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## Inspection Report

**To:** David Bacher, NRG  
**From:** Richard Southorn, P.E., P.G.  
**Re:** Indian River Landfill – Annual CCR Unit Inspection Report  
**Inspection Date:** October 29, 2020  
**Memo Date:** January 18, 2021

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### INTRODUCTION

Title 40 Code of Federal Regulations (CFR) Part 257 addresses, in part, the management of Coal Combustion Residuals (CCR) in regulated units, including landfills. Specific to §257.84(b) of the Rule, existing and new CCR landfills must be inspected on an annual basis by a qualified professional engineer. For the Indian River Generating Station (owned by Indian River Power, LLC, a subsidiary of NRG Energy, Inc. [NRG]), this inspection requirement applies to the existing Indian River Landfill (IRLF). IRLF consists of two phases. Phase I was constructed and closed prior to the implementation of the CCR Rule and is therefore exempt from these regulations. Phase II is a horizontal expansion of Phase I and has a piggyback component (vertical expansion). Phase II is currently operational and therefore falls under the CCR Rule regulations. Due to the fact that Phase II is a piggyback expansion, it is recognized that the stability of Phase I may impact Phase II. Therefore, both Phases I and II are inspected on an annual basis.

Mr. Richard Southorn (a qualified professional engineer with APTIM Environmental & Infrastructure, Inc. [Aptim]) conducted the 2020 annual on-site inspection of IRLF on October 29, 2020. The findings from this annual inspection are summarized in subsequent sections of this correspondence.

As required, this report will be placed in the Indian River facility's operating record per §257.105(g)(9), noticed to the State Director per §257.106(g)(7), and posted to the publicly accessible internet site per §257.107(g)(7). The 2019 annual inspection report was placed into the facility's operating record on January 18, 2020. Therefore, this report must be placed into the facility's operating record on January 18, 2021 to meet the annual reporting requirements of §257.84(b)(4).

### BACKGROUND

The IRLF is an industrial waste landfill used solely for the disposal of CCR wastes or other industrial wastes generated at the station and is operated/maintained in accordance with the State of Delaware Department of Natural Resources and Environmental Control (DNREC) Solid Waste Permit No. 12/01. The IRLF disposal areas are located approximately one half of a mile south of the Generating Station.

The landfill consists of two major phases, Phase I and Phase II. Phase I is unlined and has a 46 acre footprint. Phase I began accepting waste in 1980 and cap construction was approved and certified closed by DNREC on October 20<sup>th</sup>, 2014. Phase II has a composite liner, and is 28 acres

in size. The Phase II expansion is comprised of two landfill cells (Cell 1 and 2) located west of Phase I and a piggyback (filling over Phase I) expansion on the western slopes of Phase I. The piggyback expansion of Phase II is separated from Phase I by a composite liner system.

The Phase II expansion began accepting waste on September 17, 2010 within Cell 1. Cell 2 received operational authorization in 2015. Cell 1 is not actively receiving CCR material and has a vegetated intermediate cover. Cell 2 is currently open and actively receiving CCR material. No additional areas have been closed. The facility is permitted to sell the CCR for beneficial reuse projects and will continue to seek opportunities to do so.

With respect to the IRLF, Aptim's evaluation has focused on the following items as outlined in §257.84(b)(1)(i-ii):

- *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; and*
- *A visual inspection of the CCR unit to identify signs of distress or malfunction.*

Specific to Aptim's preparation of this annual inspection report, and per §257.84(b)(2) (i-iv), the following aspects of the CCR unit have been documented:

- *Any changes in geometry of the structure since the previous annual inspection;*
- *The approximate volume of CCR contained in the unit at the time of the inspection;*
- *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*
- *Any other change(s) which may have affected the stability or operation of the CCR unit since the previous annual inspection.*

## **OPERATING RECORDS REVIEW**

The operating records review of the facility's operating record and verification were performed during the site inspection. Files reviewed during the on-site inspection included but were not limited to: 2011 Phase II Landfill Expansion Application, NRG Permit SW-12/01, Annual Landfill Operations Report, Weekly Inspection Reports, Leachate Collection System Daily Inspection Reports, Phase I Cap Inspection Forms, Stormwater Conveyance and Discharge System Forms, and Daily/After Storm Event Erosion Control/Emissions Inspection Forms. During the site inspection, Mr. Southorn interviewed Charlie Griggs (Landfill Manager) to verify the information contained within the operating record.

### Environmental Control System Overview

- a. **Bottom Liner System** - The Phase II has a composite liner system that consists of a geosynthetic clay liner (GCL) and geomembrane liner system. The composite liner system extends along the piggyback portion between Phase I and Phase II thereby creating a separate layer.
- b. **Leachate Collection System** - Phase II has a 12-inch drainage system with a series of collection pipes that drain to two sumps located on the north perimeter of Cell 2

and the south perimeter of Cell 1. The leachate is then pumped via a below grade leachate forcemain to the existing above grade leachate storage tanks located west of the landfill. From the tanks, leachate is trucked to the Indian River Generating Station for reuse in the bottom ash system.

- c. Stormwater Management - Non-contact stormwater is drained around the landfill in accordance with the current NPDES permit to stormwater detention basins/ponds located north and south of the landfill. Stormwater run-off from within the active area is collected and managed within the leachate collection system.
- d. Final Cover System - Phase I has received a final cover system and is closed, Cell 1 in Phase II has a vegetated intermediate cover and is not actively accepting CCR material, and Cell 2 in Phase II is an active unit and therefore has no final cover.

### Summary of Landfill Construction

As of the date of this inspection, Phase I has been capped and closed. Cell 1 in Phase II is not actively receiving CCR material. Cell 2 in Phase II is currently open and actively receiving CCR material. No additional areas have been closed since the previous annual inspection.

### Review of Prior Inspections

- a. Weekly inspections: A review of weekly inspection reports since the date of the last annual inspection was completed to understand any deficiencies and remedial actions. Some minor corrective actions were noted for cover and erosion repairs. All deficiencies were found to be remedied in a timely manner.
- b. Annual inspections: A review of the previous annual inspection has determined that there were no deficiencies or releases, actual or potential structural weaknesses, or concern to the stability of the land form. All environmental control systems were in good operating condition and functioning as intended.

### Summary of CCR Volumes

Approximately 257,028 cy have been placed in Cell 2 through December 31, 2020. Cell 1 has largely been filled, but NRG Energy estimates that Phase II Cell 1 has approximately 5,000 cy of emergency capacity left in case Cell 2 becomes inaccessible.

## **SITE INSPECTION**

The site inspection was performed on October 29, 2020 by Mr. Southorn. Mr. Southorn focused on standard geotechnical signs of distress or malfunction such as slumping at the toe of slope, tensile cracking, abnormal or excessive erosion on the side slopes or stormwater management facilities, slope bulging, groundwater/surface water seepage or ponding, etc. These visual signs are potential indicators of structural weakness of the CCR Landfill unit.

### Visual Signs of Distress or Malfunction

No visual signs of distress or malfunction were observed during the inspection. Stormwater drainage features, slope appearance and stability, leachate conveyance mechanisms, and overall site conditions were assessed. Closed portions of Phase I and Phase II and stabilized intermediate cover areas of Phase II exhibited well established vegetative cover.

### Review of Environmental Control Systems

With no evidence to the contrary, the environmental control systems at IRLF are believed to be in good operating condition and functioning as intended. The annual inspection was completed both shortly after and during significant rainstorms. Elevated leachate levels were observed in Cell 2 of Phase II. However, leachate could be seen to be safely and appropriately contained as it was being drawn down. A high-level alarm indicated the elevated liquid level on the collection system control panel, as intended. This observation confirms the effectiveness of environmental controls.

### **CONCLUSIONS**

Based on a review of the facility's operating record, site interviews and a site inspection, the following conclusions were developed:

#### Changes in Geometry

As of the date of this inspection, Cell 2 of Phase II is open and receiving CCR material. Active filling operations in Cell 2 in the approximate location shown in the attached figure at a peak elevation generally equal the surrounding perimeter road elevation.

#### CCR Volume

Approximately 257,028 cy have been placed in Cell 2 through December 31, 2020. Cell 1 has largely been filled, but NRG Energy estimates that Phase II Cell 1 has approximately 5,000 cy of emergency capacity left in case Cell 2 becomes inaccessible.

#### Appearances of an Actual or Potential Structural Weakness of CCR Unit

At the time of inspection, there were no signs of distress or malfunction that would indicate actual or potential structural weakness at either Phase I or II.

#### Changes that May Affect the Stability or Operation of the CCR Unit

There have been no changes to the Indian River Landfill area that pose a threat or concern to the stability of the land form.



## RECOMMENDATIONS

Based on the on-site inspection performed on October 29, 2020, APTIM recommends the following actions:

1. Continue operation and maintenance within the active landfilling area as currently performed.
2. Maintain adequate access to the closed portions of the landfill to maintain the ability to perform weekly visual site structural inspections.

There were no deficiencies or releases identified during the 2019 annual inspection that require the owner or operator to perform corrective actions as required under §257.84(b)(5).

## PROFESSIONAL ENGINEER'S CERTIFICATION

In accordance with §257.84(b) of the Rule, I hereby certify based on a review of available information within the facility's operating records and observations from my personal on-site inspection (including the photographs contained in Attachment 2), that the IRLF does not exhibit any appearances of actual/potential structural weakness that would be disruptive to the normal operations of the IRLF. The unit is being operated and maintained consistent with recognized and generally accepted good engineering standards and practices.

Certified by: \_\_\_\_\_

*RS*

Date: \_\_\_\_\_

*JANUARY 18, 2021*



*RS*  
*1/18/2021*

Richard Southorn, P.E., P.G.  
Professional Engineer Registration No. PE 20894  
APTIM Environmental & Infrastructure, LLC

## ATTACHMENTS

1. Site Map
2. Inspection Photo Log

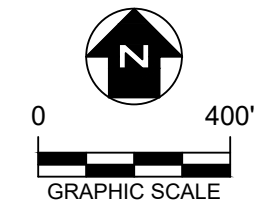
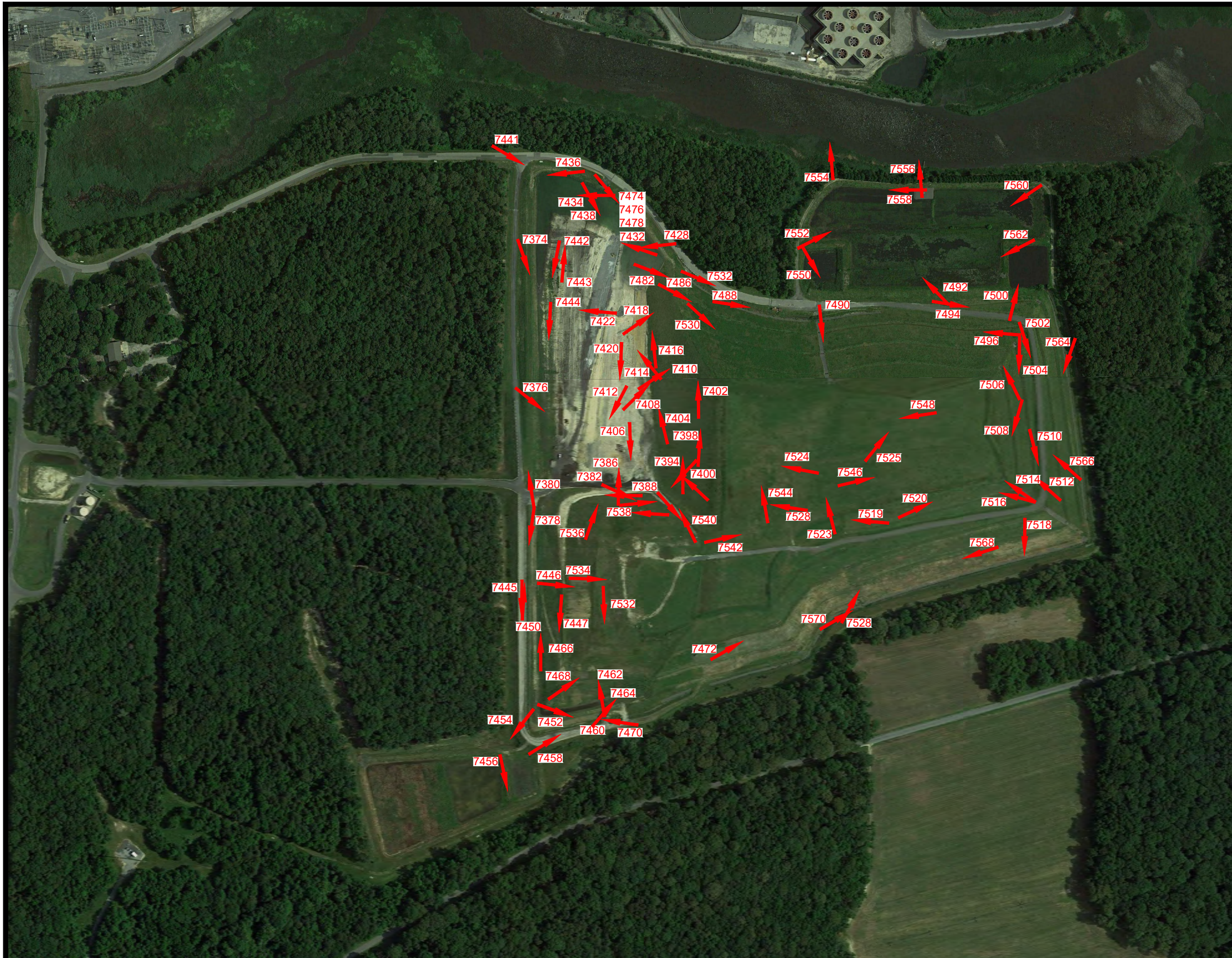
## REFERENCES

1. 2019 Landfill Periodic Inspection Report (dated January 18, 2020)
2. Annual Landfill Operations Report NRG Energy Indian River Generating Station
3. 40 Code of Federal Regulations Part 257.
4. Routine Inspection Reports.
5. DNREC Solid Waste Permit No. 12/01

**Attachment 1**  
**Site Map**



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**LEGEND**

← 2020 ANNUAL INSPECTION PHOTOGRAPH (ARROW DENOTES DIRECTION OF VIEW)

REV. NO.	DATE	DESCRIPTION



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<b>INDIAN RIVER LANDFILL DAGSBORO, DELAWARE</b>					
<b>2020 ANNUAL INSPECTION</b>					
DRAWN BY:	BWM	APPROVED BY:	RDS	PROJ. NO.:	631224966
			DATE:	DECEMBER 2020	



# **Attachment 2**

## **Photo Log**

**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7374  
Date: 10/29/2020  
Time: 6:29 AM  
Direction: South-Southeast

**Description:**

Outer sideslope of Phase II Cell 1. Sideslope is well vegetated and maintained. No signs of vegetative stress or geotechnical instability.



Image: 7376  
Date: 10/29/2020  
Time: 6:30 AM  
Direction: Southeast

**Description:**

5 mph speed limit near active face.



**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7378  
Date: 10/29/2020  
Time: 6:32 AM  
Direction: South

Description:

Non-contact stormwater that falls on final cover is collected at the toe of Phase II Cell 1 North slope, which then gravity drains into the perimeter stormwater ditch. These efforts reduce contact water by diverting the water before it enters the active face. Discharge location shown in photograph.



Image: 7380  
Date: 10/29/2020  
Time: 6:32 AM  
Direction: North

Description:

Armored perimeter stormwater channel.





**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7382  
 Date: 10/29/2020  
 Time: 6:34 AM  
 Direction: East-Southeast

**Description:**

Non-contact stormwater that falls on final cover is collected at the toe of Phase II Cell 1 North slope, which then gravity drains into the perimeter stormwater ditch. Bermed stormwater collection area at toe of slope shown in photograph. Concrete blocks dissipate energy before entering pipe.



Image: 7384  
 Date: 10/29/2020  
 Time: 6:36 AM  
 Direction: East

**Description:**

Phase 2 Cell 1/Cell 2 boundary. Slopes are well vegetated with no sign of erosion, sloughing, or animal borrows.



**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7386  
Date: 10/29/2020  
Time: 6:36 AM  
Direction: North

Description:

Active face is well maintained. Material is graded and compacted. Photograph was taken during significant rainfall. Water is draining appropriately.



Image: 7388  
Date: 10/29/2020  
Time: 6:37 AM  
Direction: West

Description:

Area at toe of Phase II Cell 1 North slope. Non-contact stormwater that falls on final cover is collected in this area and drains into the perimeter stormwater ditch.





**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7390  
Date: 10/29/2020  
Time: 6:37 AM  
Direction: Southeast

Description:

Elbow of Phase 1/Phase 2 Cell 1 confluence, looking upslope. Erosion was observed following a significant recent rain event in 2018. The elbow was repaired in 2018 but vegetation had not been established by the 2018 Annual Inspection. One year later, vegetation is thick and healthy.



Image: 7392  
Date: 10/29/2020  
Time: 6:38 AM  
Direction: West

Description:

Phase 2 Cell 1/Cell 2 boundary. Slopes are well vegetated with no sign of erosion, sloughing, or animal borrows.



**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7394  
Date: 10/29/2020  
Time: 6:39 AM  
Direction: North

Description:

Overview of active face and Phase I intermediate cover slopes. Slopes are well vegetated with no sign of erosion or sloughing. Active area is well maintained and orderly.



Image: 7396  
Date: 10/29/2020  
Time: 6:40 AM  
Direction: Northwest

Description:

Active face is well maintained. Material is graded and compacted. No ponding water, despite significant rainfall occurring at the time of inspection.





**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7398  
Date: 10/29/2020  
Time: 6:40 AM  
Direction: North

Description:

Phase I intermediate cover slopes are well vegetated with no sign of erosion or sloughing.



Image: 7400  
Date: 10/29/2020  
Time: 6:40 AM  
Direction: Southwest

Description:

Phase 2 Cell 1/Cell 2 boundary. Slopes are well vegetated with no sign of erosion, sloughing, or animal borrows



**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7402  
Date: 10/29/2020  
Time: 6:41 AM  
Direction: North

Description:

Phase I intermediate cover slopes are well vegetated with no sign of erosion or sloughing. Vegetation shown was mowed shortly before inspection.



Image: 7404  
Date: 10/29/2020  
Time: 6:42 AM  
Direction: North-Northwest

Description:

Active face is well maintained. Material is graded and compacted. No ponding water.





**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7406  
 Date: 10/29/2020  
 Time: 6:43 AM  
 Direction: South

Description:

Active face is well maintained. Material is graded and compacted. No ponding water.



Image: 7408  
 Date: 10/29/2020  
 Time: 6:44 AM  
 Direction: Northeast

Description:

Erosion control berm that has been established on active face. This berm slows contact water travelling over the active face during rain events, which in turn minimizes erosion. Pipes at the toe of the berm collect contact water and convey it to the leachate sump.



**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7410  
 Date: 10/29/2020  
 Time: 6:44 AM  
 Direction: East-Northeast

Description:

Erosion control berm that has been established on active face. This berm slows contact water travelling over the active face during rain events, which in turn minimizes erosion. Pipes at the toe of the berm collect contact water and convey it to the leachate sump.



Image: 7412  
 Date: 10/29/2020  
 Time: 6:45 AM  
 Direction: South-Southwest

Description:

Active face is well maintained. Material is graded and compacted. Water is draining to the north toward the leachate sump.





**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7414  
 Date: 10/29/2020  
 Time: 6:46 AM  
 Direction: Northwest

Description: Erosion control berm that has been established on active face. This berm slows contact water travelling over the active face during rain events, which in turn minimizes erosion. Pipes at the toe of the berm collect contact water and convey it to the leachate sump. The pipe inlet is below a concrete block; the pipe can be seen in the photograph.



Image: 7416  
 Date: 10/29/2020  
 Time: 6:47 AM  
 Direction: North

Description:

Phase I intermediate cover slopes are well vegetated with no sign of erosion or sloughing. Active face is on left. Contact water run-off pipe described in photograph 7414 is shown running along toe of slope.



**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7418  
Date: 10/29/2020  
Time: 6:48 AM  
Direction: Northeast

Description:

Erosion control berm that has been established on active face. This berm slows contact water travelling over the active face during rain events, which in turn minimizes erosion. Pipes at the toe of the berm collect contact water and convey it to the leachate sump.



Image: 7420  
Date: 10/29/2020  
Time: 6:48 AM  
Direction: South

Description:

Active face is well maintained. Material is graded and compacted. No ponding water.





**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7422  
 Date: 10/29/2020  
 Time: 6:49 AM  
 Direction: West

Description:

Jersey barriers are strategically placed within active area to slow contact water and minimize sedimentation.



Image: 7424  
 Date: 10/29/2020  
 Time: 6:50 AM  
 Direction: East

Description:

Erosion control berm that has been established on active face. This berm slows contact water travelling over the active face during rain events, which in turn minimizes erosion. Pipes at the toe of the berm collect contact water and convey it to the leachate sump.



**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7432  
Date: 10/29/2020  
Time: 6:55 AM  
Direction: West-Northwest

Description:

Sump area of active face. During the previous inspection, standing water was present in this location due to large rains. Significant efforts have been made to remove standing water, which was treated as leachate.



Image: 7434  
Date: 10/29/2020  
Time: 6:57 AM  
Direction: West

Description:

Sump area of active face. Standing water is present in this location due to large rains. Significant efforts have been made to remove standing water, which was treated as leachate.





**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7436  
Date: 10/29/2020  
Time: 6:58 AM  
Direction: West

Description:

Sump area of active face. Standing water is present in this location due to large rains. Significant efforts have been made to remove standing water, which was treated as leachate.



Image: 7438  
Date: 10/29/2020  
Time: 6:58 AM  
Direction: South-Southeast

Description:

Sump area of active face. Standing water is present in this location due to large rains. Significant efforts have been made to remove standing water, which was treated as leachate.



**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7441  
Date: 10/29/2020  
Time: 6:59 AM  
Direction: East-Southeast

**Description:**

Sump area of active face. Standing water is present in this location due to large rains. Significant efforts have been made to remove standing water, which was treated as leachate.



Image: 7442  
Date: 10/29/2020  
Time: 7:01 AM  
Direction: South

**Description:**

Lift of fly ash in active face. Well placed, graded, and maintained.





**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7443  
Date: 10/29/2020  
Time: 7:02 AM  
Direction: North

Description:

Lift of fly ash in active face. Well placed, graded, and maintained.



Image: 7444  
Date: 10/29/2020  
Time: 7:03 AM  
Direction: South

Description:

Active face is well maintained. Material is graded and compacted. No ponding water.



**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7445  
Date: 10/29/2020  
Time: 7:09 AM  
Direction: South

Description:

Active face is well maintained. Material is graded and compacted. No ponding water.



Image: 7446  
Date: 10/29/2020  
Time: 7:10 AM  
Direction: East

Description:

A fox den is shown. Review of routine inspection reports indicate that animal burrows are routinely identified and filled once found.





**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7447  
Date: 10/29/2020  
Time: 7:11 AM  
Direction: South

Description:

Final cover on sideslopes of Phase II Cell 1. Vegetation is healthy with full coverage. No signs of erosion stability issues observed on sideslope.



Image: 7450  
Date: 10/29/2020  
Time: 7:11 AM  
Direction: North

Description:

Final cover on sideslopes of Phase II Cell 1. Vegetation is healthy with full coverage. No signs of erosion stability issues observed on sideslope.





**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7452  
Date: 10/29/2020  
Time: 7:12 AM  
Direction: East

Description:

Final cover on sideslopes of Phase II Cell 1. Vegetation is healthy with full coverage. No signs of erosion stability issues observed on sideslope.



Image: 7454  
Date: 10/29/2020  
Time: 7:16 AM  
Direction: North-Northwest

Description:

Overview of stormwater basin.





**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7456  
Date: 10/29/2020  
Time: 7:16 AM  
Direction: Northeast

Description:

Stormwater basin forebay.  
In good condition.



Image: 7458  
Date: 10/29/2020  
Time: 7:17 AM  
Direction: Southwest

Description:

Inlets to stormwater basin.  
Clear of obstruction at  
inlets and outlets.





**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7460  
Date: 10/29/2020  
Time: 7:18 AM  
Direction: South-Southeast

**Description:**

Phase 1, Cell 1 leachate pump house and stormwater culvert. Building is appropriately signed. Culvert is free of obstructions.



Image: 7462  
Date: 10/29/2020  
Time: 7:19 AM  
Direction: East-Northeast

**Description:**

Phase 1, Cell 1 leachate instrument panel. Good working order.



**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7464  
Date: 10/29/2020  
Time: 7:21 AM  
Direction: Northeast

Description:

Inside Phase 1, Cell 1 Leachate Pump House. Cleanout riser and pump risers with T connection to forcemain shown. Building is well maintained.



Image: 7466  
Date: 10/29/2020  
Time: 7:21 AM  
Direction: North

Description:

Final cover vegetative cover is dense and healthy.





**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7468  
Date: 10/29/2020  
Time: 7:21 AM  
Direction: Northwest

Description:

Final cover vegetative cover is dense and healthy.



Image: 7470  
Date: 10/29/2020  
Time: 7:22 AM  
Direction: West

Description:

Vegetative cover is dense and healthy.



**Project:** Indian River Landfill 2020 Annual Inspection

**Photographer:** Richard Southorn

Image: 7472  
Date: 10/29/2020  
Time: 7:23 AM  
Direction: East-Northeast

Description:

Terrace berm. Clear of obstructions and functioning as intended. Vegetative cover is dense and healthy.



Image: 7474  
Date: 10/29/2020  
Time: 7:25 AM  
Direction: West

Description:

Phase 2, Cell 2 leachate pump house. Building exterior is in good condition and appropriately signed.





**Project:** Indian River Landfill 2020 Annual Inspection

**Photographer:** Richard Southorn

Image: 7476  
Date: 10/29/2020  
Time: 7:26 AM  
Direction: In Building

Description:

Leachate liquid level indicator and controls in the Phase 2, Cell 2 leachate pump house.



Image: 7478  
Date: 10/29/2020  
Time: 7:30 AM  
Direction: In Building

Description:

Inside Phase 2, Cell 2 Leachate Pump House. Cleanout riser and pump risers with T connection to forcemain shown. Building is well maintained.



**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7482  
Date: 10/29/2020  
Time: 7:31 AM  
Direction: East-Southeast

Description:

Landfilll sideslopes and terraces are well maintained. No evidence of slope stability issues.



Image: 7486  
Date: 10/29/2020  
Time: 7:33 AM  
Direction: East-Southeast

Description:

Terrace bench is in good condition, no evidence of scour or erosion.





**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7488  
Date: 10/29/2020  
Time: 7:33 AM  
Direction: East

Description:

Rock check dams are used in the perimeter non-contact (stormwater) ditches to knock out sediment and provide water quality benefits.



Image: 7490  
Date: 10/29/2020  
Time: 7:58 AM  
Direction: South

Description:

Downchute near southwest forebay of Northeast Detention Basin.





**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7492  
Date: 10/29/2020  
Time: 7:59 AM  
Direction: Northwest

Description:

Overview of detention basin. No appreciable water retention, despite significant rains occurring at time of inspection.



Image: 7494  
Date: 10/29/2020  
Time: 8:00 AM  
Direction:

Description:

Phase 1 terrace berm. Clear of obstructions and functioning as intended. Vegetative cover is dense and healthy.



**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7496  
Date: 10/29/2020  
Time: 8:00 AM  
Direction: West Northwest

**Description:**

Phase 1 final cover.  
Vegetative cover is dense  
and healthy.



Image: 7500  
Date: 10/29/2020  
Time: 8:01 AM  
Direction:

**Description:**

Southeast forebay of  
Northeast Detention  
Basin. Functioning as  
intended.





**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7502  
Date: 10/29/2020  
Time: 8:02 AM  
Direction: South Southwest

**Description:**

Phase 1 corner downchute road crossing equalizing pipes. Free of obstructions.



Image: 7504  
Date: 10/29/2020  
Time: 8:03 AM  
Direction: South

**Description:**

Phase 1 corner downchute road crossing equalizing pipes. Free of obstructions.

7504





**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7506  
Date: 10/29/2020  
Time: 8:04 AM  
Direction: North Northwest

**Description:**

Phase 1 final cover.  
Vegetative cover is dense  
and healthy.



Image: 7508  
Date: 10/29/2020  
Time: 8:04 AM  
Direction: South Southwest

**Description:**

Phase 1 terrace berm.  
Clear of obstructions and  
functioning as intended.  
Vegetative cover is dense  
and healthy.





**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7510  
Date: 10/29/2020  
Time: 8:07 AM  
Direction: South Southeast

**Description:**

Phase 1 terrace berm.  
Clear of obstructions and  
functioning as intended.  
Vegetative cover is dense  
and healthy.



Image: 7512  
Date: 10/29/2020  
Time: 8:07 AM  
Direction: Northwest

**Description:**

Phase 1 terrace berm.  
Clear of obstructions and  
functioning as intended.  
Vegetative cover is dense  
and healthy.





**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7514  
Date: 10/29/2020  
Time: 8:09 AM  
Direction: Northwest

Description:

Phase 1 corner downchute. Rock is in-place and not migrating. No evidence of washouts.



Image: 7516  
Date: 10/29/2020  
Time: 8:09 AM  
Direction: West Northwest

Description:

Phase 1 corner downchute. Rock is in-place and not migrating. No evidence of washouts.





**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7518  
Date: 10/29/2020  
Time: 8:10 AM  
Direction:  
  
Description:  
  
Phase 1 final cover and stormwater terraces. Well maintained and functioning as intended.



Image: 7519  
Date: 10/29/2020  
Time: 8:11 AM  
Direction: West Northwest  
  
Description:  
  
Rock check dam along access road ditch. Functioning as intended.



**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7520  
Date: 10/29/2020  
Time: 8:12 AM  
Direction: East Northeast

Description:

Phase 1 final cover and stormwater terraces. Well maintained and functioning as intended.



Image: 7523  
Date: 10/29/2020  
Time: 8:13 AM  
Direction: North Northwest

Letdown pipe location from plateau terrace into access road ditch. Free draining. No evidence of erosion.





**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7524  
Date: 10/29/2020  
Time: 8:14 AM  
Direction: Northeast

Description:

Final cover on plateau.  
Vegetation is well established. No signs of animal burrows or erosion.



Image: 7525  
Date: 10/29/2020  
Time: 8:16 AM  
Direction: West Northwest

Description:

Final cover on plateau.  
Vegetation is well established. No signs of animal burrows or erosion.



**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7528  
Date: 10/29/2020  
Time: 8:16 AM  
Direction: West Northwest

Description:

Final cover on plateau.  
Vegetation is well established. No signs of animal burrows or erosion.



Image: 7530  
Date: 10/29/2020  
Time: 7:34 AM  
Direction:

Description:

Final cover on plateau.  
Vegetation is well established. No signs of animal burrows or erosion.





**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7532  
Date: 10/29/2020  
Time: 7:35 AM  
Direction: South

Description:

Final cover on plateau.  
Vegetation is well established. No signs of animal burrows or erosion.



Image: 7534  
Date: 10/29/2020  
Time: 7:38 AM  
Direction: West

Description:

Final cover on sideslopes.  
Vegetation is well established. No signs of animal burrows or erosion.



**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7536  
Date: 10/29/2020  
Time: 7:40 AM  
Direction: North Northwest

Description:

Phase 2, Cell 2 active area from Phase 2 Cell 1 plateau.



Image: 7538  
Date: 10/29/2020  
Time: 7:41 AM  
Direction: East Northeast

Description:

Sideslopes near active face are well maintained.





**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7540  
Date: 10/29/2020  
Time: 7:41 AM  
Direction: Northwest

Description:

Phase 2, Cell 2 active area from Phase 2 Cell 1 plateau.



Image: 7542  
Date: 10/29/2020  
Time: 7:43 AM  
Direction:

Description:

Final cover on plateau. Vegetation is well established. No signs of animal burrows or erosion.



**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7544  
Date: 10/29/2020  
Time: 7:43 AM  
Direction:  
  
Description:  
  
Final cover on plateau.  
Vegetation is well  
established. No signs of  
animal burrows or erosion.



Image: 7546  
Date: 10/29/2020  
Time: 7:43 AM  
Direction: East Northeast  
  
Description:  
  
Final cover on plateau.  
Vegetation is well  
established. No signs of  
animal burrows or erosion.





**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7548  
Date: 10/29/2020  
Time: 7:43 AM  
Direction: West

Description:

Final cover on plateau.  
Vegetation is well established. No signs of animal burrows or erosion.



Image: 7550  
Date: 10/29/2020  
Time: 7:45 AM  
Direction: Southeast

Description:

Southwest forebay of  
Northeast Detention Basin  
(Non-Contact Water).  
Functioning as intended.





**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7552  
Date: 10/29/2020  
Time: 7:45 AM  
Direction: East Northeast

**Description:**

Northeast Detention Basin  
(Non-Contact Water).



Image: 7554  
Date: 10/29/2020  
Time: 7:46 AM  
Direction: North Northwest

**Description:**

Monitoring well cluster.





**Project:** Indian River Landfill 2020 Annual Inspection

**Photographer:** Richard Southorn

Image: 7556  
Date: 10/29/2020  
Time: 7:47 AM  
Direction: West

Description:  
Northeast Detention Basin outlet skimmer.



Image: 7558  
Date: 10/29/2020  
Time: 7:47 AM  
Direction: West

Description:  
Northeast Detention Basin outlet skimmer.





**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7560  
Date: 10/29/2020  
Time: 7:48 AM  
Direction: Southwest

Description:

Northeast Detention Basin (Non-Contact Water). Little accumulated water, despite significant rains at time of inspection.



Image: 7562  
Date: 10/29/2020  
Time: 7:49 AM  
Direction: Southwest





**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7564  
Date: 10/29/2020  
Time: 7:49 AM  
Direction: Southwest

Description:

Toe of slope. No sign of erosion or slope stability issues.



Image: 7566  
Date: 10/29/2020  
Time: 7:51 AM  
Direction: Northwest

Description:

Toe of slope. No sign of erosion or slope stability issues.



**Project: Indian River Landfill 2020 Annual Inspection**

**Photographer: Richard Southorn**

Image: 7568  
Date: 10/29/2020  
Time: 7:52 AM  
Direction: West Southwest

**Description:**

Toe of slope. No sign of erosion or slope stability issues.



Image: 7570  
Date: 10/29/2020  
Time: 7:52 AM  
Direction: East Northeast

**Description:**

Toe of slope. No sign of erosion or slope stability issues.

