

2022 Annual Landfill Inspection Report

CCR Landfill

Flint Creek Plant

Southwestern Electric Power Company

Gentry, AK

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Prepared for: Southwestern Electric Power Company – Flint Creek Plant

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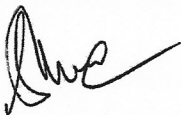
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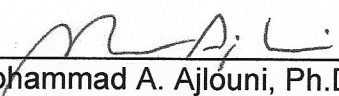
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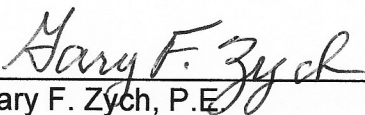
CCR Landfill

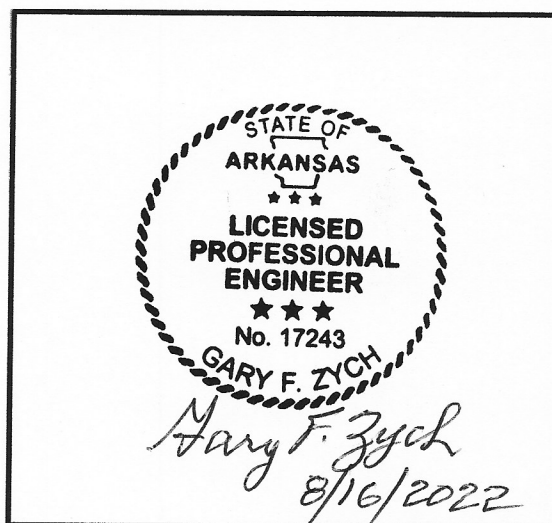
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I certify to the best of my knowledge, information, and belief that the information contained in this report meets the requirements of 40 CFR § 257.84(b).

Table of Contents.....3

1.0 INTRODUCTION.....4

2.0 DESCRIPTION OF LANDFILL4

3.0 REVIEW OF AVAILABLE INFORMATION.....5

4.0 INSPECTION.....5

 4.1 Changes in Geometry since Last Inspection5

 4.2 Volume5

 4.3 Definitions of Observations and Deficiencies6

 4.4 Visual Inspection7

 4.5 Changes that Effect Stability or Operation10

5.0 SUMMARY OF FINDINGS10

 5.1 General Observations10

 5.2 Maintenance Items11

 5.3 Items to Monitor11

 5.4 Deficiencies12

LIST OF FIGURES

- Figure 1 – Site Location Map
- Figure 2 – Landfill Facility Map
- Figure 3 – Inspection Photograph Location Map

ATTACHMENT

- Inspection Photographs

1.0 INTRODUCTION

This report was prepared by AEP- Geotechnical Engineering Services (GES) section, in part, to fulfill requirements of 40 CFR 257.84 and to provide the Flint Creek Plant an evaluation of the facility.

Landfill facility is located northeast of the Flint Creek Power Plant. Figure 1, Site Location Map illustrates the location of the Landfill facility. Shah Baig, P.E. of the AEP-Geotechnical Engineering performed the 2022 inspection of the Landfill at the Flint Creek Plant. This report is a summary of the inspection and an assessment of the general condition of the facility. Greg Carter, P.E. of the AEP-Plant Engineering coordinated the Landfill inspection and Scott Carney of the Flint Creek Plant facilitated the inspection of the Landfill facility. The inspection was performed on July 20, 2022. Weather conditions were sunny, light breeze, visibility was good, and the temperature ranged between 87-105 degrees Fahrenheit. No rain was reported in the last 7 days of the inspection. Inspection findings were briefly discussed with Scott Carney (Plant Environmental Coordinator), Sarah Vestfals (Plant Manager), and Joe Boyce (Site Construction Manager).

2.0 DESCRIPTION OF LANDFILL

Figure 2, Landfill Facility Map illustrates major components of the Landfill facility that includes waste placement active areas (Area 1 and Area 2) and inactive areas (Area 3 and Area 4), leachate collection pond, contact water pond, and stormwater pond. Area 2 of the landfill was recently certified for the placement of CCR waste.

At the time of the Landfill inspection, operational activities were performed in the active Landfill area and construction activities in the inactive area. Protective cover was placed in Area 4 as part of the construction component of the Landfill. The waste placement and operational activities were performed in accordance with the approved permit. Landfill areas outside slopes of the current active fill area or below the intermediate geomembrane liner were covered with the permanent soil cap. The south slope of the Landfill Area 1 is covered with the intermediate soil cover.

The overall features of the Landfill were categorized into the following components as a means of organizing the inspection and reporting:

- Active Landfill Disposal Areas
- Inactive Landfill Areas
- Leachate Collection/Contact Water Pond
- Storm Water Drainage Ditches
- Closed Areas

The Active Landfill Disposal Area is currently where waste is being placed.

Inactive Landfill Areas consists for the remaining portions of the landfill and are under construction. The previously exposed intermediate geomembrane liner is covered with protective cover and will be ready to receive CCR waste after approval from the DEQ.

3.0 REVIEW OF AVAILABLE INFORMATION (257.84(b)(1)(i))

A review of available information regarding the status and condition of the Landfill which include files available in the operating record, such as design and construction information, previous 7-day inspection reports, and previous annual inspections has been conducted. Based on the review of the data there were no signs of actual or potential structural weakness or adverse conditions.

4.0 INSPECTION (257.84(b)(1)(ii))

4.1 CHANGES IN GEOMETRY SINCE LAST INSPECTION (257.84(b)(2)(i))

No modifications have been made to the design geometry of the Landfill since the last annual inspection. The geometry of the Landfill has remained essentially unchanged, except for the change in topography of the active and inactive disposal areas.

4.2 VOLUME (257.84(b)(2)(ii))

The total volume of CCR disposed at the Landfill as of the inspection date of was estimated to be 1,734,820 (1,548,859 last inspection + 185,961 to date) cubic yards.

4.3 DEFINITIONS OF VISUAL OBSERVATIONS AND DEFICIENCIES

This summary of the visual observations uses terms to describe the general appearance or condition of an observed item, activity or structure. The meaning of these terms is as follows:

- Good:** A condition or activity that is generally better or slightly better than what is minimally expected or anticipated from a design or maintenance point of view.
- Fair/
Satisfactory:** A condition or activity that generally meets what is minimally expected or anticipated from a design or maintenance point of view.
- Poor:** A condition or activity that is generally below what is minimally expected or anticipated from a design or maintenance point of view.
- Minor:** A reference to an observed item (e.g., erosion, seepage, vegetation, etc.) where the current maintenance condition is below what is normal or desired, but which is not currently causing concern from a structure safety or stability point of view.
- Significant:** A reference to an observed item (e.g. erosion, seepage, vegetation, etc.) where the current maintenance program has neglected to improve the condition. Usually conditions that have been identified in the previous inspections, but have not been corrected.
- Excessive:** A reference to an observed item (e.g., erosion, seepage, vegetation, etc.) where the current maintenance condition is above or worse than what is normal or desired, and which may have affected the ability of the observer to properly evaluate the structure or particular area being observed or which may be a concern from a structure safety or stability point of view.

This document also uses the definition of a “deficiency” as referenced in the CCR rule section §257.84(b)(5) Inspection Requirements for CCR Landfills. This definition has been assembled using the CCR rule preamble as well as guidance from MSHA, “Qualifications for Impoundment Inspection” CI-31, 2004. These guidance documents further elaborate on the definition of deficiency. Items not defined by deficiency are considered maintenance or items to be monitored.

A “deficiency” is some evidence that a landfill has developed a problem that could impact the structural integrity of the landfill. There are four general categories of deficiencies. These four categories are described below:

1. Uncontrolled Seepage (Leachate Outbreak)

Leachate outbreak is the uncontrolled release of leachate from the landfill.

2. Displacement of the Embankment

Displacement of the embankment is large scale movement of part of the landfill or perimeter berm. Common signs of displacement are cracks, scarps, bulges, depressions, sinkholes and slides.

3. Blockage of Control Features

Blockage of Control Features is the restriction of flow at spillways, culverts, or leachate pipes drains.

4. Erosion

Erosion is the gradual movement of surface material by water, wind or ice. Erosion is considered a deficiency when it is more than a minor routine maintenance item.

4.4 VISUAL INSPECTION (257.84(b)(1)(ii))

A visual inspection of the Landfill was conducted to identify any signs of distress or malfunction of the Landfill and appurtenant structures. Specific items inspected included all structural elements of the Landfill perimeter berms, final covers, drainage features, leachate/contact water ponds, and the open cell.

Overall, the facility is in good condition. The Landfill is functioning as intended with no signs of potential structural weakness or conditions which are disrupting to the safe operation of the Landfill. Inspection description are illustrated in Figure 3, Inspection Photograph Location Map and inspection photographs. Additional pictures taken during the inspection are available upon request.

1. The lower section of the south slope and the drainage ditch (Photograph Nos. 1 and 2) at the toe appeared in good and stable condition. The toe ditch appeared to have positive drainage. The soil cover exhibited lack of grass and undesired weed growth (Photographs Nos. 3 and 4). Few minor erosion gullies were noticed at the lower section of the south slope (Photograph No. 3).

2. At present Area 1 and Area 2 of the Landfill are active and receiving CCR waste. Area 1 is getting close to its disposal capacity (Photograph No. 5). There was no ponding of water in the active areas. The material in the active areas is separated from the inactive areas by a low splitter berm all within the waste limits. There was no erosion of the CCR material in the active area and the interim slopes were safe for the operational activities. Intermediate (temporary) soil cover is placed at the south slope of Area 1. Stormwater runoff from this area is directed into the contact water pond via the concrete lined ditches.
3. Photograph No. 6 illustrates the active and inactive areas of the Landfill. Protective cover is currently placed in inactive area (Areas 3 and 4) of the Landfill. Contact and non-contact water are properly managed and conveyed to appropriate ponds. The drainage system and interim slopes are maintained properly to avoid any ponding or overflow condition.
4. The drainage pipe culvert at the southwest corner (Photograph No. 7) appeared clear and was not obstructed. The fabriform cover appears intact and in good condition.
5. Photograph No. 8 illustrate the separation berm between Area 2 and Area 3. The CCR waste placement appears good and contact water is managed properly. The west perimeter berm adjacent to Area 2 is illustrated in Photograph No. 9. In this area the CCR waste was encroaching close to the berm and contact water management was not adequate probably due to placement of waste material at the time of inspection. The fabriform letdown at the west perimeter berm (Photograph No. 10) indicated lower subgrades that could potentially undermine the fabriform.
6. Typical condition of the west Landfill slope that has final cover and certified is illustrated in Photograph No. 11. The overall condition of the west slope was good. All areas had adequate vegetative cover. The vegetation is well established but the grass was slightly high in the lower section of the slope.
7. The northwest corner of the Landfill slopes is illustrated in Photograph Nos. 12 and 13. A temporary access road was installed at this slope for the construction activities of completing Areas 3 and 4. Overall the slope, toe ditch, and vegetation growth was good. The toe ditch was clear and appeared to indicate positive drainage.

8. Typical condition of the north Landfill slope that has final cover and certified is illustrated in Photograph No. 14. The condition of this slope was good. There were no observed erosion gullies, sloughs, or other signs of movement of these areas. All areas had adequate and well established vegetative cover.
9. A fabriform drainage ditch and a pipe culvert is located at the northeast corner of the Landfill (Photograph No. 15). The fabriform was in good and stable condition. Pipe culvert was free of obstruction and no standing water was noticed. Scattered excessive grown vegetation was found in this area.
10. Photograph No. 16 illustrate the east slope of the Landfill and access road. The lower section of the slope downstream of the access road is steeper than the upper slope section. The slope appeared to be in good and stable condition. Excessive vegetation was observed along lower section of the slope.
11. The southeast exterior slopes of the Landfill area illustrated in Photograph No. 17. Previously installed leachate collection tanks for treatment are located in this area of the Landfill. These tanks are not used at present. Also, a new fabriform letdown was installed for the construction of the Landfill Areas 3 and 4. Overall, the condition of the slope was in good and stable condition. Slightly overgrown vegetation was noticed in the lower section of the slope.
12. The south perimeter contact water concrete lined channel and outlet end of the pipe culvert are illustrated in Photograph Nos. 18 and 19. The channel was clear of debris and in good condition. The channel appeared in good and stable condition, no standing water was noticed and no obstruction to flow. The north perimeter contact water channel is illustrated in Photograph No. 20. The channel appeared in good and stable condition. Water was flowing through the pipe culvert to the contact water pond (Photograph No. 21). Minor accumulation of solids was noticed at the outlet end of the pipe in the pond (Photograph No. 22).
13. Overall view of the contact water pond is illustrated in Photograph No. 23. The contact water pond dikes appeared in good and stable condition with good concrete cover. The pond appeared functioning as designed.

14. Overall view of the leachate pond is shown in Photograph No. 24. Repairs were performed at the leachate pond in 2021 to remove trapped water under the bottom liner. Leachate pond is functioning as designed after repairs were performed and no unusual condition in the pond components were observed.
15. Photograph Nos. 25 and 26 depicts the stormwater pond and riprap channel conveyance channel. At the time of the inspection, the stormwater had no water and the pond bottom was visible. Excessive bushes and small trees around the pond slopes and within the riprap channel were noticed. It appeared that the stormwater pond is in good and functional condition.

4.5 CHANGES THAT EFFECT STABILITY OR OPERATION (257.84(b)(2)(iv))

Based on interviews with plant personnel and field observations there were no changes to the Landfill operation since the last annual inspection that would affect the stability of the Landfill.

5.0 SUMMARY OF FINDINGS

5.1 GENERAL OBSERVATIONS

The following general observations were identified during the visual inspection:

- 1) In general, the Landfill is functioning as intended design. All areas of the facility are in good condition.
- 2) The Plant is performing inspections as required.
- 3) The placement of CCR waste in Area 2 adjacent to the west perimeter berm was sloped towards the berm. The waste was encroaching the perimeter berm that could potentially lead contact water to spill over the berm.
- 4) The surrounding subgrade around the fabriform letdown at the west perimeter berm (Photograph No. 10) should be raised slightly higher than the letdown in order to function properly.
- 5) Excessive vegetation, trees, bushes, and minor erosion as noted in the report should be addressed as part of regular maintenance item.
- 6) The leachate collection pond related repairs were completed in 2021 and the pond is

functioning as designed.

- 7) Landfill Area 2 is in service and receiving CCR waste. Construction activities to complete remaining Landfill Areas 3 and 4 are in progress.
- 8) As in the past, ash materials was noticed at the outlet end of the north contact water channel at the contact water pond.

5.2 MAINTENANCE ITEMS

The following specific maintenance items were identified during this inspection.

- 1) Excessive grass/vegetation should be mowed on a regular basis at least 2-3 times during the year to facilitate inspections and keep woody vegetation to minimum. Any trees at or around the slopes should be removed.
- 2) Minor erosion gullies at the south slope of the Landfill should be repaired.
- 3) CCR waste placement should be properly contained within the Landfill areas and contact water should be conveyed via interior temporary ditches and/or piping system as designed.
- 4) The interim slope of the waste should be properly maintained safely (3H:1V) as more waste is placed.
- 5) The accumulation of ash at the north contact water collection pipe at the pond should be either controlled or removed from the pond on a regular basis.
- 6) The subgrade around the new fabriform letdown at the west perimeter berm should be backfilled with soil to raise the elevation so that the water flows into the conveyance fabriform letdown.

5.3 ITEMS TO MONITOR

1. Continue to monitor the exposed waste surfaces and slopes (interim and permanent) of the active Landfill to avoid severe erosion/failure and spillages outside the Landfill waste limits.
2. Monitoring and inspection of construction activities in conjunction with operational activities is required until all construction activities are completed.

5.4 DEFICIENCIES (257.84(b)(2)(iii))

There were no signs of structural weakness or disruptive conditions that were observed at the time of the inspection that would require additional investigation or remedial action. There were no deficiencies noted during this inspection.

A deficiency is defined as either:

1. Uncontrolled seepage (leachate breakout),
2. Displacement of the embankment,
3. Blockage of control feature, or
4. Erosion, more than minor maintenance.

LIST OF FIGURES

- **Figure 1 – Site Location Map**
- **Figure 2 – Landfill Facility Map**
- **Figure 3 – Inspection Photograph Location Map**

Figure 1 – Site Location Map
Flint Creek Landfill, Gentry, AR

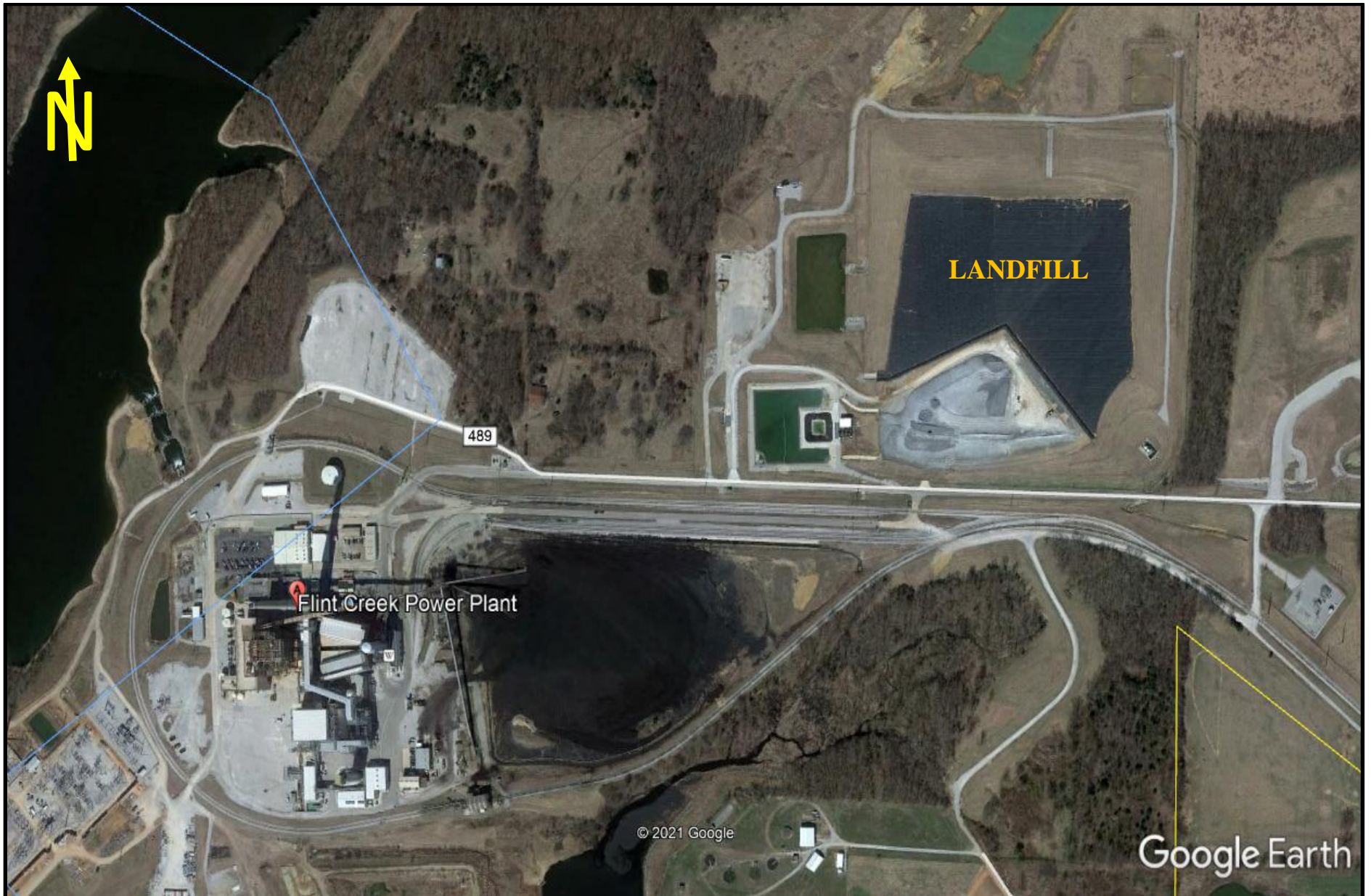


Figure 2 – Landfill Facility Map
Flint Creek Landfill, Gentry, AR






Figure 3 – Inspection Photograph Location Map
Flint Creek Landfill, Gentry, AR




ATTACHMENT


- **Inspection Photographs**

<p>PHOTO #1</p> <p>The toe ditch of the south slope of the landfill (looking west).</p>	
<p>PHOTO #2</p> <p>Lower section of the south slope (looking west).</p>	
<p>PHOTO #3</p> <p>Overall view of the south slope (looking east).</p>	 <p>Minor erosion gullies</p>

<p>PHOTO #4</p> <p>South slope intermediate cover.</p>	
<p>PHOTO #5</p> <p>Active areas of the landfill Area 1 and Area 2 (looking south).</p>	
<p>PHOTO #6</p> <p>Landfill Areas 1-4 (looking west).</p>	

<p>PHOTO #7 Fabriform lined drainage area and pipe culvert.</p>	
<p>PHOTO #8 The north separation berm between Area 2 and Area 3 (looking east).</p>	
<p>PHOTO #9 The west perimeter berm adjacent to Area 2 (looking south).</p>	

<p>PHOTO #10</p> <p>Recently installed fabriform lined channel at the west perimeter berm.</p>	
<p>PHOTO #11</p> <p>West slope of the landfill.</p>	
<p>PHOTO #12</p> <p>West slope at the northwest corner of the landfill (looking south).</p>	

<p>PHOTO #13</p> <p>North slope of the landfill and toe ditch (looking east).</p>	
<p>PHOTO #14</p> <p>Overall view of the north slope.</p>	
<p>PHOTO #15</p> <p>Northeast corner illustrating fabriform channel.</p>	




<p>PHOTO #16</p> <p>East slope of the landfill.</p>	 A wide-angle photograph showing a gravel-lined path or channel running along the east slope of a landfill. The slope is covered in dry, yellowish-brown grass and some green weeds. In the background, there is a dense line of green trees under a clear blue sky.
<p>PHOTO #17</p> <p>Southeast slope of the landfill and recently installed fabriform channel.</p>	 A photograph showing a concrete fabriform channel in the foreground, leading towards a large, cylindrical metal tank. The channel is situated on a grassy slope. In the background, there is a utility pole and a clear blue sky.
<p>PHOTO #18</p> <p>South contact water concrete lined channel.</p>	 A photograph showing a concrete-lined channel in the foreground, leading towards a large industrial facility. The channel is bordered by a pile of large, grey rocks. In the background, there are utility poles and a clear blue sky.

PHOTO #19

Discharge pipe of the south contact water channel.



PHOTO #20

North contact water concrete lined channel.



PHOTO #21

North contact water channel pipe inlet end.



PHOTO #22

North contact water channel pipe outlet end at the pond.



PHOTO #23



Overall view of the contact water pond.



PHOTO #24

Overall view of the leachate pond.



<p>PHOTO #25</p> <p>Overall view of the Storm water pond (looking north).</p>	 A wide-angle photograph showing a large, flat, brownish field, likely a storm water pond, under a clear blue sky. In the background, there is a line of trees and some yellow construction equipment. The foreground is dominated by a rocky, riprap-lined area with sparse vegetation.
<p>PHOTO #26</p> <p>Riprap lined channel to the storm water pond.</p>	 A close-up photograph of a riprap-lined channel. The channel is filled with large, light-colored rocks and is surrounded by dry grass and some small, reddish-brown shrubs. In the background, a grassy hillside slopes upward under a clear blue sky.