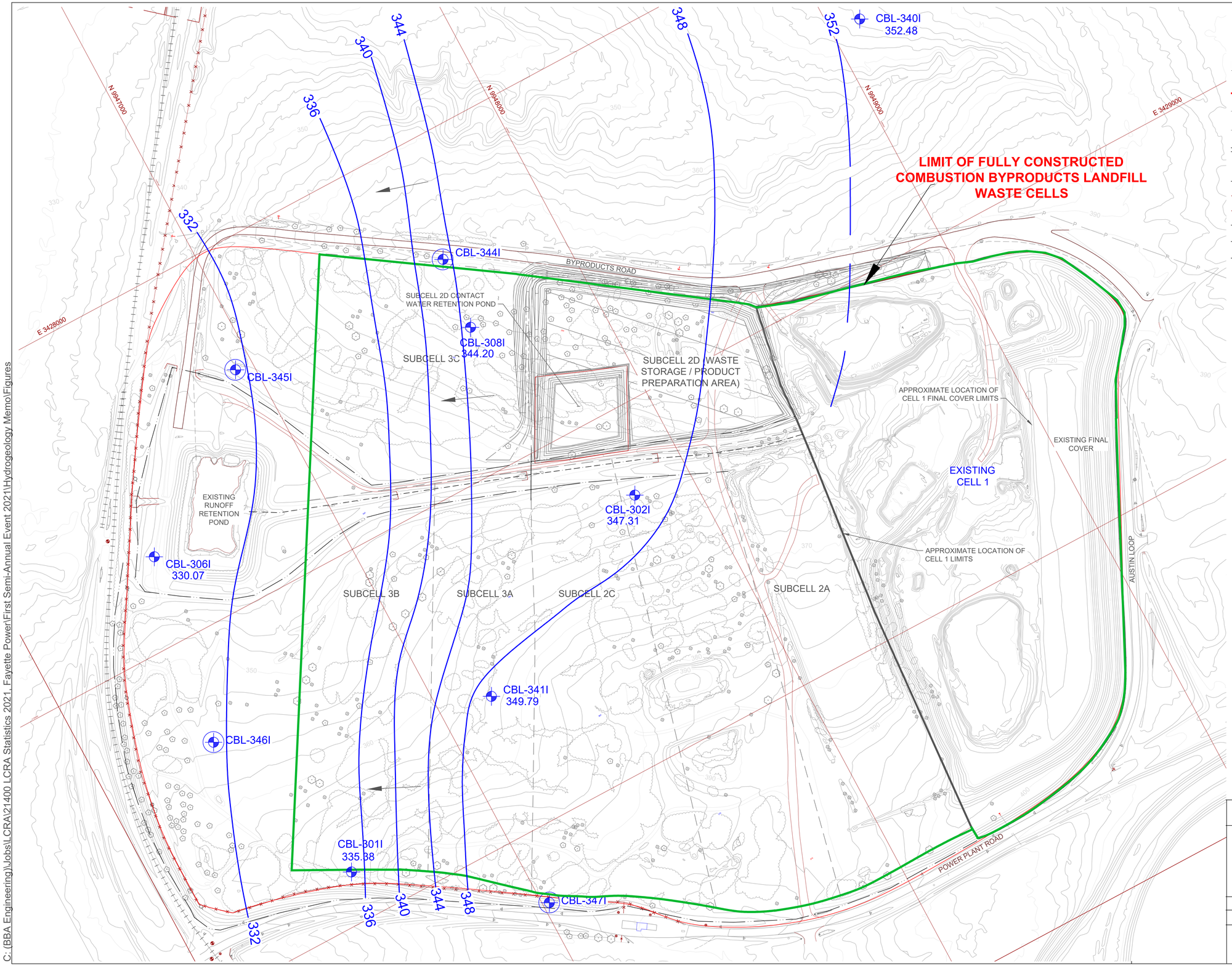



Not to Scale

FIGURE 2
TYPICAL MONITORING
WELL COMPLETION DIAGRAM

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

C:\BBA Engineering\Jobs\LCRA\21400 LCRA Statistics 2021, Fayette Power\First Semi-Annual Event 2021\Hydrogeology Memo\Figures




## LEGEND

- CBL UNIT BOUNDARY
- EXISTING GROUND ELEVATION (FT,MSL) (NOTES 1,2)
- EXISTING TOP OF CLAY LINER ELEVATION (FT,MSL) (NOTE 2)
- EXISTING ROAD
- EXISTING BUILDING
- EXISTING RAILROAD
- COORDINATE GRID (NOTE 2)
- EXISTING FENCE
- PROPOSED PHASE BOUNDARY
- PROPOSED LIMIT OF WASTE
- POWER LINE
- EXISTING CBL GROUNDWATER MONITORING WELL WITH POTENTIOMETRIC SURFACE ELEVATION INDICATED IN FEET ABOVE NAVD 1988.
- POTENTIOMETRIC SURFACE CONTOUR LINE (JULY 2023)
- INFERRED GROUNDWATER FLOW DIRECTION
- PROPOSED ADDITIONAL CBL MONITORING WELL LOCATION FOR FULLY-CONSTRUCTED COMBUSTION BYPRODUCTS LANDFILL
- LIMIT OF WASTE DISPOSAL CELLS

NOTES:

1. THE EXISTING CONTOUR BASE MAP SHOWN ON THIS DRAWING WAS COMPILED USING AN AERIAL SURVEY BASED ON PHOTOGRAPHY PERFORMED ON 23 OCTOBER 2013 BY SURDEX CORPORATION AND LIDAR DATA PUBLISHED DECEMBER 2008 AND PROVIDED BY LCRA SURVEYING, MAPPING, AND GIS.
2. ELEVATIONS ARE IN FEET (FT) AS DEFINED BY THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988. STATE PLANE COORDINATE GRID CORRESPONDS TO TEXAS STATE PLANE COORDINATE SYSTEM, TEXAS CENTRAL ZONE (4203), NORTH AMERICAN DATUM 83 (NAD-83) 1983.
3. EXISTING MONITORING WELLS CBL-302I, CBL-308I, AND CBL-341L WILL BE PLUGGED AND ABANDONED AS NECESSARY TO ACCOMMODATE CBL EXPANSION.

N

0 140 280
SCALE IN FEET

**LOWER COLORADO RIVER AUTHORITY**

# Figure 3
# Proposed Monitoring Well Network for Fully Constructed Combustion Byproducts Landfill

| | | |
|---|---|---|
| PROJECT: 22482-23 | BY: SLB | REVISIONS |
| DATE: 1/10/2024 | CHECKED: CCM | |


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

**Section VII.31 – Redline/Strikeout and Revised**

**G.** Date assessment of corrective measures will be initiated if ASD is not accepted?

**H.** Complete **Table VI.D-2. - Groundwater Detection Monitoring Parameters**

**Note**: Refer to TG-32 regarding establishing a GWPS for each constituent in Appendix IV detected in the groundwater and attach as table.

**I.** Have you completed the assessment of corrective measures? ☐ Yes ☐ No
If "Yes", date assessment of corrective measures was completed:
If "No", date assessment of corrective measures will be completed:
Expected date of submittal of amendment (see note below):
Provide completed assessment of corrected measures materials.

**Note**: Within **30 days** of completing the assessment of corrective measures, and before remedy implementation, the owner or operator shall submit an application for amendment to the registration. In some circumstances, the assessment of corrective measures and selected remedy may be approved as part of the initial application for the CCR unit registration.

**J.** Have you selected a remedy? ☐ Yes ☐ No

Provide public meeting documentation under 30 TAC §352.961 and a report under 30 TAC §352.971 and 40 CFR §257.97.

# VII. Closure and Post-Closure Care

See Instructions and Technical Guidance

Submit a full closure plan and post-closure plan and all information describing how the owner or operator will comply with 30 TAC 352, Subchapter J and 40 CFR §§257.100 - 257.104. The owner of property on which an existing disposal facility is located, following the closure of a unit, must also submit documentation that a notation has been placed in the deed to the facility that will in perpetuity notify any potential purchasers of the property that the land has been used to manage CCR wastes and its use is restricted (30 TAC §352.1221 and 40 CFR §257.102(i)). For CCR units, closed after October 19, 2015, that were closed before submission of the application, the applicant should submit documentation to show that notices required under 30 TAC 352, Subchapter K and 40 CFR §257.105 or §257.106 have been filed.

## 31. Closure Plan

This section applies to the owners and operators of all CCR units required to be registered. The applicant must close the facility in a manner that minimizes need for further maintenance and controls, or eliminates, to the extent necessary to protect human health and the environment, the post-closure release of CCR waste, chemical constituents of concern, leachate, contaminated rainfall, or waste decomposition products to the groundwater, surface waters, or to the atmosphere.

The type of unit to be closed can determine the level of detail sufficient for a closure plan. CCR units which have been certified closed after October 19, 2015, must provide documentation to demonstrate compliance with state and federal regulations.

For each unit to be registered, complete Table VII.A.1. - Unit Closure and list the CCR Unit components to be decontaminated, possible methods of decontamination, and possible methods of disposal of wastes and waste residues generated during unit closure. All ancillary components must be decontaminated, and the generated waste disposed of appropriately.

Information about CCR units closed or to be closed under alternative closure requirements must be provided in Table VII.A.2. - **CCR Units Under Alternative Closure Notification**.

Guidance on design of a closure cap and final cover for non-hazardous industrial solid wastes landfills is provided in EPA publication 530-SW-85-014, TCEQ Technical Guidance No. 3 and TCEQ publication, RG-534, "Guidance for Liner Construction and Testing for a Municipal Solid Waste Landfill".

The Closure and Post Closure Care plan are included as Attachment 12. **If any deviation from the final cover system as described in Attachment 12 is planned, a minor amendment to the application and registration will be submitted to the TCEQ prior to construction. The amendment will request approval of proposed updates of the final cover settlement analysis, final cover materials testing data, final cover design, and final slope stability analysis with site specific geotechnical data.**

### 32. Post-Closure Care Plan

Provide a post-closure care plan that complies with the requirements of 30 TAC §352.1241. Post-closure care of each CCR unit must continue for at least 30 years after the date of completing closure of the unit and must consist of monitoring and reporting of the groundwater monitoring systems, in addition to the maintenance and monitoring of CCR unit. Continuation of certain security requirements may be necessary after the date of closure. Post-closure use of property on or in which waste remains after closure must never be allowed to disrupt the integrity of the containment system. In addition, submit the following information:

- The name, address, and phone number of the person or office to contact about the CCR unit during the post-closure period; and
- A discussion of the future use of the land associated with each unit.

Landfills and surface impoundments which have been certified closed after October 19, 2015, must be included in post-closure care plans, unless they have been determined to have been closed by waste removal equivalent to the closure standards in 30 TAC §352.1221 and 40 CFR §257.102 or 30 TAC §352.1231 and 40 CFR §257.103. If such a demonstration has been made pursuant to 40 CFR §257.102 or §257.103, but an equivalency determination has not been made, please submit a copy of the demonstration documentation. If an equivalency determination has been made, applicant should submit a copy of this determination.

The Closure and Port Closure Care plan are included as Attachment 12.

## VIII. Financial Assurance

### 33. Post-Closure Care Cost Estimate

Financial assurance for post-closure care (30 TAC §352.1101) applies to owners or operators of all CCR units, except CCR units from which the owner or operator intends to remove wastes and perform clean closure. Provide a written cost estimate in current dollars of the total cost of the 30-year (or longer, if applicable under 30 TAC §352.1101(d)) post-closure care period to perform post-closure care requirements as prescribed in 30 TAC §352.1241. The cost estimate must be based on the costs of hiring a third party to conduct post-closure care maintenance.

**G.** Date assessment of corrective measures will be initiated if ASD is not accepted?

**H.** Complete **Table VI.D-2. - Groundwater Detection Monitoring Parameters**

**Note**: Refer to TG-32 regarding establishing a GWPS for each constituent in Appendix IV detected in the groundwater and attach as table.

**I.** Have you completed the assessment of corrective measures? ☐ Yes ☐ No
If "Yes", date assessment of corrective measures was completed:
If "No", date assessment of corrective measures will be completed:
Expected date of submittal of amendment (see note below):
Provide completed assessment of corrected measures materials.

**Note**: Within **30 days** of completing the assessment of corrective measures, and before remedy implementation, the owner or operator shall submit an application for amendment to the registration. In some circumstances, the assessment of corrective measures and selected remedy may be approved as part of the initial application for the CCR unit registration.

**J.** Have you selected a remedy? ☐ Yes ☐ No

Provide public meeting documentation under 30 TAC §352.961 and a report under 30 TAC §352.971 and 40 CFR §257.97.

# VII. Closure and Post-Closure Care

See Instructions and Technical Guidance

Submit a full closure plan and post-closure plan and all information describing how the owner or operator will comply with 30 TAC 352, Subchapter J and 40 CFR §§257.100 - 257.104. The owner of property on which an existing disposal facility is located, following the closure of a unit, must also submit documentation that a notation has been placed in the deed to the facility that will in perpetuity notify any potential purchasers of the property that the land has been used to manage CCR wastes and its use is restricted (30 TAC §352.1221 and 40 CFR §257.102(i)). For CCR units, closed after October 19, 2015, that were closed before submission of the application, the applicant should submit documentation to show that notices required under 30 TAC 352, Subchapter K and 40 CFR §257.105 or §257.106 have been filed.

## 31. Closure Plan

This section applies to the owners and operators of all CCR units required to be registered. The applicant must close the facility in a manner that minimizes need for further maintenance and controls, or eliminates, to the extent necessary to protect human health and the environment, the post-closure release of CCR waste, chemical constituents of concern, leachate, contaminated rainfall, or waste decomposition products to the groundwater, surface waters, or to the atmosphere.

The type of unit to be closed can determine the level of detail sufficient for a closure plan. CCR units which have been certified closed after October 19, 2015, must provide documentation to demonstrate compliance with state and federal regulations.

For each unit to be registered, complete Table VII.A.1. - Unit Closure and list the CCR Unit components to be decontaminated, possible methods of decontamination, and possible methods of disposal of wastes and waste residues generated during unit closure. All ancillary components must be decontaminated, and the generated waste disposed of appropriately.

Information about CCR units closed or to be closed under alternative closure requirements must be provided in Table VII.A.2. - **CCR Units Under Alternative Closure Notification**.

Guidance on design of a closure cap and final cover for non-hazardous industrial solid wastes landfills is provided in EPA publication 530-SW-85-014, TCEQ Technical Guidance No. 3 and TCEQ publication, RG-534, "Guidance for Liner Construction and Testing for a Municipal Solid Waste Landfill".

The Closure and Post Closure Care plan are included as Attachment 12. **If any deviation from the final cover system as described in Attachment 12 is planned, a minor amendment to the application and registration will be submitted to the TCEQ prior to construction. The amendment will request approval of proposed updates of the final cover settlement analysis, final cover materials testing data, final cover design, and final slope stability analysis with site specific geotechnical data.**

### 32. Post-Closure Care Plan

Provide a post-closure care plan that complies with the requirements of 30 TAC §352.1241. Post-closure care of each CCR unit must continue for at least 30 years after the date of completing closure of the unit and must consist of monitoring and reporting of the groundwater monitoring systems, in addition to the maintenance and monitoring of CCR unit. Continuation of certain security requirements may be necessary after the date of closure. Post-closure use of property on or in which waste remains after closure must never be allowed to disrupt the integrity of the containment system. In addition, submit the following information:

- The name, address, and phone number of the person or office to contact about the CCR unit during the post-closure period; and
- A discussion of the future use of the land associated with each unit.

Landfills and surface impoundments which have been certified closed after October 19, 2015, must be included in post-closure care plans, unless they have been determined to have been closed by waste removal equivalent to the closure standards in 30 TAC §352.1221 and 40 CFR §257.102 or 30 TAC §352.1231 and 40 CFR §257.103. If such a demonstration has been made pursuant to 40 CFR §257.102 or §257.103, but an equivalency determination has not been made, please submit a copy of the demonstration documentation. If an equivalency determination has been made, applicant should submit a copy of this determination.

The Closure and Port Closure Care plan are included as Attachment 12.

## VIII. Financial Assurance

### 33. Post-Closure Care Cost Estimate

Financial assurance for post-closure care (30 TAC §352.1101) applies to owners or operators of all CCR units, except CCR units from which the owner or operator intends to remove wastes and perform clean closure. Provide a written cost estimate in current dollars of the total cost of the 30-year (or longer, if applicable under 30 TAC §352.1101(d)) post-closure care period to perform post-closure care requirements as prescribed in 30 TAC §352.1241. The cost estimate must be based on the costs of hiring a third party to conduct post-closure care maintenance.