



## **Hardee County Landfill Operation Permit Renewal Responses to Request for Additional Information No. 1**

Prepared for:

**Hardee County  
Solid Waste Department  
685 Airport Road  
Wauchula, Florida 33873  
(863) 773-5089**



Presented by:

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June 28, 2013  
File No. 09199033.24

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## SCS ENGINEERS

June 28, 2013  
File No. 09199033.24

Mr. Steven G. Morgan  
Florida Department of Environmental Protection  
Southwest District Office  
13051 North Telecom Parkway  
Temple Terrace, Florida 33637-0926

Subject: Hardee County Class I Landfill  
Operation Permit Renewal  
Response to Request for Additional Information No. 1  
Pending Permit No. 38414-016-SO/01, Hardee County  
WACS No. SWD/25/40612

Dear Mr. Morgan:

On behalf of the Hardee County Board of County Commissioners (BOCC), SCS Engineers (SCS) submits the following responses to the Florida Department of Environmental Protection (FDEP) Request for Additional Information (RAI) No. 1 letter dated April 11, 2013. The letter, sent via email, was directed to Ms. Teresa Carver, Director Hardee County Solid Waste Department regarding the Hardee County Class I Landfill Operation Permit Renewal Application documents dated March 12, 2013. For ease of review, each FDEP comment is reiterated in bold type followed by SCS's response in normal print.

### GENERAL

- 1. The requested information and comments below do not necessarily repeat the information submitted by the applicant. However, every effort has been made to concisely refer to the section, page, drawing detail number, etc. where the information has been presented in the original submittal.**

**Response:** Comment noted.

- 2. Please submit 1 paper copy and 1 electronic copy of all requested information. Please specify if revised information is intended to supplement, or replace, previously submitted information. Please submit all revised plans and reports as a complete package. For revisions to the narrative reports, deletions may be struckthrough (~~struckthrough~~) and additions may be underlined (underlined) or similar notation method. This format will expedite the review process. Please include revision date on all revised pages. Please also provide 1 electronic copy of the entire application package that incorporates the supplemental and replacement information submitted. This will ensure that an accurate record copy of the final approved permit application package is on file with the Department in one electronic file location.**

**Response:** Comment noted. SCS has provided one paper copy and one electronic copy of revised submittals, or replacement pages to the submittals, hole-punched for a three-ring binder using a strikethrough (~~strikethrough~~), underline (underline) or shaded (shaded) format to facilitate the FDEP review process. SCS included the revision date as part of the footer for all revised submittals, replacement pages to the submittals, and additional materials. A list of submitted documents in response to RAI No. 1 is provided at the end of this letter.

In addition, SCS has provided one electronic copy of the entire application package that incorporates the supplemental and replacement information submitted.

Note, a hard copy of the revised drawings as discussed below **is not supplied** with this submittal but **is supplied** within Attachment A of the *Phase II Section II Expansion Construction Response to Request for Additional Information No. 2*, dated June 28, 2013, prepared by SCS based on the meeting as discussed below. Although, since a hard copy of the drawings **is not supplied** with this submittal, an electronic copy of the drawings has been provided to the Department in Attachment A which includes the complete set of drawings which indicates the responses to RAI No. 1, the *Phase II Section II Expansion Construction Response to Request for Additional Information No. 2*, dated June 28, 2013, prepared by SCS and the remainder of the drawings revised only in the title block to indicate combining the drawings as discussed below. These drawings are the exact same as those supplied on the CD with the *Phase II Section II Expansion Construction Response to Request for Additional Information No. 2*, dated June 28, 2013, prepared by SCS.

3. **Please provide a summary of all revisions to drawings, and indicate the revision on each of the applicable plan sheets. Please use a consistent numbering system for drawings. If new sheets must be added to the original plan set, please use the same numbering system with a prefix or suffix to indicate the sheet was an addition, e.g. Sheet 1A, 1B, P1-A, etc.**

**Response:** Revisions to the Hardee County Landfill Operation Drawings dated March 2013, previously submitted to FDEP consisting of drawing numbers 1 through 37, have been indicated by SCS on each of the applicable drawings using revision clouds with labels as necessary and the reason for the revisions have been indicated in the title block. Also, the revisions or clarifications implemented to the drawings identified below have been discussed within the responses to RAI No. 1, where applicable. A hard copy of the revised drawings indicated below **is not supplied** with this submittal but **is supplied** within Attachment A of the *Phase II Section II Expansion Construction Response to Request for Additional Information No. 2*, dated June 28, 2013, prepared by SCS based on the meeting as discussed below.

- Drawing Number 1 - Cover Sheet/Drawing Index
- Drawing Number 7 - Project Area Existing Conditions Site Plan
- Drawing Number 8 - Top of Subgrade Bottom Cell Grading Site Plan
- Drawing Number 9 - Leachate Collection System Site Plan

- Drawing Number 10 - Top of Protective Cover Bottom Cell Grading Site Plan
- Drawing Number 31 - Phase II Section I and II Fill Sequence No. 6 Plan
- Drawing Number 37 - Phase II Section I and II Fill Sequence No. 6 Sections
- Drawing Number 37a - Phase II Section I and II Fill Sequence No. 6 Section

A meeting was conducted on June 7, 2013 between the below-identified attendees in order to provide consistent and complete information for the responses to RAI No. 1 and the responses to the May 3, 2013 RAI No. 2 Department letter for the Phase II Section II Expansion Application for pending permit #38414-015-SC/01. During the meeting a decision was made by the attendees to combine the Hardee County Landfill Operation Drawings and the Hardee County Landfill Phase II Section II Expansion Construction Drawings consisting of drawing numbers 1 through 37 dated April 2013 previously submitted with the Phase II Section II Expansion Application for the facility, into one set of drawings.

- Shane R. Fischer, P.E. - SCS Engineers
- Ed Hilton, Jr., P.E. - SCS Engineers
- Ken Wheeler - Director/County Engineer Hardee County Public Works
- Teresa Carver - Hardee County Solid Waste Director
- Steve Morgan - FDEP
- John Morris - FDEP

The revised drawings in response to RAI No. 2 for the Phase II Section II Expansion Application for pending permit #38414-015-SC/01 are identified below and are discussed in the *Phase II Section II Expansion Construction Response to Request for Additional Information No. 2*, dated June 28, 2013, prepared by SCS.

- Drawing Number 1 - Cover Sheet/Drawing Index
- Drawing Number 11 - Section - Bottom Cell
- Drawing Number 15 - Tie-in Details - Bottom Cell
- Drawing Number 16 - Perimeter Road and Trench Details - Bottom Cell
- Drawing Number 20 - Details - 3

Also note, since the Hardee County Landfill Operation Drawings and the Hardee County Landfill Phase II Section II Expansion Construction Drawings have been combined into one



set of drawings, the remainder of the drawings not listed above specifically revised for either RAI response have been revised only in the title block to indicate combining the drawings. For ease of reference, and since a hard copy of the drawings **is not supplied** with this submittal, an electronic copy of the drawings has been provided to the Department in Attachment A. The electronic copy of the drawings includes the complete set of drawings which indicates the responses to RAI No. 1, the *Phase II Section II Expansion Construction Response to Request for Additional Information No. 2*, dated June 28, 2013, prepared by SCS and the remainder of the drawings revised only in the title block to indicate combining the drawings. These drawings are the exact same as those supplied on the CD with the *Phase II Section II Expansion Construction Response to Request for Additional Information No. 2*, dated June 28, 2013, prepared by SCS.

4. **Please be advised that although some comments do not explicitly request additional information, the intent of all comments shall be to request revised calculations, narrative, technical specifications, QA documentation, plan sheets, clarification to the item, and/or other information as appropriate.**

**Response:** Comment noted. All revised calculations, narrative, technical specifications, QA documentation, Drawings, clarification to items and/or other information as appropriate that has been submitted by SCS in response to RAI No. 1 has also been signed and sealed by the registered professional engineer who prepared them.

**The following information is needed in support of the solid waste application [Chapter 62-701, Florida Administrative Code (F.A.C.)]:**

1. **Rule 62-701.320(5)(b), F.A.C. Please address the comments in John Morris' April 11, 2013 memorandum (attached) regarding this application. You may call Mr. Morris at (813) 744-6100, extension 285, to discuss the items in his memorandum.**

**Response:** SCS has provided responses to the comments in John Morris' April 11, 2013 memorandum relating to the following Parts towards the end of this letter.

- Part H - Hydrogeological Investigation Requirements
- Part L - Water Quality And Leachate Monitoring Requirements
- Part N - Gas Management System Requirements

2. **Rule 62-701.320(7)(b), F.A.C. DEP Form #62-701.900(1) - Part B.3: Please verify and compare the acreages reported in this part with those provided in Section A.2 of the Engineering Report and revise this part, as appropriate.**

**Response:** Part B.3 on page 6 of 39 of the State of Florida Department of Environmental Protection Application to Construct, Operate, Modify, or Close a Solid waste Management Facility Form 62-701.900(1) has been revised to indicate the total disposal area is 24.8 acres as opposed to the previously indicted 23.8 acres. Also, the available number of acres has been revised to indicate 12.49 as opposed to the previously indicted 11.5 acres. The revised

information on the Application Form is now consistent with Section A.2 of the Engineering Report. Refer to Attachment B for revised Part B.3 (page 6 of 39) of Application Form #62-701.900(1).

Section A.2 of the Engineering Report has not been revised, the information provided matches the acreages identified on the revised Application Form.

In addition, a new Application Form #62-701.900(1) page 39 has been signed by Shane R. Fischer, P.E. (and sealed) and Teresa Carver as provided in Attachment B.

## **SECTION A - GENERAL INFORMATION (RULE 62-701.320(7), F.A.C.)**

- 3. Phase I Area: Please verify and compare the 330 mil geocomposite layer in Phase I reported in this and other parts of Section A with the 300 mil geocomposite layer in Phase I reported in Sections G.2 and J.2 of the Engineering Report and revise Section A and/or Sections G.2 and J.2, as appropriate.**

**Response:** Sections G.2 and J.2 of the Engineering Report have been revised to indicate an existing layer of 330 mil geocomposite, as opposed to the previously indicated 300 mil geocomposite, is in place along the western and southern sideslopes of the Phase I area where the Phase II Section II Expansion and the Phase II Section I height increase will “piggy-back.” Section A has not been revised, the previously indicated values were correct. Refer to Attachment C for revised Section G and revised Section J replacement pages J-1 and J-2 of the Engineering Report.

## **SECTION D - DISPOSAL FACILITY GENERAL INFORMATION (RULE 62-701.320, F.A.C.)**

- 4. Section D.5: The application fee for a 20-yr Class I landfill operation permit is \$40,000. Please revise this section accordingly.**

**Response:** Section D.5 of the Engineering Report has been revised to indicate the application fee for a 20-year Class I landfill operation permit is \$40,000 as opposed to the previously indicated \$10,000. Refer to Attachment C for revised Section D replacement page D-1 of the Engineering Report.

- 5. Section D.13: Please publish the attached Notice of Application and provide proof of publication to the Department.**

**Response:** Refer to Attachment D for the proof of publication of the Notice of Application from The Herald-Advocate which was published on April 18, 2013.

## **SECTION E - LANDFILL PERMIT REQUIREMENTS (RULE 62-701.330, F.A.C.)**

- 6. Section E.3.a.: The copy of the survey report provided in Attachment F does not appear to be a signed and sealed copy. Please verify and provide a signed and sealed copy of the survey report.**

**Response:** An original signed and sealed aerial topographic survey conducted by Pickett and Associates, Inc. (Pickett), dated April 3, 2012 and the associated signed and sealed survey report was previously provided to the Department in Attachment E of the *Hardee County Class I Landfill Phase II Section II Expansion Construction Response to Request for Additional Information No. 1*, dated April 1, 2013, prepared by SCS.

## **SECTION K - LANDFILL OPERATION REQUIREMENTS (RULE 62-701.500, F.A.C.)**

- 7. Section K.2.f.: Please revise Section K.2.f and its subsections in the Engineering Report and Section K.2.f. and its subsections in the Operation Plan in Attachment K, where appropriate, to describe the sequence and procedures for placement and removal of rain tarps on the Phase I side slopes prior to and during the operation of vertical expansion over Phase I during Phase II Section I and Phase II Section II operations at the facility, as described in Permit Application #38414-015-SC/01.**

**Response:** Section K.2.f and its subsections in the Engineering Report have been revised as requested by the Department. Refer to Attachment C for revised Section K of the Engineering Report.

Section K.2.f and its subsections in the Operation Plan have been revised as requested by the Department. Refer to Attachment E for revised Section K.2.f and its subsections of the Operation Plan.

- 8. Section K.2.f.8: The description of the construction of temporary side slope berms “during operations, as needed” appears too vague. Please provide a detailed description of when during phased operation of the facility the temporary berms will be constructed and subsequently removed in relation to proposed side slope rain tarps and a description of the constructed temporary berm in the appropriate subsections of Sections K.2.f and K.8.a.1 of the Operation Plan in Attachment K. Please provide a detail of the temporary berm in the Operation Drawings provided in Attachment E. Please revise this section to reference this information. This comment may be discussed in further detail during the meeting recommended at the conclusion of this letter.**

**Response:** Section K.2.f.8 of the Engineering Report has been revised as requested by the Department. Refer to Attachment C for revised Section K of the Engineering Report.

Section K.2.f and K.8.a.1 of the Operation Plan have been revised as requested by the Department. Refer to Attachment E for revised Sections K.2.f and K.8.a.1 of the Operation Plan.

Refer to Attachment A for revised Drawing Number 11 that provides a detail of a temporary side slope berm.

- 9. Section K.2.f.8: The quantity of leachate applied for “leachate evaporation” shall not be such as to require “ditches, berms, or other devices... to control leachate runoff” or the need to “shed runoff to the leachate collection system”. Please revise this section accordingly. Please revise Section K.2.f.8 of the Operation Plan to provide specific procedures for the application of leachate for evaporation such that leachate runoff is prevented and leachate is only applied to those areas and cover soils that do not runoff to stormwater.**

**Response:** Section K.2.f.8 of the Engineering Report has been revised as requested by the Department. Refer to Attachment C for revised Section K of the Engineering Report.

Section K.2.f.8 of the Operation Plan has been revised as requested by the Department. Refer to Attachment E for revised Section K.2.f.8 of the Operation Plan.

- 10. Section K.2.j: This and several other sections of Section K of the Engineering Report and the Operation Plan in Attachment K describe cleaning and inspection of the leachate collection system (including the Phase II Section I groundwater control system) “at the time permit renewal”. In accordance with Rule 62-701.500(8)(h), F.A.C. [effective 8/12/12], the system shall be cleaned and/or inspected “at least once every five years” during the 20-year permit period. Please revise all appropriate sections of the Engineering Report and Operation Plan accordingly.**

**Response:** Sections G.5.d, K.2.j, K.8.b, and K.8.h of the Engineering Report have been revised to indicate the LCRS pipes and the Phase II Section I groundwater control system will be cleaned by flushing and/or be inspected by video recording in accordance with Rule 62-701.500(8)(h), FAC [effective 8/12/12] at least once every five years during the 20-year Operation Permit period. Refer to Attachment C for revised Sections G and K of the Engineering Report.

Sections K.2.j, K.2.k, and K.8.h of the Operation Plan have been revised to indicate the LCRS pipes, Phase II Section I groundwater control system, and the portion of the Phase II Section II groundwater control system will be cleaned by flushing and/or be inspected by video recording in accordance with Rule 62-701.500(8)(h), FAC [effective 8/12/12] at least once every five years during the 20-year Operation Permit period. Refer to Attachment E for revised Sections K.2.j, K.2.k, and K.8.h of the Operation Plan.

- 11. Section K.4: Waste quantity reports are only required to be submitted to the Department annually. The monthly reports shall be kept on file at the facility and be available for inspection by the Department upon request. The waste information shall be reported to the Department through the DEP Business Portal located at: <http://www.fldepportal.com/go>. Please revise this section and Section K.4 of the Operation Plan, accordingly.**

**Response:** Section K.4 of the Engineering Report has been revised as requested by the Department. Refer to Attachment C for revised Section K of the Engineering Report.

Section K.4 of the Operation Plan has been revised as requested by the Department. Refer to

Attachment E for revised Section K.4 of the Operation Plan.

- 12. Section K.7.c.: Please verify and compare the waste layer thickness, waste compaction, lift thickness and top slope described in this section with the descriptions in Section K.7.a of the Engineering Report and Sections K.7.a and K.7.c of the Operation Plan, and revise these sections, as appropriate.**

**Response:** Sections K.7.a and K.7.c of the Engineering Report have been revised as requested by the Department. Refer to Attachment C for revised Section K of the Engineering Report.

Sections K.7.a and K.7.c of the Operation Plan have been revised as requested by the Department. Refer to Attachment E for revised Section K.7.a and K.7.c of the Operation Plan.

- 13. Section K.7.e.: Please verify and revise this section to reference the initial cover requirements in Rule 62-701.500(7)e.1. through 62-701.500(7)e.4, F.A.C.**

**Response:** Section K.7.e of the Engineering Report has been revised as requested by the Department. Refer to Attachment C for revised Section K of the Engineering Report.

Section K.7.e of the Operation Plan has been revised as requested by the Department. Refer to Attachment E for revised Section K.7.e of the Operation Plan.

- 14. Section K.8.h.: The Phase II Section II Center and North Portion leachate collection system design appears to include a 10-inch perforated leachate collection pipe. Please verify and revise the description in this section and Section K.2.j of the Operation Plan, as appropriate.**

**Response:** Section K.8.h of the Engineering Report has been revised as requested by the Department. Refer to Attachment C for revised Section K of the Engineering Report.

Sections K.2.j and K.8.b of the Operation Plan have been revised as requested by the Department. Refer to Attachment E for revised Sections K.2.j and K.8.b of the Operation Plan.

## **SECTION M - SPECIAL WASTE HANDLING PROCEDURES (RULE 62-701.520, F.A.C.):**

- 15. Section M.4: Please explain why “A front end loader will place the soil [that cannot be accepted at the facility] in a barrel at the Household Hazardous Waste Collection Facility”, if as described in this section, testing of contaminated soil is required “first before being accepted at this facility for disposal”. Please revise this section, as appropriate.**

**Response:** The second paragraph of Section M.4 has been removed from the Engineering Report. Refer to Attachment C for revised Section M replacement page M-2 of the

Engineering Report.

**SECTION O - LANDFILL FINAL CLOSURE REQUIREMENTS (RULE 62-701.600, F.A.C.):**

- 16. Section O & O.1: Please verify the references to final closure of the “storage facility” in these sections and revise as appropriate.**

**Response:** The word “storage” has been removed from Sections O.1 and O.1.a of the Engineering Report. Refer to Attachment C for revised Section O replacement page O-1 of the Engineering Report.

**SECTION R - FINANCIAL ASSURANCE REQUIREMENTS (RULE 62-701.630, F.A.C.):**

- 17. Section R.4: The language in this section was deleted from Rule 62-701.630(2)(c), F.A.C. (effective 8/12/12). Please verify and revise this section to be consistent with current Rule 62-701.630(2)(c), F.A.C.**

**Response:** Section R.4 of the Engineering Report has been revised to be consistent with current Rule 62-701.630(2)(c), FAC. No solid waste shall be stored or disposed of at the Hardee County Landfill until the County has received written approval of the financial assurance mechanism from the Department. Refer to Attachment C for revised Section R replacement page R-2 of the Engineering Report.

**ATTACHMENT E - OPERATION DRAWINGS (RULE 62-701.320(7)(F), F.A.C.)**

**Please provide the following additional information and revisions to the Operation Drawings that include all necessary details for the construction of the facility. The drawings may be reviewed in their entirety after the responses to this request for information.**

**Response:** Comment noted.

- 18. Where drawings in this plan set are based on drawings provided in support of the Phase Section II Construction application (Application No. 38414-015-SC/01), please revise drawings in this plan set, where appropriate, based your response to comments related to those application drawings.**

**Response:** Revisions to the Hardee County Landfill Operation Drawings dated March 2013, previously submitted to FDEP consisting of drawing numbers 1 through 37, have been indicated by SCS on each of the applicable drawings using revision clouds with labels as necessary and the reason for the revisions have been indicated in the title block. Also, the revisions or clarifications implemented to the drawings identified below have been discussed within the responses to RAI No. 1, where applicable. A hard copy of the revised drawings indicated below **is not supplied** with this submittal but **is supplied** within Attachment A of

the *Phase II Section II Expansion Construction Response to Request for Additional Information No. 2*, dated June 28, 2013, prepared by SCS based on the meeting as discussed below.

- Drawing Number 1 - Cover Sheet/Drawing Index
- Drawing Number 7 - Project Area Existing Conditions Site Plan
- Drawing Number 8 - Top of Subgrade Bottom Cell Grading Site Plan
- Drawing Number 9 - Leachate Collection System Site Plan
- Drawing Number 10 - Top of Protective Cover Bottom Cell Grading Site Plan
- Drawing Number 31 - Phase II Section I and II Fill Sequence No. 6 Plan
- Drawing Number 37 - Phase II Section I and II Fill Sequence No. 6 Sections
- Drawing Number 37a - Phase II Section I and II Fill Sequence No. 6 Section

A meeting was conducted on June 7, 2013 between the below-identified attendees in order to provide consistent and complete information for the responses to RAI No. 1 and the responses to the May 3, 2013 RAI No. 2 Department letter for the Phase II Section II Expansion Application for pending permit #38414-015-SC/01. During the meeting a decision was made by the attendees to combine the Hardee County Landfill Operation Drawings and the Hardee County Landfill Phase II Section II Expansion Construction Drawings consisting of drawing numbers 1 through 37 dated April 2013 previously submitted with the Phase II Section II Expansion Application for the facility, into one set of drawings.

- Shane R. Fischer, P.E. - SCS Engineers
- Ed Hilton, Jr., P.E. - SCS Engineers
- Ken Wheeler - Director/County Engineer Hardee County Public Works
- Teresa Carver - Hardee County Solid Waste Director
- Steve Morgan - FDEP
- John Morris - FDEP

The revised drawings in response to RAI No. 2 for the Phase II Section II Expansion Application for pending permit #38414-015-SC/01 are identified below and are discussed in the *Phase II Section II Expansion Construction Response to Request for Additional Information No. 2*, dated June 28, 2013, prepared by SCS.

- Drawing Number 1 - Cover Sheet/Drawing Index
- Drawing Number 11 - Section - Bottom Cell
- Drawing Number 15 - Tie-in Details - Bottom Cell
- Drawing Number 16 - Perimeter Road and Trench Details - Bottom Cell
- Drawing Number 20 - Details - 3

Also note, since the Hardee County Landfill Operation Drawings and the Hardee County Landfill Phase II Section II Expansion Construction Drawings have been combined into one set of drawings, the remainder of the drawings not listed above specifically revised for either RAI response have been revised only in the title block to indicate combining the drawings. For ease of reference, and since a hard copy of the drawings **is not supplied** with this submittal, an electronic copy of the drawings has been provided to the Department in Attachment A. The electronic copy of the drawings includes the complete set of drawings which indicates the responses to RAI No. 1, the *Phase II Section II Expansion Construction Response to Request for Additional Information No. 2*, dated June 28, 2013, prepared by SCS and the remainder of the drawings revised only in the title block to indicate combining the drawings. These drawings are the exact same as those supplied on the CD with the *Phase II Section II Expansion Construction Response to Request for Additional Information No. 2*, dated June 28, 2013, prepared by SCS.

**19. Sheet 4: Please revise this sheet or Sheet 7 to identify all the Phase I manholes, by number designation.**

**Response:** Refer to Attachment A for revised Drawing Number 7 to identify all the Phase I manholes by number designation. No revisions have been made to Drawing Number 4.

**20. Sheet 8: Please verify the cross-references for the “Groundwater Control Piping Detail” and “Existing Horizontal Landfill Gas Vent Trench” on this sheet and revise this sheet, as appropriate.**

**Response:** The section view and the callout reference on Drawing Number 8 for the “Groundwater Control Piping Detail” were intended to refer to the same detail/section on Drawing Number 14. No revisions have been made to Drawing Number 8 regarding these responses.

The Existing Horizontal Landfill Gas Vent Trench callout location on Drawing Number 8 has been revised. Refer to Attachment A for revised Drawing Number 8 to identify the information as requested by the Department.

**21. Sheet 9: Please revise this or another appropriate drawing to show the entire groundwater control system to MH-10 and groundwater pump station and the entire leachate collection system for Phase II Section I to the leachate tanks.**



**Response:** Refer to Attachment A for revised Drawing Number 10 to identify the entire groundwater control system to MH-10 the groundwater pump station as requested by the Department.

Refer to Attachment A for revised Drawing Number 9 to identify the entire leachate collection system for Phase II Section I to the leachate tanks as requested by the Department.

**22. Sheet 31: Please provide an east-west cross section through Phase II Section II (North) and Phase I for Fill Sequence 6.**

**Response:** Refer to Attachment A for revised Drawing Number 31 for an east-west cross section through Phase II Section II (North) and Phase I for Fill Sequence 6 as requested by the Department.

**23. Sheet 37:**

**a. Section K: Please revise this section to show the Fill Sequence 4 & 5 lifts.**

**Response:** Refer to Attachment A for revised Drawing Number 37 for Section K which identifies the lifts within Fill Sequence 4 and 5 as requested by the Department.

**ATTACHMENT K - OPERATION PLAN (RULE 62-701.500(9), F.A.C.):**

**Please provide the following additional information and revisions to the facility Operation Plan. Please provide a revised Operation Plan that incorporates the additional information and/or revisions or alternatively provide replacement pages with revisions noted (deletions may be struckthrough [~~struckthrough~~] and additions may be underlined [underlined] or a similar method may be used) and each page numbered with the document title and date of revision.**

**Response:** Comment noted. SCS has provided one paper copy and one electronic copy of revised submittals, or replacement pages to the submittals, hole-punched for a three-ring binder using a strikethrough (~~strikethrough~~), underline (underline) or shaded (**shaded**) format to facilitate the FDEP review process. SCS included the revision date as part of the footer for all revised submittals, replacement pages to the submittals, and additional materials. A list of submitted documents in response to RAI No. 1 is provided at the end of this letter.

In addition, SCS has provided one electronic copy of the entire application package that incorporates the supplemental and replacement information submitted.

Note, a hard copy of the revised drawings **is not supplied** with this submittal but **is supplied** within Attachment A of the *Phase II Section II Expansion Construction Response to Request for Additional Information No. 2*, dated June 28, 2013, prepared by SCS based on the meeting as discussed below. Although, since a hard copy of the drawings **is not supplied** with this submittal, an electronic copy of the drawings has been provided to the Department in Attachment A which includes the complete set of drawings which indicates the responses to RAI No. 1, the

*Phase II Section II Expansion Construction Response to Request for Additional Information No. 2*, dated June 28, 2013, prepared by SCS and the remainder of the drawings revised only in the title block to indicate combining the drawings as discussed below. These drawings are the exact same as those supplied on the CD with the *Phase II Section II Expansion Construction Response to Request for Additional Information No. 2*, dated June 28, 2013, prepared by SCS.

**24. Please revise the Table of Contents to include a list of the Figures and Appendices that are part of the Operation Plan.**

**Response:** Refer to Attachment E for a revised Table of Contents that includes a list of the Figures and Appendices that are part of the Operation Plan.

**25. Section K.1.e: Waste Tire Permit #129318-004-WT/05 authorizes the storage of up to 1500 (15 tons) at the waste tire facility. Please verify and revise this section, as appropriate.**

**Response:** Refer to Attachment E for a revised Section K.1.e of the Operation Plan that indicates Waste Tire Permit #129318-004-WT/05 authorizes the storage of up to 1,500 (15 tons) of tires at the waste tire facility.

**26. Section K.2.b.3: Please revise this section to indicate that the facility will also notify the Department via phone or e-mail, within 24 hr of a fire occurring at the facility.**

**Response:** Refer to Attachment E for a revised Section K.2.b.3 of the Operation Plan that indicates the County will also notify the Department via phone or e-mail within 24 hours of a fire occurring at the facility.

**27. Section K.2.f: The proposed sequence of fill includes phased waste filling to very specific elevations and fill dimensions prior to proceeding to the next phase of waste filling. The permittee has had historic difficulty in monitor waste filling at the facility, resulting in the filling of waste above or outside of the permitted filling elevations and/or dimensions on several occasions. Please revise this section or an appropriate Section K.2.f. subsection to describe the specific procedures to be implemented by the permittee to monitor waste filling elevations, slopes, and dimensions as part of phased filling of the facility to ensure compliance with the permitted facility filling sequence.**

**Response:** Section K.2.f of the Operation Plan has been revised as requested by the Department. Refer to Attachment E for revised Section K.2.f of the Operation Plan.

In addition, Section K.2.f of the Engineering Report has been revised as requested by the Department. Refer to Attachment C for revised Section K of the Engineering Report.

**28. Sections K.2.f.2 & K.2.f.3: These sections indicate that waste filling will be “temporarily stopped” in the Southern and Center portion of Phase II Section II and waste filling will proceed to next filling sequence. Based on site life calculations provided in Attachment H of this application, please revise these sections to provide an estimate of the period of time until waste filling resumes in these portions of the facility and, depending on the**

**estimated length of time, to describe cover and erosion control measures that will be implemented in the temporarily inactive areas.**

**Response:** Sections K.2.f.2 and K.2.f.3 of the Operation Plan have been revised as requested by the Department. Refer to Attachment E for revised Sections K.2.f.2 and K.2.f.3 of the Operation Plan.

**29. Section K.2.f.7:**

- a. Please revise this section to also include confirmation that the processes indicated in Part K.2.f.6 were followed.**

**Response:** Refer to Attachment E for a revised Section K.2.f.7 of the Operation Plan, and Attachment C for revised Section K.2.f.7 of the Engineering Report, which indicates the County shall provide confirmation that the processes as indicated in Section K.2.f.6 of the Operation Plan and Engineering Report were followed regarding the protective material placed against the Phase I sideslope after sod removal.

- b. The certification statement referenced in this section shall either be signed & sealed by the engineer of record that conducted and/or monitored the protective soil/drainage sand depth checks and soil replacement or reviewed appropriate documentation of the work; or shall include adequate documentation of work that can be reviewed by the Department. In the event that the certification statement is not signed & sealed by an engineer of record, the certification statement and supporting documentation shall be submitted at least seven days prior to waste placement over the certified area to allow for Department review of the submittal. Please revise this section, as appropriate.**

**Response:** The certification statement shall either be signed and sealed by the Engineer of Record that conducted and/or monitored the protective soil/drainage sand depth checks and soil replacement or reviewed appropriate documentation of the work; or shall include adequate documentation of work that can be reviewed by the Department. In the event that the certification statement is not signed and sealed by the Engineer of Record, the certification statement and supporting documentation shall be submitted at least seven days prior to waste placement over the certified area to allow for Department review of the submittal. Refer to Attachment E for a revised Section K.2.f.7 of the Operation Plan and Attachment C for revised Section K.2.f.7 of the Engineering Report in regards to the above-mentioned submittal requirements for the certification statement.

**30. Section K.8.a.1: The monthly collection of leachate level readings in Phase I appears to have been discontinued as part of Permit Modification 38414-014-SO/MM, issued April 15, 2011. Please verify and revise this section as appropriate.**

**Response:** Section K.8.a.1 of the Operation Plan has been revised to remove the monthly collection of leachate level readings in Phase I as requested by the department. Refer to Attachment E for revised Section K.8.a.1 of the Operation Plan.

**31. Section K.8.b:**

- a. **With the proper use of operational berms within the working face area as described in Section K.7 of Operation Plan and the application of adequate cover material outside the working face area as described in Sections K.7.f and K.7.g of the Operation Plan, the creation of excavated low bermed areas to collection leachate runoff should not be needed or included in the operational procedures for the facility. Please verify and revise this section accordingly.**

**Response:** Section K.8.b of the Operation Plan has been revised to remove the creation of excavated low bermed areas to collect leachate runoff. Refer to Attachment E for revised Section K.8.b of the Operation Plan.

- b. **Phase II Section I Landfill Expansion Collection/Detection System: With leachate from Phase II Section II pumped into the Phase II Section I leachate collection lines and collected and pumped from the Phase II Section I sump, please explain how independent flow meters track the amount of leachate collection from Phase II Section I, as described in this section and Section K.8.f. and revise these sections, as appropriate.**

**Response:** Section K.8.b of the Operation Plan has been revised to explain how independent flow meters track the amount of leachate collection from Phase II Section I. Refer to Attachment E for revised Section K.8.b of the Operation Plan.

- c. **Phase II Section I Landfill Expansion Collection/Detection System: Please revise this section to describe where independent flow meters track the amount of leachate collection from Phase II Section II.**

**Response:** Section K.8.b of the Operation Plan under Part “Phase II Section II Landfill Expansion Collection/Detection System” has been revised to describe where independent flow meters track the amount of leachate collected from the Phase II Section II Expansion. Refer to Attachment E for revised Section K.8.b of the Operation Plan.

**32. Section K.8.f:**

- a. **Lift Station: Please verify whether the lift station described in this section is Manhole #8.**

**Response:** The lift station referenced in Section K.8.f of the Operation Plan under Part “Phase I Quantities” is Manhole #8. Section K.8.f has been revised to indicate Manhole #8. Refer to Attachment E for revised Section K.8.f of the Operation Plan.

- b. **Phase I Quantities: Section K.8.b. describes leachate collected in Phase II Section I (and Phase II Section II) being pumped directly to the leachate tank, rather than to the “lift station”. Please verify and revise this section accordingly. Please also verify the reference to Phase II Section II in this section.**

**Response:** The leachate collected from the Phase II Section II Expansion north and center portions is pumped to the leachate collection sideslope risers located along the western side of the south portion of the Phase II Section II Expansion. The sideslope risers are extensions of the leachate collection pipes for the Phase II Section II Expansion which will be connected to the existing leachate collection lines located within the Phase II Section I area during construction. Leachate will then flow via gravity to the existing leachate collection sump and pumps located within the Phase II Section I area. From the Phase II Section I sump the leachate will be pumped into the existing above ground leachate storage tanks (not the lift station as referenced by the Department). Section K.8.b of the Operation Plan has not been revised in regards to this comment.

**33. Section K.9:**

- a. **The facility does not appear to have existing LFG probes GP-7 and GP-8. Please verify the reference to the abandonment of LFG probes GP-7 and GP-8 in this section and revise this section, as appropriate.**

**Response:** The reference to existing LFG probes GP-7 and GP-8 within Section K.9 of the Operation Plan has been removed. Refer to Attachment E for revised Section K.9 of the Operation Plan.

The reference to existing LFG probes GP-7 and GP-8 within Sections N.1 and N.2 of the Engineering Report have been removed. Refer to Attachment C for revised Section N of the Engineering Report.

- b. **The referenced “Figure 1 Monitoring Locations” does not appear to have been provided at the end of the Operation Plan, as indicated. Please verify and provide Figure 1, as appropriate.**

**Response:** Figure 1 Monitoring Locations was inadvertently not included in the original application submittal. For the response to RAI No. 1 this Figure has been renamed Figure 2 Monitoring Locations. Refer to the Figures section located at the end of the revised Operation Plan located in Attachment E for Figure 2 Monitoring Locations.

**34. Section K.10: The description of the operation stormwater management system at this facility in this section is consistent with site conditions upon closure of the facility, but does not appear to describe stormwater management during operation of the facility. Please revise this section to also include a description of stormwater management procedures during operation of the facility, including the use of side slope terraces, temporary side slope berms, and rain tarps.**

**Response:** Section K.10 of the Operation Plan has been revised as requested by the Department to include a description of the stormwater management procedures during operation of the facility including the use of side slope terraces, temporary side slope berms, and rain tarps. Refer to Attachment E for revised Section K.10 of the Operation Plan.

**35. Appendix F: The Cedar Trail Landfill is now a Class I landfill. Please revise the**

**contact list in Appendix F accordingly.**

**Response:** The Neighboring Landfills To Hardee County Contact List has been revised as requested by the Department. Refer to Appendix F located in the revised Operation Plan located in Attachment E for a revised Neighboring Landfills To Hardee County Contact List.

**36. Appendix J: This facility no longer bales waste. Please revise the waste quantity form in Appendix J accordingly.**

**Response:** The Waste Quantity Form has been revised to remove the column “Baled Waste Disposed Of.” Refer to Appendix J located in the revised Operation Plan located in Attachment E for a revised Waste Quantity Form.

**37. Appendix N: The monthly collection of leachate level readings in Phase I appears to have been discontinued as part of Permit Modification 38414-014-SO/MM, issued April 15, 2011 and piezometers P-1, P-2, and P-15 have been abandoned. The remaining piezometers and monitoring wells listed on the form in Appendix N are still utilized to collect groundwater level readings. Please verify and revise, rename and/or eliminate Appendix N from the Operation Plan, as appropriate.**

**Response:** The Monthly Leachate Water Leveling Form has been updated to be consistent with the remaining piezometers and monitoring wells utilized to collect groundwater level readings. Refer to Appendix N located in the revised Operation Plan located in Attachment E for a revised Monthly Leachate Water Leveling Form.

**38. Appendix O: Please revise the monthly leachate water balance form in Appendix O to include Phase II Section II Collection and Detection and the quantities of leachate recirculated for evaporation.**

**Response:** The Monthly Leachate Water Balance Form has been revised to include the Phase II Section II collection and detection and the quantities of leachate recirculated for evaporation. Refer to Appendix O located in the revised Operation Plan located in Attachment E for a revised Monthly Leachate Water Balance Form.

**39. Appendix Q: This section describes the management of hurricane debris at the facility and off-site. Please be advised that Hardee County has not contacted the Department since 2010 to have sites in the County, including the landfill site, pre-approved as debris staging area. It is recommended that the appropriate County representative contact me at (813) 632-7600 ext 329 or [steve.morgan@dep.state.fl.us](mailto:steve.morgan@dep.state.fl.us) to discuss pre-approval of sites intended to be utilize as debris staging site in Hardee County. This comment is provided for informational purposes only and does not require a response related to this permit application other than an acknowledgement of the comment.**

**Response:** Comment noted.

**ATTACHMENT L - FLORIDA JET CLEAN REPORT (RULE 62-701.500(8)(H), F.A.C.):**

**40. The “Pipe Graphics Report” for the Phase I LCS and Phase II Section I LCS video inspections do not appear to have been included in Attachment L. Please provide the parts of the jet clean report.**

**Response:** Refer to Attachment H for the report from Florida Jetclean (Jetclean) for the work conducted on December 18, 2012 in its entirety to include the missing information. Note a CD of the video inspection has not been resupplied with the responses to RAI No. 1.

**41. Phase I - Leachate Collection System:**

- a. Please explain why Phase I Manholes 5, 6, and 7 could not be accessed and why these manholes needed to be accessed to video inspect the leachate lines between them.**

**Response:** MH-5, MH-6, and MH-7 had a concrete cap poured over the manhole lids during the Hardee County Class I Landfill - Phase I Closure project per permit number 38414-012-SF/01 dated 11/09/2009. Therefore, there is no access directly into these three manholes through the lid. Per the Phase II Section II Expansion design, after construction the existing leachate collection system pipeline for the Phase I area can still be jet-cleaned and video-inspected as required by the Operation Permit. The Phase I leachate collection system line can be accessed from existing MH-4 (not modified for the Expansion design) and travel through modified MH-5, through modified MH-6 and into modified MH-7. The jet cleaning and tracked video camera equipment can be inserted into MH-4 and travel through the entire pipeline to the end located at modified MH-7, a distance of approximately 950 feet.

- b. The inability of the County to pump leachate levels down to allow access to the pipe openings in the lift station (MH-8) and MW-9 for video inspection appears to call into question the effectiveness of the Phase I leachate collection system to remove leachate from Phase I. Please explain how these conditions occurred during jet cleaning, what actions, if any have been taken subsequently to address this condition, and the supporting justification for the conclusion of report that the Phase I system is “in good working order.” This comment may be discussed in further detail during the meeting recommended at the conclusion of this letter.**

**Response:** Jetclean remobilized to the site and conducted additional jet-cleaning and video-inspection services during May 2013 to verify adequate performance of the Phase I leachate collection and removal system pipes in the following locations to address the Department’s concerns.

- From MH-4, through MH-5, to MH-6, a distance of approximately 790 feet.
- From MH-8 (pump station) to MH-7, a distance of approximately 620 feet.
- From MH-9 to MH-8 (pump station), a distance of approximately 97 feet.
- From MH-9 to MH-1, a distance of approximately 120 feet.

Based on the findings of the Jetclean reports from December 18, 2012 and May 2013, it is SCS's professional opinion that the existing Phase I leachate collection and removal system pipes are operating as intended. Refer to Attachment I for the report and CD's from Jetclean for the additional work conducted during May 2013.

During the time Jetclean conducted the initial jet-cleaning and video-inspection services of the Phase I leachate collection system in December 2012 the County was going through personnel changes at the facility. The quantity of leachate normally being pumped from the Phase I area and hauled offsite, at that time, had reduced because of the personnel changes. Since that time the changes have been resolved and leachate is being pumped and hauled consistently, as noted by the video of the services provided by Jetclean during the May 2013 of the Phase I leachate collection system.

**As indicated in the comments provided above, the Department had a couple comments that were either difficult to describe in writing or are better explained and discussed in person. In order to assist the applicant, the Department feels it would very beneficial to meet to discuss options for addressing these issues. The Department therefore requests that the applicant contact us to schedule a meeting to discuss the comments in this letter prior to submittal of its response.**

**Response:** Comment noted.

**Please respond by the date established in the meeting requested above, responding to all of the information requests and indicating when a response to any unanswered questions will be submitted. If the response will require longer than the above schedule, you should develop an alternate timetable for the submission of the requested information for Department review and consideration. If the Department does not receive a timely, complete response to this request for information, the Department may issue a final order denying your application. A denial for lack of information or response will be unbiased as to the merits of the application. The applicant may reapply as soon as the requested information is available.**

**Response:** Comment noted. Based on the meeting conducted on June 7, 2013 between the following meeting attendees, the responses to RAI No. 1 have been generated and provided to the Department by June 28, 2013 as discussed.

- Shane R. Fischer, P.E. - SCS Engineers
- Ed Hilton, Jr., P.E. - SCS Engineers
- Ken Wheeler - Director/County Engineer Hardee County Public Works
- Teresa Carver - Hardee County Solid Waste Director
- Steve Morgan - FDEP
- John Morris - FDEP



**Please provide 1 paper and one electronic copy of your response to this letter as one complete package.**

**Response:** Comment noted. SCS has provided one paper copy and one electronic copy of revised submittals, or replacement pages to the submittals, hole-punched for a three-ring binder using a strikethrough (~~strikethrough~~), underline (underline) or shaded (shaded) format to facilitate the FDEP review process. SCS included the revision date as part of the footer for all revised submittals, replacement pages to the submittals, and additional materials. A list of submitted documents in response to RAI No. 1 is provided at the end of this letter.

In addition, SCS has provided one electronic copy of the entire application package that incorporates the supplemental and replacement information submitted.

Note, a hard copy of the revised drawings **is not supplied** with this submittal but **is supplied** within Attachment A of the *Phase II Section II Expansion Construction Response to Request for Additional Information No. 2*, dated June 28, 2013, prepared by SCS based on the meeting as discussed below. Although, since a hard copy of the drawings **is not supplied** with this submittal, an electronic copy of the drawings has been provided to the Department in Attachment A which includes the complete set of drawings which indicates the responses to RAI No. 1, the *Phase II Section II Expansion Construction Response to Request for Additional Information No. 2*, dated June 28, 2013, prepared by SCS and the remainder of the drawings revised only in the title block to indicate combining the drawings as discussed below. These drawings are the exact same as those supplied on the CD with the *Phase II Section II Expansion Construction Response to Request for Additional Information No. 2*, dated June 28, 2013, prepared by SCS.

## **PART H - HYDROGEOLOGICAL INVESTIGATION REQUIREMENTS [RULE 62-701.410(1), F.A.C.].**

### **1. H.1.h.: Identify and locate any existing contaminated areas on the site. Rule 62-701.410(1)(c), F.A.C.]**

- a. This section of the Engineering Report indicated this item on the application form has been identified as “No Change,” however the “submitted” box was checked for this item on the application form. Please submit revised page 24 of the application form that checks the “N/C” box for item #H.1.h.**

**Response:** Part H.1.h on page 24 of 39 of the State of Florida Department of Environmental Protection Application to Construct, Operate, Modify, or Close a Solid waste Management Facility Form 62-701.900(1) has been revised to indicate “N/C” as opposed to the previously indicated “submitted.” Refer to Attachment B for revised Part H.1.h (page 24 of 39) of Application Form #62-701.900(1).

In addition, a new Application Form #62-701.900(1) page 39 has been signed by Shane R. Fischer, P.E. (and sealed) and Teresa Carver as provided in Attachment B.

### **2. H.1.g.: Inventory of all public and private water wells within a one-mile radius of the landfill . . . H.1.i.: Include a map showing locations of all potable wells . . .**

**[Rules 62-701.410(1)(b) and 62-701.410(1)(d), F.A.C., respectively]**

- a. These sections of the Engineering Report referred to the information presented in Attachment C-1. Please submit revisions to Section H.1.g., Section H.1.i., and Attachment C-1 of the Engineering Report to indicate when the well inventory database queries were conducted.**

**Response:** Section H.1.g of the Engineering Report has been revised to indicate the query search for the public and private water wells within a one-mile of the landfill was conducted on March 3, 2013. Refer to Attachment C for a revised Section H of the Engineering Report.

Section H.1.i of the Engineering Report has been revised to indicate the query search for the public and private water wells within a one-mile of the landfill was conducted on March 3, 2013. Refer to Attachment C for a revised Section H of the Engineering Report.

Refer to Attachment F for a revised Figure 1 Well Inventory, Hardee County Landfill, Hardee County, Florida and Tables 1 through 4 which indicate the query search for the public and private water wells within a one-mile of the landfill was conducted on March 3, 2013.

- b. ¶2 in Section H.1.i., of the Engineering Report indicated this item on the application form has been identified as “No Change,” however the “submitted” box was checked for this item of the application form. Please submit revisions to ¶2 to reflect the response provided to comment #2.a., above.**

**Response:** Paragraph two in Section H.1.i of the Engineering Report has been revised to indicate Part H.1.i of the State of Florida Department of Environmental Protection Application to Construct, Operate, Modify, or Close a Solid waste Management Facility Form 62-701.900(1) has been identified as “Submitted.” Refer to Attachment C for a revised Section H of the Engineering Report.

## **PART L - WATER QUALITY AND LEACHATE MONITORING REQUIREMENTS**

**[RULE 62-701.510, F.A.C.]**

### **3. L.1.e.: Leachate sampling locations.**

**L.1.f.(2): Routine leachate sampling and analysis requirements.**

**[formerly Rules 62-701.510(5) and 62-701.510(6)(c), F.A.C., respectively]**

- a. These sections of the Engineering Report indicated the corresponding items on the application form have been identified as “Not Applicable,” however the “submitted” box was checked for both of these items on the application form. Please submit revised page 32 of the application form that also checks the “N/A” box for items #L.1.e., and #L.1.f.(2).**

**Response:** Part L.1.e on page 32 of 39 of the State of Florida Department of Environmental Protection Application to Construct, Operate, Modify, or Close a Solid waste Management Facility Form 62-701.900(1) has been revised to indicate “N/A” as opposed to the previously indicated “submitted.” Refer to Attachment B for revised Part L.1.e (page 32 of 39) of Application Form #62-701.900(1).

Part L.1.f.(2) on page 32 of 39 of the State of Florida Department of Environmental Protection Application to Construct, Operate, Modify, or Close a Solid waste Management Facility Form 62-701.900(1) has been revised to indicate “N/A” as opposed to the previously indicated “submitted.” Refer to Attachment B for revised Part L.1.f.(2) (page 32 of 39) of Application Form #62-701.900(1).

In addition, a new Application Form #62-701.900(1) page 39 has been signed by Shane R. Fischer, P.E. (and sealed) and Teresa Carver as provided in Attachment B.

**4. L.1.f.(4): Routine surface water sampling and analysis requirements.**  
[Rule 62-701.510(5)(d), F.A.C.]

- a. ¶2 in Section L.1.f., of the Engineering Report referred to the GMP Document regarding surface water sampling and analysis requirements. Please submit revisions to Section A.9 [“Laboratory Parameters (Unfiltered)”] of the GMP Document to include the analysis of total nitrogen for surface water samples collected at location SW-2 to comply with the parameters listed in Rule 62-701.510(7)(b), F.A.C.

**Response:** Section A.9 of the Groundwater Monitoring Plan has been revised to include the analysis of total nitrogen for surface water samples collected at location SW-2 to comply with the parameters listed in Rule 62-701.510(7)(b), FAC. Refer to Attachment G for revised Section A.9 replacement page A-10 of the Groundwater Monitoring Plan.

**5. L.1.g.: Describe procedures for implementing evaluation monitoring . . .**  
[Rule 62-701.510(6), F.A.C.]

- a. ¶2 in Section L.1.g., of the Engineering Report referred to the GMP Document regarding procedures for evaluation monitoring, prevention measures and corrective action. Please submit revisions to item #3 in Section A.13.c [“Preventative Measures and Corrective Action”] of the GMP Document to comply with the requirements of Rule 62-701.510(6)(a)3, F.A.C.

**Response:** Section A.13.c item #3 of the Groundwater Monitoring Plan has been revised to comply with the requirements of Rule 62-701.510(6)(a)3, FAC. Refer to Attachment G for revised Section A.13.c replacement pages A-18, A-19, and A-20 of the Groundwater Monitoring Plan.

**6. L.1.h.(1): Semi-annual report requirements.**  
[Rule 62-701.510(8)(a), F.A.C.]

- a. **Please submit revisions to the first citation presented in this section of the Engineering Report to refer to Rule 62-701.510(8), F.A.C.**

**Response:** The first citation presented in Section L.1.h.(1) of the Engineering Report has been revised to indicate Rule 62-701.510(8), FAC. Refer to Attachment C for a revised Section L.1.h.(1) replacement page L-9 of the Engineering Report.

- b. **Section L.1.h.1., of the Engineering Report referred to the GMP Document regarding semi-annual report requirements. Please submit revisions to the second bullet item in Section A.13.a. [“Water Quality Monitoring Report Requirements”] of the GMP Document to refer to Form #62-701.900(31).**

**Response:** The second bullet item in Section A.13.a of the Groundwater Monitoring Plan has been revised to refer to Form #62-701.900(31). Refer to Attachment G for revised Section A.13.a replacement page A-17 of the Groundwater Monitoring Plan.

Also, Table L-2 Well Construction Details of the *Groundwater Monitoring Plan*, dated March 12, 2013, prepared by SCS has been revised as needed for proposed wells MW-13 and MW-14 to be consistent with Detail 1 of Drawing Number 20. Refer to Attachment G for revised Table L-2 Well Construction Details.

**7. L.1.h.(3): Technical report requirements.  
[Rule 62-701.510(8)(b), F.A.C.]**

- a. **This section of the Engineering Report referred to the Technical Report presented as Attachment J. Please submit revisions to the Technical Report to address the following:**

**Section 1 - Introduction and Background**

- i) **Please submit revisions to ¶1 in the “Introduction” sub-section to refer to Rule 62-701.510(8)(b), F.A.C.**

**Response:** Paragraph one in the “Introduction” sub-section of the Technical Report has been revised to refer to Rule 62-701.510(8)(b), FAC. Refer to Attachment J for revised Section 1 replacement page 1-1 of the Technical Report.

**Section 2 - Geologic and Hydrogeologic Characteristics**

- ii) **¶4 in the “Semi-Annual Groundwater Flow Assessment” sub-section referred to the hydrograph presented in Attachment D, Figure D-12. It does not appear that this attachment was included in the Technical Report submitted to the Department. Please submit Attachment D, Figure D-12.**

**Response:** Paragraph four in the “Semi-Annual Groundwater Flow Assessment” sub-section has been revised to refer to Appendix C, Figure C-12 as opposed to the previously indicated Attachment D, Figure D-12. The hydrograph referenced depicts

the groundwater elevations within each monitoring well since 2000 until December 2012. Please note this hydrograph was originally submitted in the Technical Report but was labeled as Figure C-12 and was located in Appendix C. Refer to Attachment J for revised Section 2 replacement page 2-2 of the Technical Report. No revisions were made to Figure C-12 as previously provided to the Department and therefore has not been resubmitted.

### **Section 3 - Groundwater Monitoring Program**

- iii) ¶1 and ¶2 in the “Groundwater Monitoring Program” sub-section referred to existing background and compliance wells at the facility. Please submit revisions to this sub-section to refer to background and detection wells.

**Response:** Paragraphs one and two in the “Groundwater Monitoring Program” sub-section have been revised to refer to background and detection wells as opposed to the previously indicated background and compliance wells. Refer to Attachment J for revised Section 3 replacement page 3-1 of the Technical Report.

- iv) ¶1 in the “Groundwater Monitoring Program” sub-section referred to the wells listed in Table 3-1. Please submit revisions to Table 3-1 to indicate that wells MW-10 and MW-12 have been abandoned.

**Response:** Table 3-1 in the “Groundwater Monitoring Program” sub-section of the Technical Report has been revised to indicate MW-10 and MW-12 have been abandoned. Refer to Attachment J for revised Table 3-1 replacement page 3-2 of the Technical Report.

- v) Please submit revisions to ¶1 in the “Surficial Aquifer Groundwater Quality” sub-section to refer to Rule 62-701.510(8)(b), F.A.C.

**Response:** Paragraph one in the “Surficial Aquifer Groundwater Quality” sub-section has been revised to refer to Rule 62-701.510(8)(b), FAC. Refer to Attachment J for revised Section 3 replacement page 3-5 of the Technical Report.

- vi) ¶2 in the “Surficial Aquifer Groundwater Quality” sub-section referred to the summary tables of water quality detections and exceedances presented in Appendix B. Please submit revisions to the tables provided in Appendix B to refer to the 20 NTU purging criterion for turbidity presented in the Department’s Standard Operating Procedure #FS 2200. It is noted that the turbidity purging criterion was not met prior to sample collection at wells MW-1 and MW-11 during the January 2013 sampling event. Please submit revisions to the appropriate section of the Technical Report to describe future sampling activities that will be conducted to allow the collection of representative ground water samples.

**Response:** The tables provided in Appendix B have been revised to refer to the 20 NTU purging criterion for turbidity presented in the Department’s Standard Operating

Procedure #FS 2200. Refer to Attachment J for the revised tables.

Revisions to Section 3 of the Technical Report have been made as requested to describe future sampling activities that will be conducted to allow the collection of representative ground water samples. Refer to Attachment J for revised Section 3 replacement page 3-5 of the Technical Report.

- vii) Please submit revisions to the “Organic Parameters Exceedances and Trends” sub-section to refer to the GCTL exceedance of chloromethane reported for the sample collected from well MW-12R during the June 2012 event.**

**Response:** Section 3 sub-section “Organic Parameters Exceedances and Trends” has been revised to refer to the GCTL exceedance of chloromethane reported for the sample collected from well MW-12R during the June 2012 event. Refer to Attachment J for revised Section 3 replacement page 3-9 of the Technical Report.

#### **Section 4 - Adequacy of Monitoring Program**

- viii) Please submit revisions to the “Surficial Aquifer Monitoring Adequacy” sub-section to include an evaluation of the well screen interval elevations and range of ground water elevations recorded during the sampling events conducted at the facility. Please characterize the adequacy of the existing and proposed wells to meet the requirements of Rule 62-701.510(3)(d)4, F.A.C. [“Wells monitoring the unconfined water table shall be screened so that the water table can be sampled at all times.”].**

**Response:** Revisions to Section 4 of the Technical Report have been made as requested to include an evaluation of the well screen interval elevations and range of ground water elevations recorded during the sampling events conducted at the facility. Based on a review of the ground water elevations measured and the existing and proposed wells construction characteristics, the existing and proposed wells meet the requirements of Rule 62-701.510(3)(d)4, FAC which indicates wells monitoring the unconfined water table shall be screened so that the water table can be sampled at all times. Refer to Attachment J for revised Section 4 replacement pages 4-2 and 4-3 of the Technical Report.

- ix) Please submit revisions to ¶4 in the “Monitoring Well Geographic Location” sub-section that referred to Chapter 62-791, F.A.C., regarding background well requirements. Please clarify if this sub-section intended to refer to the requirements of Rule 62-701.510(3)(c), F.A.C. Please also make the same revision to ¶5 in Section A.3 [“Groundwater Monitoring Wells”] of the GMP Document.**

**Response:** Paragraph four in the “Monitoring Well Geographic Location” sub-section has been revised to refer to Rule 62-701.510(3)(c), FAC. Refer to Attachment J for revised Section 4 replacement page 4-1 of the Technical Report.

Paragraph five in Section A.3 [“Groundwater Monitoring Wells”] of the GMP Document has been revised to refer to Rule 62-701.510(3)(c), FAC. Refer to Attachment G for revised Section A.3 replacement page A-3 of the Groundwater Monitoring Plan.

## **PART N - GAS MANAGEMENT SYSTEM REQUIREMENTS [RULE 62-701.530, F.A.C.]**

### **8. N.1.: Provide the design for a gas management system . . . [Rules 62-701.530(1) and 62-701.530(2), F.A.C., respectively].**

- a. ¶2 in Section N.1., of the Engineering Report listed the gas probes that will be abandoned in association with the construction of the Phase II, Section II expansion. It is noted that gas probes GP-7 and GP-8 were previously abandoned in association with the construction of the Phase II, Section I expansion. Please submit revisions to ¶2 of this section of the Engineering Report to indicate existing gas probes GP-3, GP-4, GP-5 and GP-6 will be abandoned prior to initiation of construction activities associated with Phase II, Section II. Please also submit similar revisions to ¶3 in Section N.2., of the Engineering Report, and to ¶2 in Section K.2.h.1., of the Operations Plan [Attachment K of the Engineering Report] regarding the gas probes that will be abandoned prior to construction of the Phase II, Section II expansion.

**Response:** Paragraph two of Section N.1 of the Engineering Report has been revised to indicate existing gas probes GP-3, GP-4, GP-5, and GP-6 will be abandoned prior to initiation of construction activities associated with Phase II Section II. Refer to Attachment C for a revised Section N.1 of the Engineering Report.

Paragraph three of Section N.2 of the Engineering Report has been revised to indicate existing gas probes GP-3, GP-4, GP-5, and GP-6 will be abandoned prior to initiation of construction activities associated with Phase II Section II. Refer to Attachment C for a revised Section N.2 of the Engineering Report.

Paragraph two of Section K.2.h.1 of the Operation Plan has been revised to indicate existing gas probes GP-3, GP-4, GP-5, and GP-6 will be abandoned prior to initiation of construction activities associated with the Phase II Section II Expansion. Refer to Attachment E for a revised Section K.2.h.1 of the Operation Plan.

- b. ¶2 in Section N.1., of the Engineering Report indicated the gas probe locations were shown on the Operations Drawings [Attachment E of the Engineering Report]. Please submit revisions to this section of the Engineering Report to refer to a new site map [no larger than 8.5 x 11 inches, in a black-and-white format] that shows the existing and proposed gas probes locations/identification numbers, and the ambient gas monitoring locations/descriptions for use as a permit attachment.

**Response:** Paragraph two of Section N.1 of the Engineering Report has been revised to refer to Figure 2 Monitoring Locations that shows the existing and proposed gas probes

locations/identification numbers and the ambient gas monitoring locations/descriptions for use as a permit attachment. Refer to Attachment C for a revised Section N.1 of the Engineering Report and Figure 2 Monitoring Locations.

Please do not hesitate to contact us if you need anything further.

Sincerely,



Shane R. Fischer, P.E.  
Project Manager  
**SCS ENGINEERS**

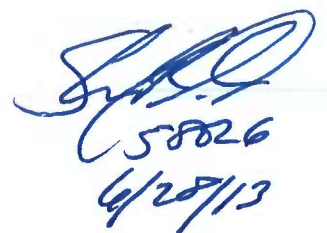


C. Ed Hilton, P.E.  
Vice President/Solid Waste Division Director  
**SCS ENGINEERS**

SRF/CEH:srf

Attachments

cc: Teresa Carver, Hardee County Solid Waste Director, w/ attachments



58826  
6/28/13



## LIST OF ATTACHMENTS

- A - CD of the Revised Hardee County Landfill Phase II Section II Expansion Construction/Operation Drawings
- B - Revised Page 6, 24, 32, and 39 of Application Form #62-701.900(1)
- C - Revised Section D Solid Waste Management Facility Permit Requirements, General Replacement Page D-1
  - Revised Section G Landfill Construction Requirements
  - Revised Section H Hydrogeological Investigation Requirements
  - Revised Section J Vertical Expansion Replacement Pages J-1 and J-2
  - Revised Section K Landfill Operation Requirements
  - Revised Section L Water Quality and Leachate Monitoring Requirements Replacement Page L-9
  - Revised Section M Special Waste Handling Requirements Replacement Page M-2
  - Revised Section N Gas Management System Requirements
  - Revised Section O Landfill Final Closure Requirements Replacement Page O-1
  - Revised Section R Financial Assurance Requirements Replacement Page R-2
- D - Proof of Publication from The Herald-Advocate
- E - Revised Operation Plan
- F - Revised Figure 1 Well Inventory
- G - Revised Groundwater Monitoring Plan
  - Replacement Page A-3
  - Replacement Page A-10
  - Replacement Page A-17
  - Replacement Pages A-18 Through A-20
  - Revised Table L-2 Well Construction Details
- H - Jetclean Report December 2012
- I - Jetclean Report May 2013
- J - Revised Technical Report
  - Revised Section 1 Replacement Page 1-1
  - Revised Section 2 Replacement Page 2-2
  - Revised Section 3 Replacement Pages 3-1, 3-2, 3-5, and 3-9
  - Revised Section 4 Replacement Pages 4-1, 4-2, and 4-3
  - Revised Appendix B Tables of Exceedances and Detections

Attachment A

CD of the Revised Hardee County Landfill  
Phase II Section II Expansion  
Construction/Operation Drawings

Attachment B

Revised Pages 6, 24, 32 and 39  
of Application Form #62-701.900(1)

## PART B. DISPOSAL FACILITY GENERAL INFORMATION

1. Provide brief description of disposal facility design and operations planned under this application: Hardee County is applying for an Operation Permit renewal to include the operation of the Phase II Section II Expansion. The Phase II Section II Expansion is approximately 6.18 acres total.

2. Facility site supervisor: Teresa Carver

Title: Solid Waste Director Telephone: (863 ) 773-5089

teresa.carver@hardeecounty.net  
E-Mail address (if available)

3. Disposal area: Total ~~23.8~~ <sup>24.8</sup> acres; Used 12.31 acres; Available ~~11.5~~ <sup>12.49</sup> acres.

4. Weighing scales used: ☒ Yes ☐ No

5. Security to prevent unauthorized use: ☒ Yes ☐ No

6. Charge for waste received: \_\_\_\_\_ \$/yds<sup>3</sup> \_\_\_\_\_ 62.5 \$/ton

7. Surrounding land use, zoning:

- ☐ Residential
 ☐ Industrial  
☒ Agricultural
 ☐ None  
☐ Commercial
 ☐ Other Describe:

8. Types of waste received:

- ☒ Household
  - ☒ Commercial
  - ☐ Incinerator/WTE ash
  - ☐ Treated biomedical
  - ☐ Water treatment sludge
  - ☒ C & D debris
  - ☒ Shredded/cut tires
  - ☒ Yard trash
  - ☐ Septic tank
  - ☐ Industrial

**PART H. HYDROGEOLOGICAL INVESTIGATION REQUIREMENTS (62-701.410(1), FAC)**

<b><u>S</u></b>	<b><u>LOCATION</u></b>	<b><u>N/A</u></b>	<b><u>N/C</u></b>	
<input type="checkbox"/>	Part H.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Submit a hydrogeological investigation and site report including at least the following information:
<input type="checkbox"/>	Part H.1.a	<input type="checkbox"/>	<input checked="" type="checkbox"/>	a. Regional and site specific geology and hydrogeology;
<input type="checkbox"/>	Part H.1.b	<input type="checkbox"/>	<input checked="" type="checkbox"/>	b. Direction and rate of ground water and surface water flow including seasonal variations;
<input type="checkbox"/>	Part H.1.c	<input type="checkbox"/>	<input checked="" type="checkbox"/>	c. Background quality of ground water and surface water;
<input type="checkbox"/>	Part H.1.d	<input type="checkbox"/>	<input checked="" type="checkbox"/>	d. Any on-site hydraulic connections between aquifers;
<input type="checkbox"/>	Part H.1.e	<input type="checkbox"/>	<input checked="" type="checkbox"/>	e. Site stratigraphy and aquifer characteristics for confining layers, semi-confining layers, and all aquifers below the landfill site that may be affected by the landfill;
<input type="checkbox"/>	Part H.1.f	<input type="checkbox"/>	<input checked="" type="checkbox"/>	f. Description of topography, soil types and surface water drainage systems;
<input checked="" type="checkbox"/>	Part H.1.g	<input type="checkbox"/>	<input type="checkbox"/>	g. Inventory of all public and private water wells within a one-mile radius of the landfill including, where available, well top of casing and bottom elevations, name of owner, age and usage of each well, stratigraphic unit screened, well construction technique and static water level;
<input checked="" type="checkbox"/>	<del>Part H.1.h</del>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	h. Identify and locate any existing contaminated areas on the site;
<input checked="" type="checkbox"/>	Part H.1.i	<input type="checkbox"/>	<input type="checkbox"/>	i. Include a map showing the locations of all potable wells within 500 feet of the waste storage and disposal areas;
<input type="checkbox"/>	Part H.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Report signed, sealed and dated by PE and/or PG.

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	<b>PART L CONTINUED</b>	
<input type="checkbox"/>	Part L.1.d(1)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(1)	Location of and justification for all proposed surface water monitoring points;
<input checked="" type="checkbox"/>	Part L.1.d(2)	<input type="checkbox"/>	<input type="checkbox"/>	(2)	Each monitoring location to be marked and its position determined by a registered Florida land surveyor;
<input checked="" type="checkbox"/>	Part L.1.e	<input checked="" type="checkbox"/>	<input type="checkbox"/>	e.	Leachate sampling locations proposed; (62-701.510(5),FAC)
<input checked="" type="checkbox"/>	Part L.1.f	<input type="checkbox"/>	<input type="checkbox"/>	f.	Initial and routine sampling frequency and requirements; (62-701.510(6),FAC)
<input checked="" type="checkbox"/>	Part L.1.f(1)	<input type="checkbox"/>	<input type="checkbox"/>	(1)	Initial background ground water and surface water sampling and analysis requirements;
<input checked="" type="checkbox"/>	Part L.1.f(2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(2)	Routine leachate sampling and analysis requirements;
<input checked="" type="checkbox"/>	Part L.1.f(3)	<input type="checkbox"/>	<input type="checkbox"/>	(3)	Routine monitoring well sampling and analysis requirements;
<input checked="" type="checkbox"/>	Part L.1.f(4)	<input type="checkbox"/>	<input type="checkbox"/>	(4)	Routine surface water sampling and analysis requirements.
<input checked="" type="checkbox"/>	Part L.1.g	<input type="checkbox"/>	<input type="checkbox"/>	g.	Describe procedures for implementing evaluation monitoring, prevention measures and corrective action as required; (62-701.510(7),FAC)
<input checked="" type="checkbox"/>	Part L.1.h	<input type="checkbox"/>	<input type="checkbox"/>	h.	Water quality monitoring report requirements;(62-701.510(9),FAC)
<input checked="" type="checkbox"/>	Part L.1.h(1)	<input type="checkbox"/>	<input type="checkbox"/>	(1)	Semi-annual report requirements (see paragraphs 62 701.510(6)(c),(d)and (e) for sampling frequencies);
<input checked="" type="checkbox"/>	Part L.1.h(2)	<input type="checkbox"/>	<input type="checkbox"/>	(2)	Documentation that the water quality data shall be provided to the Department in an electronic format consistent with requirements for importing into Department databases, unless an alternate form of submittal is specified in the permit.
<input checked="" type="checkbox"/>	Part L.1.h(3)	<input type="checkbox"/>	<input type="checkbox"/>	(3)	Two and one-half year report requirements, or every five years if in long-term care, signed, dated and sealed by PG or PE.

**PART S. CERTIFICATION BY APPLICANT AND ENGINEER OR PUBLIC OFFICER**

1. **Applicant:**

The undersigned applicant or authorized representative of Hardee County Solid Waste Department

is aware that statements made in this form and attached

information are an application for a Operation Permit Renewal Permit from the Florida Department of Environmental Protection and certifies that the information in this application is true, correct and complete to the best of his/her knowledge and belief. Further, the undersigned agrees to comply with the provisions of Chapter 403, Florida Statutes, and all rules and regulations of the Department. It is understood that the Permit is not transferable, and the Department will be notified prior to the sale or legal transfer of the permitted facility.

Terisa Carter  
Signature of Applicant or Agent

685 Airport Road

Mailing Address

**Teresa Carver, Solid Waste Director**

Name and Title (please type)

**Wauchula, Florida 33873**

City, State, Zip Code

teresa.carver@hardeecounty.net

E-Mail address (if available)

(863 ) 773-5089

Telephone Number

Date: 6/28/13

Attach letter of authorization if agent is not a governmental official, owner, or corporate officer.

2. Professional Engineer registered in Florida (or Public Officer if authorized under Sections 403.707 and 403.7075, Florida Statutes):

This is to certify that the engineering features of this solid waste management facility have been designed/examined by me and found to conform to engineering principles applicable to such facilities. In my professional judgment, this facility, when properly maintained and operated, will comply with all applicable statutes of the State of Florida and rules of the Department. It is agreed that the undersigned will provide the applicant with a set of instructions of proper maintenance and operation of the facility.

Signature

Shane R. Fischer, PE

Name and Title (please type)

4041 Park Oaks Boulevard , Suite 100

Mailing Address

Tampa, Florida 33610

City, State, Zip Code

**sfischer@scsengineers.com**

E-Mail address (if available)

58026

Florida Registration Number  
(please affix seal)

(813 )621-0080

Telephone Number

Date:

### Attachment C

- Revised Section D Solid Waste Management Facility Permit Requirements, General Replacement Page D-1
  - Revised Section G Landfill Construction Requirements
  - Revised Section H Hydrogeological Investigation Requirements
  - Revised Section J Vertical Expansion Replacement Pages J-1 and J-2
  - Revised Section K Landfill Operation Requirements
  - Revised Section L Water Quality and Leachate Monitoring Requirements Replacement Page L-9
  - Revised Section M Special Waste Handling Requirements Replacement Page M-2
  - Revised Section N Gas Management System Requirements
  - Revised Section O Landfill Final Closure Requirements Replacement Page O-1
  - Revised Section R Financial Assurance Requirements Replacement Page R-2
-





## Hardee County Landfill Operation Permit Renewal Application

### Hardee County, Florida

Prepared for:



#### Hardee County

Solid Waste Department  
685 Airport Road  
Wauchula, FL 33873  
(863) 773-5089

Prepared by:

#### SCS ENGINEERS

4041 Park Oaks Blvd, Suite 100  
Tampa, FL 33610  
(813) 621-0080  
Certification No. 00004892

File No. 09199033.24

March 12, 2013

Revised June 28, 2013

Offices Nationwide  
[www.scsengineers.com](http://www.scsengineers.com)

**Hardee County Landfill  
Operation Permit Renewal Application**

**Hardee County, Florida**

Prepared for:



**Hardee County**  
Solid Waste Department  
685 Airport Road  
Wauchula, FL 33873  
(863) 773-5089

Prepared by:

**SCS ENGINEERS**  
4041 Park Oaks Blvd, Suite 100  
Tampa, FL 33610  
(813) 621-0080

Certification No. 00004892

  
Shane R. Fischer, P.E. 6/28/13  
PE 58026

File No. 09199033.24  
March 12, 2013  
Revised June 28, 2013

**Offices Nationwide**  
[www.scsengineers.com](http://www.scsengineers.com)

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General Replacement Page D-1

## SECTION D

### SOLID WASTE MANAGEMENT FACILITY PERMIT REQUIREMENTS, GENERAL

#### D.1 PERMIT APPLICATION FORM AND SUPPORTING DOCUMENTS

In accordance with Rule 62-701.320(5)(a), FAC four copies of the completed State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1), which is attached at the beginning of this Operation Permit renewal application, including all supporting data, is included as part of the proposed Hardee County Landfill Operation Permit renewal application.

#### D.2 ENGINEERING CERTIFICATION

Part S of the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1) has been signed and sealed by Shane R. Fischer, P.E., a registered Professional Engineer in the State of Florida (License No. 58026) together with all other applicable engineering plans, reports and supporting information for the Hardee County Landfill Operation Permit renewal application herein as required by Rule 62-701.320(6), FAC.

#### D.3 TRANSMITTAL LETTER

A transmittal letter is included at the beginning of this Operation Permit renewal application as required by Rule 62-701.320(7)(a), FAC. In addition, the transmittal letter identifies this Operation Permit renewal application is for a 20-year Permit as opposed to a 5-year Permit.

#### D.4 PERMIT APPLICATION FORMS

Part S of the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1) has been signed and sealed by Shane R. Fischer, P.E., a registered Professional Engineer in the State of Florida (License No. 58026) together with all other applicable submittals for the Hardee County Landfill Operation Permit renewal application as required by Rule 62-701.320(7)(b), FAC and is attached at the beginning of this Operation Permit renewal application. In addition, the Form has been signed and dated by Teresa Carver, Solid Waste Director, the designated responsible person for the Environmental Services Department and the Hardee County Landfill.

#### D.5 PERMIT APPLICATION FEE

| In accordance with Rule 62-701.315(1)(a), FAC an application fee of \$~~4~~10,000 is required for the

Revised Section G  
Landfill Construction Requirements

## SECTION G

### LANDFILL CONSTRUCTION REQUIREMENTS

#### G.1 FILL SEQUENCE PLANNING AND SLOPE/DEEP-SEATED FAILURE DESIGN

##### G.1.a General

This information was previously provided to the Department with the *Hardee County Class I Landfill Phase II Section II Expansion Application for Construction*, dated August 31, 2012, prepared by SCS and no revisions are being conducted as part of the Operation Permit renewal application. Therefore, this subsection has been identified as “No Change” on the Operation Permit renewal application and has been so designated on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1).

##### G.1.b Maximum Waste Height

The maximum final closure elevation of the Hardee County Landfill will be approximately EL 173.2 feet NGVD top of final closure. Please refer to the Operation Drawings located in Attachment E for the proposed final buildout configuration.

##### G.1.c Factor of Safety

Per Rule 62-701.400(2), FAC the Hardee County Landfill has been designed to prevent failures of sideslopes, deep-seated failures through the waste, failures along liner systems and through foundation soils, and achieves a minimum factor of safety of 1.5 using peak strength values. Slope stability calculations for the Phase II Section II Expansion and the Phase II Section I height increase was previously provided to the Department with the *Hardee County Class I Landfill Phase II Section II Expansion Application for Construction*, dated August 31, 2012, prepared by SCS and no revisions are being conducted as part of this Operation Permit renewal application. Therefore, this subsection has been identified as “No Change” on the Operation Permit renewal application and has been so designated on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1).

#### G.2 LANDFILL LINER REQUIREMENTS

The County previously submitted to FDEP a construction permit application for an expansion to the existing Hardee County Class I Landfill. The *Hardee County Class I Landfill Phase II Section II Expansion Application for Construction*, dated August 31, 2012, prepared by SCS included construction of the second section of a lined expansion to the west of the existing Phase I and Phase II Section I areas at the Hardee County Landfill. The Phase II Section II Expansion area will be approximately 6.18 acres in size located in the northwestern portion of the facility

site. The Expansion consists of the northern portion, approximately 2.33 acres, the center portion approximately 2.22 acres, and the southern portion approximately 1.63 acres. Components of the double liner system for the Phase II Section II Expansion will include the following (from bottom to top). The bottom liner system for the Phase II Section II Expansion meets or exceeds the design requirements specified by Rule 62-701.400(3)(c), FAC for a double liner system. The lining system will incorporate an independent leak detection zone. The double liner system for the Phase II Section II Expansion will include the following (from bottom to top):

- 12 inch prepared subbase comprised of compacted soil free of sharp materials
- Geosynthetic Clay Liner (GCL) (encapsulated with an additional layer of 60 mil textured High Density Polyethylene (HDPE) geomembrane liner for specific sections of the bottom liner system)
- 60 mil textured HDPE geomembrane liner (secondary liner)
- 300 mil tri-planar geocomposite (secondary geocomposite)
- 60 mil textured HDPE geomembrane liner (primary liner)
- 300 mil bi-planar geocomposite (primary geocomposite)
- 24 inch protective cover soil layer
- Rain tarp (the northern portion of the Phase II Section II Expansion, approximately 2.33 acres)

The Phase I area of the Hardee County Landfill is unlined. In accordance with the Operation Drawings, a portion of the proposed Phase II Section II Expansion will “piggy-back” along the western sideslope of the existing closed Phase I area in the future. The closure of Phase I was previously completed by the County under Construction Permit No. 38414-012-SF/01. The County received FDEP approval of the Phase I closure construction on January 3, 2012. The Phase I liner system along the western sideslope was designed, permitted and constructed according to Rule 62-701.430(1)(c), FAC to be the bottom liner system when the Phase II Section II Expansion does “piggy-back.” The Phase II Section II Expansion “piggy-back” area along the western Phase I sideslope will be approximately 4.36 acres in size divided into the northern portion (approximately 2.13 acres) and the southern portion (approximately 2.23 acres). The sideslope (bottom liner system) in the Phase I area along the western sideslope where the Phase II Section II Expansion will “piggy-back” consist of the following (from bottom to top):

- In place waste
- 24 inch thick protective bedding soil layer (as required by Rule 62-701.430(1)(c)3, FAC)
- 60 mil textured HDPE geomembrane liner (as required by Rule 62-701.430(1)(c)2, FAC)
- ~~330~~ 300 mil bi-planar geocomposite (as required by Rule 62-701.430(1)(c)1, FAC)



- 24 inch thick protective cover soil drainage sand layer (as required by Rule 62-701.430(1)(c)3, FAC)
- Vegetative layer ([to be covered by a rain tarp during the construction of the Phase II Section II Expansion](#) which [the sod and rain tarp](#) will be removed by the County prior to waste filling within the area)

The Phase II Section I area and “piggy-back” portion onto the south sideslope of the existing closed Phase I area is currently permitted for filling to a peak of roughly EL 132.1 feet National Geodetic Vertical Datum (NGVD) top of intermediate cover (approximately EL 134.1 feet NGVD top of final closure). A request for a height increase of the Phase II Section I area was included within the *Phase II Section II Expansion Application dated August 31, 2012*, prepared by SCS. The height increase will raise the peak to roughly EL 166 feet NGVD top of final closure within the Phase II Section I area. The request for the height increase will provide sufficient time for the County to continue filling within the area while the Phase II Section II Expansion area is permitted, advertised for bid, constructed, and approval from the Department is received to begin filling within the Phase II Section II Expansion area. The existing closed Phase I area along the southern sideslope where the Phase II Section I height increase will “piggy-back” consists of the following (from bottom to top):

- In place waste
- 24 inch thick protective bedding soil layer (as required by Rule 62-701.430(1)(c)3, FAC)
- 60 mil textured HDPE geomembrane liner (as required by Rule 62-701.430(1)(c)2, FAC)
- ~~3300~~ 300 mil bi-planar geocomposite (as required by Rule 62-701.430(1)(c)1, FAC)
- 24 inch thick protective cover soil drainage sand layer (as required by Rule 62-701.430(1)(c)3, FAC)
- Rain tarp (which will be removed by the County prior to waste filling within the area)

#### **G.2.a General Construction Requirements**

This information was previously provided to the Department with the *Hardee County Class I Landfill Phase II Section II Expansion Application for Construction*, dated August 31, 2012, prepared by SCS and no revisions are being conducted as part of the Operation Permit renewal application. Therefore, this subsection has been identified as “No Change” on the Operation Permit renewal application and has been so designated on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1).

#### **G.2.b Composite Liner**

This Section of the application is not applicable. The proposed facility will have a full double liner system. Please refer to Section G.2.c below for the double liner system description. This

information was previously provided to the Department with the *Hardee County Class I Landfill Phase II Section II Expansion Application for Construction*, dated August 31, 2012, prepared by SCS and no revisions are being conducted as part of the Operation Permit renewal application. Therefore, this subsection has been identified as “Not Applicable” on the Operation Permit renewal application and has been so designated on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1).

### **G.2.c Double Liners**

This information was previously provided to the Department with the *Hardee County Class I Landfill Phase II Section II Expansion Application for Construction*, dated August 31, 2012, prepared by SCS and no revisions are being conducted as part of the Operation Permit renewal application. Therefore, this subsection has been identified as “No Change” on the Operation Permit renewal application and has been so designated on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1).

### **G.2.d Standards for Geosynthetic Components**

The geosynthetic components of the bottom liner for the Phase II Section II Expansion area meet the requirements specified by Rule 62-701.400(3)(d), FAC for double liner systems. This information was previously provided to the Department with the *Hardee County Class I Landfill Phase II Section II Expansion Application for Construction*, dated August 31, 2012, prepared by SCS and no revisions are being conducted as part of the Operation Permit renewal application. Therefore, this subsection has been identified as “No Change” on the Operation Permit renewal application and has been so designated on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1).

### **G.2.e Geosynthetic Specifications**

This information was previously provided to the Department with the *Hardee County Class I Landfill Phase II Section II Expansion Application for Construction*, dated August 31, 2012, prepared by SCS and no revisions are being conducted as part of the Operation Permit renewal application. Therefore, this subsection has been identified as “No Change” on the Operation Permit renewal application and has been so designated on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1).

### **G.2.f Soil Component Standards**

This information was previously provided to the Department with the *Hardee County Class I Landfill Phase II Section II Expansion Application for Construction*, dated August 31, 2012, prepared by SCS and no revisions are being conducted as part of the Operation Permit renewal application. Therefore, this subsection has been identified as “No Change” on the Operation Permit renewal application and has been so designated on the State of Florida Department of

Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1).

### **G.2.g Class III Landfills**

The Hardee County Landfill is a Class I Landfill. Therefore, this subsection has been identified as “Not Applicable” on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1).

## **G.3 LEACHATE COLLECTION AND REMOVAL SYSTEM**

The leachate collection and removal system (LCRS) for the proposed Phase II Section II Expansion includes the primary leachate collection system (LCS) and a secondary leak detection system (LDS). This information was previously provided to the Department with the *Hardee County Class I Landfill Phase II Section II Expansion Application for Construction*, dated August 31, 2012, prepared by SCS and no revisions are being conducted as part of the Operation Permit renewal application. Therefore, this subsection has been identified as “No Change” on the Operation Permit renewal application and has been so designated on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1).

## **G.4 LEACHATE RECIRCULATION**

This information was previously provided to the Department with the *Hardee County Class I Landfill Phase II Section II Expansion Application for Construction*, dated August 31, 2012, prepared by SCS and no revisions are being conducted as part of the Operation Permit renewal application. Therefore, this subsection has been identified as “No Change” on the Operation Permit renewal application and has been so designated on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1).

Leachate will be stored on-site in the leachate tanks until being hauled to local wastewater treatment facilities that have disposal agreements with the County. The County is not exploring the option of leachate recirculation at this time. Therefore, this subsection for G.5.b.1 through G.5.b.6 is “Not Applicable” for the liner system and has been so designated on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1).

The County will not recirculate leachate but will conduct leachate evaporation during operation of the Phase II Section II area. Ditches, berms, or other devices shall be constructed to control leachate runoff. However, the quantity of leachate applied during leachate evaporation shall not be in such a quantity as to require ditches, berms, or other devices to control leachate runoff or the need to shed runoff to the leachate collection system. Initial and intermediate cover receiving leachate from the leachate evaporation process shall be graded to shed runoff into the leachate collection system and to minimize mixing of leachate runoff and storm water. Initial and

intermediate cover shall be permeable to the extent necessary to prevent perched water conditions and gas buildup. Leachate evaporation shall not be conducted during weather conditions or in quantities that may cause runoff outside the solid waste disposal unit, surface seeps, wind-blown spray, or exceedance of the limits of the leachate head on the liner. [The application of leachate for evaporation shall be such that leachate runoff is prevented and leachate is only applied to those areas and cover soils that do not runoff to stormwater.](#)

## **G.5 LEACHATE STORAGE TANKS AND SURFACE IMPOUNDMENTS**

The Hardee County Landfill currently stores leachate in two steel tanks with a capacity of 79,000 gallons each. The Phase II Section II Expansion will produce additional amounts of leachate resulting in more frequent hauling events to the wastewater treatment facility.

### **G.5.a Surface Impoundment Requirements**

A leachate surface impoundment will not be used at the Hardee County Landfill. Therefore, this subsection for G.5.a.1 through G.5.a.6 is “Not Applicable” for the liner system and has been so designated on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1), which is attached at the beginning of this permit application report.

### **G.5.b Above-ground Leachate Storage Tanks**

The previously permitted aboveground leachate storage tanks will be used for storing leachate at the Hardee County Landfill. Therefore, this subsection for G.5.b.1 through G.5.b.7 have been identified as “No Change” and has been so designated on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1), which is attached at the beginning of this permit application report.

### **G.5.c Underground Leachate Storage Tanks**

An underground leachate storage tank will not be used at the Hardee County Landfill. Therefore, this subsection for G.5.c.1 through G.5.c.4 is “Not Applicable” and has been so designated on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1), which is attached at the beginning of this permit application report.

### **G.5.d Routine Maintenance Schedule**

The LCRS includes leachate collection pipes and cleanout riser pipes. The leachate collection pipes will be cleaned and maintained, ~~as necessary,~~ through the sideslope cleanout riser pipes. The LCRS ~~collection~~ pipes will be cleaned by flushing [and/or](#) be inspected by video recording in accordance with Rule 62-701.500(8)(h), FAC [\[effective 8/12/12\] at least once every five years during the 20-year Operation Permit period.](#) Flushing will be accomplished by inserting a self-

propelled nozzle attached to the end of a hose into the cleanout riser and the LCRS pipe. The nozzle is used to flush the pipes with pressurized water. The leachate pump manufacturer will supply an operation manual presenting the manufacturer's recommended maintenance.

## G.6 GEOMEMBRANE CONSTRUCTION QUALITY ASSURANCE PLAN

This Section is "Not Applicable" to the Hardee County Landfill Operation Permit renewal application as identified on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1).

## G.7 SOIL CONSTRUCTION QUALITY ASSURANCE PLAN

This Section is "Not Applicable" to the Hardee County Landfill Operation Permit renewal application as identified on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1).

## G.8 SURFACE WATER MANAGEMENT SYSTEM

This information was previously provided to the Department with the *Hardee County Class I Landfill Phase II Section II Expansion Application for Construction*, dated August 31, 2012, prepared by SCS and no revisions are being conducted as part of the Operation Permit renewal application. Therefore, this subsection has been identified as "No Change" on the Operation Permit renewal application and has been so designated on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1).

## G.9 GAS CONTROL SYSTEMS

This information was previously provided to the Department with the *Hardee County Class I Landfill Phase II Section II Expansion Application for Construction*, dated August 31, 2012, prepared by SCS and no revisions are being conducted as part of the Operation Permit renewal application. Therefore, this subsection has been identified as "No Change" on the Operation Permit renewal application and has been so designated on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1).

## G.10 GROUND WATER GRADIENT

This information was previously provided to the Department with the *Hardee County Class I Landfill Phase II Section II Expansion Application for Construction*, dated August 31, 2012, prepared by SCS and no revisions are being conducted as part of the Operation Permit renewal application. Therefore, this subsection has been identified as "No Change" on the Operation

Permit renewal application and has been so designated on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1).

Revised Section H  
Hydrogeological Investigation Requirements

## SECTION H

### HYDROGEOLOGICAL INVESTIGATION REQUIREMENTS

#### H.1 HYDROGEOLOGICAL INVESTIGATION AND SITE REPORT

The Hardee County Landfill has had numerous geological, hydrogeological and geotechnical investigations conducted over as part of the design, permitting, and on-going monitoring of waste disposal cells at the facility. Some of the relevant documents previously provided to the Department in support of the Operation Permit renewal application are as follows.

- *Hydrogeological Investigation*, dated April 2004, prepared by SCS.
- *Revised Hydrogeological Investigation*, dated November 15, 2004, prepared by SCS.
- *Revised Ground Water Monitoring Plan*, dated November 15, 2004, prepared by SCS.
- *Biennial Groundwater Monitoring Plan Evaluation Report*, dated January 30, 2008, prepared by SCS.
- *Operation Permit Modification to Include Phase II Section I Landfill Expansion*, dated March 10, 2008, prepared by SCS.
- *Revised Groundwater Monitoring Plan*, dated March 10, 2008, prepared by SCS and revised by SCS dated January 18, 2011 [revisions were submitted in support of permit modification #38414-014-SO/MM, issued April 15, 2011].
- *Figure M-2 Hardee County Solid Waste Groundwater Monitoring Plan Sampling Locations Map*, dated March 10, 2008, prepared by SCS.
- *Groundwater Flow Evaluation*, dated June 1, 2009, prepared by SCS.

This information was previously provided to the Department with the *Hardee County Class I Landfill Phase II Section II Expansion Application for Construction*, dated August 31, 2012, prepared by SCS and no revisions are being conducted as part of the Operation Permit renewal application. Therefore, this subsection has been identified as “No Change” on the Operation Permit renewal application and has been so designated on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1).

The *Hydrogeological Investigation*, dated April 2004, was previously prepared by SCS and submitted to the Department for the original submittal of the Hardee County Landfill Expansion which included the Phase II Section I and Phase II Section II areas. The placement of the monitoring points was based on Rule 62-701.510, FAC and the findings of the *Hydrogeological*



*Investigation* submitted concurrently with the Hardee County Landfill Expansion construction permit application. No changes are being proposed as part of this Operation Permit renewal application.

#### **H.1.a Regional and Site Specific Geology and Hydrogeology**

The *Revised Hydrogeological Investigation Report*, dated November 15, 2004, prepared by SCS included as Attachment I-1 in the *Construction Permit Application For Hardee County Landfill Expansion*, dated April 2004, prepared by SCS discussed the site geology and hydrogeology. In addition, information regarding site specific geology and hydrogeology was provided to the Department by SCS within the *Groundwater Flow Evaluation*, dated June 1, 2009, prepared by SCS as required by FDEP Operation Permit Number 38414-011-SO/01 Specific Condition Number E.11. No revisions are being conducted as part of the Operation Permit renewal application. Therefore, this subsection has been identified as “No Change” on the Operation Permit renewal application and has been so designated on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1).

#### **H.1.b Direction and Rate of Ground Water and Surface Water Flow Including Seasonal Variations**

The *Revised Hydrogeological Investigation Report*, dated November 15, 2004, prepared by SCS included as Attachment I-1 in the *Construction Permit Application For Hardee County Landfill Expansion*, dated April 2004, prepared by SCS discussed the direction and rate of groundwater flow. In addition, the *Biennial Groundwater Monitoring Plan Evaluation Report*, dated January 30, 2008, prepared by SCS discussed the direction and rate of groundwater flow. In addition, an updated evaluation of the rate and direction of ground water flow has been provided in the *Hardee County Landfill Technical Report*, dated March 12, 2013, prepared by SCS provided as Attachment I.

#### **H.1.c Background Quality of Ground Water and Surface Water**

The *Revised Hydrogeological Investigation Report*, dated November 15, 2004, prepared by SCS included as Attachment I-1 in the *Construction Permit Application For Hardee County Landfill Expansion*, dated April 2004, prepared by SCS discussed the background water quality and surface water. In addition, the *Biennial Groundwater Monitoring Plan Evaluation Report*, dated January 30, 2008, prepared by SCS discussed the background water quality and surface water. Therefore, this subsection has been identified as “No Change” on the Operation Permit renewal application and has been so designated on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1).

#### **H.1.d On-Site Hydraulic Connections Between Aquifers**

The *Revised Hydrogeological Investigation Report*, dated November 15, 2004, prepared by SCS included as Attachment I-1 in the *Construction Permit Application For Hardee County Landfill Expansion*, dated April 2004, prepared by SCS identified there is no on-site connection between

the surficial aquifer and the Floridian aquifer. In addition, the *Biennial Groundwater Monitoring Plan Evaluation Report*, dated January 30, 2008, prepared by SCS included information regarding the on-site aquifer hydraulic connections. Therefore, this subsection has been identified as “No Change” on the Operation Permit renewal application and has been so designated on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1).

#### **H.1.e Site Stratigraphy and Aquifer Characteristics**

The *Revised Hydrogeological Investigation Report*, dated November 15, 2004, prepared by SCS included as Attachment I-1 in the *Construction Permit Application For Hardee County Landfill Expansion*, dated April 2004, prepared by SCS discussed the site stratigraphy and aquifer characteristics. In addition, the *Biennial Groundwater Monitoring Plan Evaluation Report*, dated January 30, 2008, prepared by SCS included information regarding the site stratigraphy and aquifer characteristics. In addition, information regarding the site stratigraphy and aquifer characteristics has been provided in the *Hardee County Landfill Technical Report*, dated March 12, 2013, prepared by SCS provided as Attachment I. Therefore, this subsection has been identified as “No Change” on the Operation Permit renewal application and has been so designated on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1).

#### **H.1.f Topography, Soil Types and Surface Water Drainage Systems**

The *Revised Hydrogeological Investigation Report*, dated November 15, 2004, prepared by SCS included as Attachment I-1 in the *Construction Permit Application For Hardee County Landfill Expansion*, dated April 2004, prepared by SCS discussed the topography, soil types and surface water drainage systems. Therefore, this subsection has been identified as “No Change” on the Operation Permit renewal application and has been so designated on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1).

#### **H.1.g Well Inventory**

SCS has obtained from the Southwest Florida Water Management District (SWFWMD) Water Use Permit (WUP) and Well Construction Permit (WCP) database an updated printout of the inventory of public and private potable water wells within a one-mile radius of the Hardee County Landfill. The query search [conducted on March 3, 2013](#) included all publically available information on public and private potable water wells within one-mile of the landfill. A listing of potable water wells obtained from the District has been included in Attachment C. In addition Figure 1 Potable Well Inventory, Hardee County Landfill, Hardee County, Florida has been provided in Attachment C.

#### **H.1.h Existing Contaminated Areas**

Based on the information presented in the *Revised Hydrogeological Investigation Report*, dated November 15, 2004, prepared by SCS included as Attachment I-1 in the *Construction Permit Application For Hardee County Landfill Expansion*, dated April 2004, prepared by SCS, *Biennial Groundwater Monitoring Plan Evaluation Report*, dated January 30, 2008, prepared by SCS and the *Hardee County Landfill Technical Report*, dated March 12, 2013, prepared by SCS provided as Attachment I there is no reason to believe that there are contaminated areas at the site. Therefore, this subsection has been identified as “No Change” on the Operation Permit renewal application and has been so designated on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1).

#### **H.1.i Map of Potable Wells and Community Water Supply Wells**

A map of the potable wells within 500 feet of the site was included in the *Revised Hydrogeological Investigation Report*, dated November 15, 2004, prepared by SCS included as Attachment I-1 in the *Construction Permit Application For Hardee County Landfill Expansion*, dated April 2004, prepared by SCS. The only potable wells within the 500 foot radius of the landfill are two onsite wells used for water to supply the facility toilets, operations within the Materials Recycling Facility (MRF) and a fire hydrant. The two wells are not used for drinking water (bottled water is for drinking water). There are no community supply wells within 1,000 feet of the waste storage and disposal areas.

SCS has obtained from the SWFWMD WUP and WCP database an updated printout of the inventory of public and private water wells within a one-mile radius of the Hardee County Landfill. The query search conducted on March 3, 2013 included all publically available information on public and private wells within one-mile of the landfill. A listing of potable water wells obtained from the District has been included in Attachment C. In addition Figure 1 Potable Well Inventory, Hardee County Landfill, Hardee County, Florida has been provided in Attachment C. Therefore, this subsection has been identified as “Submitted~~No Change~~” on the Operation Permit renewal application and has been so designated on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1).

#### **H.2 PROFESSIONAL ENGINEER OR GEOLOGIST SIGNATURE**

The information previously provided to the Department were signed, sealed, and dated by the professional engineer and/or professional geologist. Therefore, this subsection has been identified as “No Change” on the Operation Permit renewal application and has been so designated on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1).

Revised Section J

Vertical Expansion Replacement Pages J-1 and J-2

## SECTION J

### VERTICAL EXPANSION

#### J.1 LEACHATE LEAKAGE

This information was previously provided to the Department with the *Hardee County Class I Landfill Phase II Section II Expansion Application for Construction*, dated August 31, 2012, prepared by SCS and no revisions are being conducted as part of the Operation Permit renewal application. Therefore, this subsection has been identified as “No Change” on the Operation Permit renewal application and has been so designated on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1).

#### J.2 VERTICAL EXPANSION OVER UNLINED LANDFILLS

The Phase I area of the Hardee County Landfill is unlined. In accordance with the Operation Drawings, a portion of the proposed Phase II Section II Expansion will “piggy-back” along the western sideslope of the existing closed Phase I area. The closure of Phase I was previously completed by the County under Construction Permit No. 38414-012-SF/01. The County received FDEP approval of the Phase I closure construction on January 3, 2012. The Phase I liner system along the western sideslope was designed, permitted and constructed according to Rule 62-701.430(1)(c), FAC to be the bottom liner system when the Phase II Section II Expansion does “piggy-back.” The sideslope (bottom liner system) in the Phase I area along the western sideslope where the Phase II Section II Expansion will “piggy-back” consist of the following (from bottom to top):

- In place waste
- 24 inch thick protective bedding soil layer (as required by Rule 62-701.430(1)(c)3, FAC)
- 60 mil textured HDPE geomembrane liner (as required by Rule 62-701.430(1)(c)2, FAC)
- 3300 mil bi-planar geocomposite (as required by Rule 62-701.430(1)(c)1, FAC)
- 24 inch thick protective cover soil drainage sand layer (as required by Rule 62-701.430(1)(c)3, FAC)
- Vegetative layer (which will be removed by the County prior to waste filling within the area)

According to Rule 62-701.430(1)(c)4, FAC the “piggy-back” area along the western sideslope is designed to slope to the new Phase II Section II Expansion.

The Phase II Section I area and “piggy-back” portion onto the south sideslope of the existing closed Phase I area is currently permitted for filling to a peak of roughly EL 132.1 feet National

Geodetic Vertical Datum (NGVD) top of intermediate cover (approximately EL 134.1 feet NGVD top of final closure). With the Phase II Section II Expansion, the height increase will raise the peak to roughly EL 166 feet NGVD top of final closure within the Phase II Section I area with an overall final buildout of the Phase II Section II Expansion to EL 173.2 feet NGVD top of final closure. The request for the height increase will provide sufficient time for the County to continue filling within the area while the Phase II Section II Expansion area is permitted, advertised for bid, constructed, and approval from the Department is received to begin filling within the Phase II Section II Expansion area. The existing closed Phase I area along the southern sideslope where the Phase II Section I height increase will “piggy-back” consists of the following (from bottom to top):

- In place waste
- 24 inch thick protective bedding soil layer (as required by Rule 62-701.430(1)(c)3, FAC)
- 60 mil textured HDPE geomembrane liner (as required by Rule 62-701.430(1)(c)2, FAC)
- 3300 mil bi-planar geocomposite (as required by Rule 62-701.430(1)(c)1, FAC)
- 24 inch thick protective cover soil drainage sand layer (as required by Rule 62-701.430(1)(c)3, FAC)
- Rain tarp (which will be removed by the County prior to waste filling within the area)

This information was previously provided to the Department with the *Hardee County Class I Landfill Phase II Section II Expansion Application for Construction*, dated August 31, 2012, prepared by SCS and no revisions are being conducted as part of the Operation Permit renewal application. Therefore, this subsection has been identified as “No Change” on the Operation Permit renewal application and has been so designated on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1).

### J.3 FOUNDATION AND SETTLEMENT ANALYSIS

This information was previously provided to the Department with the *Hardee County Class I Landfill Phase II Section II Expansion Application for Construction*, dated August 31, 2012, prepared by SCS and no revisions are being conducted as part of the Operation Permit renewal application. Therefore, this subsection has been identified as “No Change” on the Operation Permit renewal application and has been so designated on the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1).

### J.4 TOTAL SETTLEMENT CALCULATIONS

This information was previously provided to the Department with the *Hardee County Class I Landfill Phase II Section II Expansion Application for Construction*, dated August 31, 2012,

Revised Section K  
Landfill Operation Requirements

## SECTION K

### LANDFILL OPERATION REQUIREMENTS

The information required for Section K (Operation Plan) is included in Attachment K.

#### K.1 TRAINED OPERATORS

In accordance with Rule 62-701.500(1), FAC key supervisory staff has received Landfill Operator Certification training. A State-certified Landfill Operator will be on site when waste is received for disposal, and a trained spotter is on site during all times when waste is deposited at the landfill working face to detect any unacceptable wastes. In addition, the equipment operators have sufficient training and knowledge to move waste and soil, and to develop the site in accordance with the design and operational standards.

As required by Rule 62-701.320(15), FAC a trained operator will be onsite at all times when waste is received at the Hardee County Landfill and a trained spotter will be onsite during all times when solid waste is deposited at the working face. In addition, the equipment operators shall have sufficient training and knowledge to move waste and soil, and to develop the site in accordance with the design and operational standards described in this application.

In order to be considered trained; Operators of Class I and Class III landfills shall complete 24 hours of initial training, and shall pass an examination as part of that training. Within three years after passing the examination, and every three years thereafter, operators shall complete an additional 16 hours of continued training.

In order to be considered trained; spotters shall complete 8 hours of initial training. Within three years after attending the initial training, and every three years thereafter, spotters shall complete an additional 4 hours of continued training.

#### K.2 LANDFILL OPERATION PLAN

In accordance with Rule 62-701.500(2), FAC the Operation Plan has been updated and is provided in Attachment K-1.

##### K.2.a Designation of Responsible Operating and Maintenance Personnel

In accordance with Rule 62-701.500(2)a, FAC the Operation Plan designates responsible operating and maintenance personnel.

##### K.2.b Contingency Plan

In accordance with Rule 62-701.500(2)b, FAC the Operation Plan identifies emergency preparedness and response as required in Subsection 62-701.320(16), FAC.



### **K.2.c Controlling Types of Waste Received**

In accordance with Rule 62-701.500(2)c, FAC the Operation Plan identifies controlling the types of waste received at the landfill. The landfill operators and scalehouse personnel are responsible for inspecting loads received at the landfill to detect and discourage attempts to dispose of unacceptable wastes. Each vehicle entering the landfill must stop at the scalehouse and have its load weighed in and classified in one of the following categories:

- Residential
- Commercial
- Yard trash and clean wood
- Appliances/scrap metal
- Construction and demolition debris
- Mixed loads and garbage
- Special handling (including asbestos)
- Pre-tested contaminated soil
- Tires

After classification, the loads are assigned one of the following destinations:

- Class I Landfill
- Construction and demolition debris sent to the Class I Landfill
- Yard trash processing area
- Scrap metals and white goods storage area
- Material Recovery Facility (MRF)
- Waste tire facility
- Household Hazardous Waste Collection Center (HHWCC)

The scalehouse attendant visually checks each load and, depending on the type of material, directs the driver to the appropriate on-site facility. The waste materials is also visually checked by trained County Landfill personnel or spotters at the MRF, landfill working face, yard trash processing area, waste tire facility, scrap metals and white goods storage area, and HHWCC. Random inspections of loads is also practiced to detect and discourage attempts to dispose of

unacceptable waste, hazardous wastes, special waste materials or materials that require special processing (e.g. asbestos, contaminated soil, used oil, or biomedical waste). If this inspection reveals any unacceptable or potentially hazardous wastes, the Solid Waste Director is notified immediately.

#### **K.2.d Weighing Incoming Waste**

In accordance with Rule 62-701.500(2)d, FAC the Operation Plan identifies weighing incoming waste received at the landfill. All waste hauling vehicles entering and exiting the landfill are required to pass over the scales located at the facility entrance. Upon entering the facility, the scale house attendant weighs the vehicle and classifies each load. The load weights are printed on tickets and recorded on computer. The waste is categorized and the tonnages are annotated in the appropriate category in the Waste Quantity Form located in Appendix J of the Operation Plan.

#### **K.2.e Vehicle Traffic Control**

In accordance with Rule 62-701.500(2)e, FAC the Operation Plan identifies the vehicle traffic control at the landfill. Signs are posted that indicate name of the operating authority, traffic flow, hours of operation, and restrictions or conditions of disposal. Signs posted at the gate state hours of operation and types of waste restrictions. Upon entering the site, all vehicles are required to stop at the scalehouse for weighing. The scalehouse attendant directs the driver to the appropriate on-site facility for unloading. All site roads are adequate for two-way traffic, and the speed limits are clearly marked. At each on-site facility, landfill personnel direct traffic to unload at the proper area.

#### **K.2.f Method and Sequence of Filling Waste**

In accordance with Rule 62-701.500(2)f, FAC the Operation Plan identifies the method and sequence of filling waste at the landfill. Fill sequence plans are located in Attachment E.

Refer to the Operation Drawings located in Attachment E for the sequence of filling waste. Loose waste will be spread in two-foot thick layers and compacted to approximately one foot in thickness.

To ensure compliance with the permitted facility filling sequence, the County will survey waste filling approximately monthly, or as needed during operations, to confirm and monitor waste filling elevations, slopes, and dimensions. In addition, as part of the Operation Permit for the facility, an aerial topographic survey is conducted annually which is reviewed to verify waste filling elevations, slopes, and dimensions as part of the annual site life calculations.

The following subsections describe the sequence and procedures for placement and removal of rain tarps on the Phase I sideslope prior to and during the operation of the vertical expansion over Phase I during Phase II Section I and Phase II Section II operations at the facility.

#### **K.2.f.1 Phase II Section I Vertical Expansion Filling**

The Phase II Section I area will continuing filling in the western portion of the “valley” between the Phase I and Phase II Section I areas to approximately EL 125 feet NGVD. Filling will progress from south to north and west to east. This has been identified as Fill Sequence No. 1 on the Operation Drawings located in Attachment E.

Following, the eastern portion of the “valley” between the Phase I and Phase II Section I areas will be filled while raising the entire Phase II Section I area to a peak of approximately EL 130.6 feet NGVD (132.1 feet NGVD top of intermediate cover). Filling will progress from west to east in the “valley” portion and south to north over the top. This has been identified as Fill Sequence No. 2 on the Operation Drawings located in Attachment E.

Fill Sequences 1 and 2 will bring the Phase II Section I area to the current permitted elevation of EL 130.6 feet NGVD (132.1 feet NGVD top of intermediate cover). By the end of Fill Sequence No. 2, the Operation Permit renewal application should be approved by FDEP. Approval of the Operation Permit will allow the Phase II Section I area to be raised vertically higher and operate to the proposed elevations as identified in the Phase II Section II Expansion construction permit application submitted to FDEP dated August 31, 2012 (i.e. fill above the current permit height).

Following approval of the Operation Permit renewal application, the Phase II Section I area will be raised to approximately EL 166 feet NGVD. Filling will progress from north to south and west to east. This has been identified as Fill Sequence No. 3 on the Operation Drawings located in Attachment E. The filling of Phase II Section I in this manner shall provide sufficient time to allow the construction, creation/submittal of the Certification of Construction Completion Report for the Department and approval by the Department for waste filling in the Phase II Section II Expansion.

The Phase II Section II Expansion area consists of the northern portion, approximately 2.33 acres, the center portion approximately 2.22 acres, and the southern portion approximately 1.63 acres. Waste filling of the Phase II Section II Expansion areas will be generally conducted as follows.

#### **K.2.f.2 Phase II Section II Expansion Southern Portion Filling**

Generally, the filling of the Phase II Section II Expansion area will begin in the southern portion of the disposal area adjacent to the western side of the existing Phase II Section I disposal area. This has been identified as Fill Sequence No. 4. The filling will proceed by placing waste along the southern end of this portion and proceeding north and from west to east in this area.

An initial lift of select loose municipal solid waste, a minimum of four feet in thickness, will be placed over the protective sand layer. The select waste will be spread out and inspected for large rigid objects that may puncture the liner system when compacted. This waste thickness will bring the southern portion disposal area slightly below the proposed western and southern perimeter road and the interior separation berm along the north side of the area (which separates it from the Phase II Section II Expansion center portion). After the layer of select waste has been placed, additional waste will be placed in order to make the first lift approximately 10 feet thick

across the Phase II Section II Expansion within this area. The limits of waste (as shown on the Operation Drawings located in Attachment E) and surface of the waste layer will be placed so it is sloped back “into” the landfill cell. Also, the limits of waste along the northern portion of this area will be placed approximately 10 feet to the south of the interior separation berm along the north side of the area to ensure waste/leachate runoff does not enter the Phase II Section II Expansion center portion.

In addition, a perimeter berm will be placed around the exterior of the placed waste (southern and western sides) to ensure no runoff of stormwater from the waste will occur outside of the lined cell area. Successive waste layers will be added in this southern portion in 10-foot lifts working from south to north and west to east. Each layer will be placed across the cell bottom and against the existing western sideslope of the Phase II Section I disposal area. Once the Phase II Section II Expansion southern portion has reached a vertical elevation of approximately EL113.5 feet NGVD top of waste, filling within the portion will be temporarily stopped. Please refer to the Operation Drawings located in Attachment E for a plan view and section views of Fill Sequence No. 4 within the Phase II Section II Expansion southern portion.

#### **K.2.f.3 Phase II Section II Expansion Center Portion Filling**

Filling will then begin in the center portion of the Phase II Section II Expansion area working from north to south. This has been identified as Fill Sequence No. 5. An initial lift of select loose municipal solid waste, a minimum of four feet in thickness, will be placed over the protective sand layer. The select waste will be spread out and inspected for large rigid objects that may puncture the liner system when compacted. After the layer of select waste has been placed, additional waste will be placed in order to make the first lift approximately 10 feet thick across the Phase II Section II Expansion within this area. This waste thickness will bring the center portion disposal area slightly below the proposed western perimeter road and the interior separation berm along the south side of the area (which separates it from the Phase II Section II Expansion southern portion). The limits of waste (as shown on the Operation Drawings located in Attachment E) and surface of the waste layer will be placed so it is sloped back “into” the landfill cell.

Also, the limits of waste along the northern portion of this area will be placed approximately 50 feet to the south of the east/west main LCS header trench which has been elevated with protective cover material to create an interior separation berm. This interior separation berm will separate the Phase II Section II Expansion center portion from the northern portion to ensure waste/leachate runoff does not enter the Phase II Section II Expansion northern portion which is covered with a rain tarp. In addition, a perimeter berm will be placed along the exterior of the placed waste (western side) to ensure no runoff of stormwater from the waste will occur outside of the lined cell area.

After the initial 10-foot lift according to the above-mentioned methods, successive waste layers will be added in this center portion in 10-foot lifts. Filling will proceed from north to south and east to west. Each layer will be placed across the cell bottom and against the existing western sideslope of the Phase I disposal area. In addition, while filling from north to south, waste will also be placed against the north sideslope of the Phase II Section II Expansion south portion

previously filled in Fill Sequence No. 4. Eventually, waste filling will reach an elevation that waste will also be placed on the western and top portion of the Phase II Section I area previously filled in Fill Sequence No. 3. Filling in this manner will meet the peak elevation obtained in Fill Sequence No. 3 of approximately EL 166 feet NGVD.

Prior to placing waste against the Phase I sideslope, the procedures outlined below in “Waste Placement Against Phase I Sideslope” will be followed by the County. Once Fill Sequence No. 5 has been completed, filling within the portion will be temporarily stopped. Please refer to the Operation Drawings located in Attachment E for plan views and section views of the proposed fill sequencing within the Phase II Section II Expansion center portion.

#### **K.2.f.4 Phase II Section II Expansion Northern Portion Filling**

Filling will then begin in the northern portion of the Phase II Section II Expansion working from south to north after removal of the rain tarp. This has been identified as Fill Sequence No. 6. An initial lift of select loose municipal solid waste, a minimum of four feet in thickness, will be placed over the protective sand layer. This will also include the 50 foot offset created during Fill Sequence No. 5 between the north and center portions of the Phase II Section II Expansion. The select waste will be spread out and inspected for large rigid objects that may puncture the liner system when compacted. After the layer of select waste has been placed, additional waste will be placed in order to make the first lift approximately 10 feet thick across the entire Phase II Section II Expansion within this area. This waste thickness will bring the northern portion (and the 50 foot offset area) disposal area below the proposed western and northern perimeter road. The limits of waste (as shown on the Operation Drawings located in Attachment E) and surface of the waste layer will be placed so it is sloped back “into” the landfill cell. In addition, a perimeter berm will be placed along the exterior of the placed waste (western and northern sides) to ensure no runoff of stormwater from the waste will occur outside of the lined cell area.

After the initial 10-foot lift according to the above-mentioned methods, successive waste layers will be added in this northern portion in 10-foot lifts. Filling will proceed from south to north and east to west. Each layer will be placed across the cell bottom and against the existing western sideslope of the Phase I disposal area. In addition, while filling from south to north, waste will also be placed against the north sideslope of the Phase II Section II Expansion center portion previously filled in Fill Sequence No. 5. Prior to placing waste against the Phase I sideslope, the procedures outlined below in “Waste Placement Against Phase I Sideslope” will be followed by the County.

#### **K.2.f.5 Waste Placement Against Phase I Sideslope**

Prior to placement of waste against the western sideslope of the Phase I disposal area (as indicated above during filling of the center and northern portions of the Phase II Section II Expansion), the County will remove only as much of the [rain tarp \(installed over the existing sod during construction of the Phase II Section II Expansion\)](#) and existing sod within an area of the sideslope where waste would be placed as needed. [Rain tarp and Sod](#) within select areas will only be removed by the County as needed prior to waste filling. The remainder of the [rain tarp and sod](#) along the western sideslope of the Phase I disposal area will remain in place until further

removal is required for additional waste placement to prevent washout of the existing drainage sand material along the sideslope during storm events [and stormwater infiltration/runoff into the active waste filling area](#).

As soon as the [rain tarp and](#) sod is removed within a select area of the Phase I sideslope prior to waste filling, County personnel will conduct depth checks by hand (on an approximately 25-foot grid) of the remaining sideslope protective cover material to ensure there is 24-inches (measured perpendicular to the slope) of protective material remaining. If the County depth checks and measurements indicate there is 24-inches of protective material remaining, no other field work will be conducted by the County prior to waste placement along the Phase I sideslope in that area. The County will then notify FDEP according to Part K.2.f.7. prior to waste placement.

If the County depth checks indicate less than 24-inches of protective material is remaining after [the rain tarp and](#) sod removal the County will place additional protective material within the area prior to waste placement as needed to obtain the required depth. Following material placement to the required depth by the County, the County will notify FDEP according to Part K.2.f.7. prior to waste placement.

#### **K.2.f.6 Protective Soil/Drainage Sand Material**

During construction of the Phase II Section II Expansion, the County will ensure that additional protective soil/drainage sand material, which has met the requirements of the project Technical Specifications (minimum hydraulic conductivity of  $1 \times 10^{-3}$  cm/sec, gradation, etc.) and has been approved by the Engineer during construction, is stockpiled onsite for future use. This material would be placed as needed by the County against the Phase I sideslope prior to waste placement in the locations identified from the depth checks that less than 24-inches of the existing protective material was remaining after [the rain tarp and](#) sod removal. If the stockpiled protective material has been depleted by the County and additional material is required, the County shall perform material testing as required for protective soil/drainage sand by Specification Section 02220 Excavation, Backfill, Fill, and Grading from a suitable source. After the material has met the requirements of the Specification, the additional material may be utilized by the County.

#### **K.2.f.7 Confirmation of Protective Soil/Drainage Sand Material Depth**

After confirmation by the County that 24-inches of protective material is in place along the Phase I sideslope [after removal of the rain tarp and existing sod](#), through the processes as indicated above in Part K.2.f.5., the County shall provide FDEP a certification statement to the effect prior to waste placement. [In addition, the County shall provide confirmation that the processes as indicated above in Part K.2.f.6 were followed regarding the protective material placed against the Phase I sideslope after sod removal.](#)

[The certification statement shall either be signed and sealed by the Engineer of Record that conducted and/or monitored the protective soil/drainage sand depth checks and soil replacement or reviewed appropriate documentation of the work; or shall include adequate documentation of work that can be reviewed by the Department. In the event that the certification statement is not](#)



signed and sealed by the Engineer of Record, the certification statement and supporting documentation shall be submitted at least seven days prior to waste placement over the certified area to allow for Department review of the submittal.

#### **K.2.f.8 Temporary Sideslope Berms**

In addition, to reduce the amount of stormwater infiltration and surface water runoff into the Phase II Section II Expansion center and northern portions (and generating additional leachate), the County will ensure the rain tarp (placed during construction of the Phase II Section II Expansion over the existing sod) is maintained as needed along the western sideslope of the Phase I area. In addition, the County will construct temporary sideslope berms along the western Phase I sideslope during operations as needed (discussed further below). The temporary sideslope berms will be active in nature to ensure the rain tarp directs the surface water runoff away from the active filling area. The County will create temporary sideslope berms as needed to accommodate fill sequencing which will be used to control the surface water runoff from the rain tarp and direct it away from the active filling area to reduce surface water runoff into active waste filling to the extent practical.

The temporary sideslope berms will help direct the southern half of the rain-tarped western Phase I sideslope surface water runoff into the Phase II Section II Expansion northern portion (which will be covered with a rain tarp while waste filling is not occurring) while filling in the center portion. This surface water runoff can then be pumped as needed from the northern portion area into the perimeter stormwater management system.

The temporary sideslope berms created along the northern half of the rain-tarped western Phase I sideslope will help direct the surface water runoff into the northern perimeter stormwater management system swale while filling in the northern portion. This will also reduce the amount of surface water runoff entering the northern portion and generating additional leachate.

In addition, prior to filling, the County will remove the concrete rubble rip rap from within the temporary stormwater downchutes located along the sideslope. After removal of the rip rap, the County will place drainage sand within the area downchute areas to a minimum of two feet.

After removal of rain tarp, sod, and rip rap, filling will begin by placing waste against the sideslope of the Phase I disposal area and raising the Phase II Section II Expansion disposal area up. Final filling will achieve the grades shown on the Operation Drawings located in Attachment E.

The County will not recirculate leachate but will conduct leachate evaporation during operation of the Phase II Section II area. Ditches, berms, or other devices shall be constructed to control leachate runoff. However, the quantity of leachate applied during leachate evaporation shall not be in such a quantity as to require ditches, berms, or other devices to control leachate runoff or the need to shed runoff to the leachate collection system. Initial and intermediate cover receiving leachate from the leachate evaporation process shall be graded to shed runoff into the leachate collection system and to minimize mixing of leachate runoff and storm water. Initial and intermediate cover shall be permeable to the extent necessary to prevent perched water conditions and gas buildup. Leachate evaporation shall not be conducted during weather

conditions or in quantities that may cause runoff outside the solid waste disposal unit, surface seeps, wind-blown spray, or exceedance of the limits of the leachate head on the liner. The application of leachate for evaporation shall be such that leachate runoff is prevented and leachate is only applied to those areas and cover soils that do not runoff to stormwater has been included in the facility's Operation Plan.

In summary, while no waste filling is occurring in the center and north portions of the Phase II Section II Expansion, the rain tarp placed along the Phase I western sideslope during the Phase II Section II Expansion will remain intact and unchanged. Just prior to waste filling within the center portion of the Phase II Section II Expansion, the County will remove only as much of the existing rain tarp and sod along the south portion of the Phase I western sideslope as needed to accommodate filling within the center portion (north portion of the sideslope rain tarp will remain in place). After the rain tarp and sod removal the County will construct a temporary sideslope berm within the area which will direct the southern half of the rain-tarped western sideslope surface water runoff into the Phase II Section II Expansion north portion. The County will also wrap the rain tarp over the top of the temporary sideslope berm to minimize erosion of the berm. After the required field work and Department notification has been conducted and provided by the County as indicated within Parts K.2.f.5, K.2.f.6, and K.2.f.7 the County will then begin waste filling within the center portion. Once waste filling within the center portion and up against the Phase I western sideslope has reached the temporary sideslope berm constructed in the area the County will then repeat this process. Rain tarp and sod will be removed, a temporary sideslope berm will be constructed, the remaining rain tarp will be wrapped over the top of the sideslope berm, required field work and Department notification will be conducted and provided as indicated within Parts K.2.f.5, K.2.f.6, and K.2.f.7 and waste filling will continue as per the fill sequencing plans. Once the grades have reached the elevations as indicated in the fill sequencing plans for the center portion, the County will repeat the process along the northern portion of the Phase I western sideslope for waste filling within the Phase II Section II Expansion north portion. The only difference will be the temporary sideslope berms will be constructed by the County in a manner to direct the sideslope surface water runoff into the northern perimeter stormwater management system swale while waste filling in the northern portion.

#### **K.2.g Waste Compaction and Application of Cover**

In accordance with Rule 62-701.500(2)g, FAC the Operation Plan identifies waste compaction and application of cover procedures of the Operation Plan.

#### **K.2.h Operations of Gas, Leachate, and Stormwater Controls**

In accordance with Rule 62-701.500(2)h, FAC the Operation Plan identifies the operations of gas, leachate, and stormwater controls.

#### **K.2.i Water Quality Monitoring**

In accordance with Rule 62-701.500(2)i, FAC the Operation Plan identifies the groundwater quality monitoring at the landfill. Water quality monitoring for site-specific test parameters,



locations, frequencies, and reports will be conducted as required by the facility Operation Permit.

#### **K.2.j Maintaining and Cleaning the Leachate Collection System**

In accordance with Rule 62-701.500(2)j, FAC the Operation Plan identifies maintaining and cleaning the leachate collection system at the landfill. The leachate collection and leak detection laterals and headers shown on the Operation Drawings located in Attachment E will be cleaned and maintained, ~~as necessary~~, through the cleanout riser pipes. The LCRS pipes will be cleaned by flushing and/or be inspected by video recording in accordance with Rule 62-701.500(8)(h), FAC [effective 8/12/12] at least once every five years during the 20-year Operation Permit period. The pipes will be inspected by video recording after initial construction in accordance with Rule 62-701.500(8)(h), FAC and after one year of waste placement. If material is found to have settled out in the pipes, the pipes will be cleaned and flushed and re-inspected in 12 months and at ~~the time of permit renewal~~ least once every five years during the 20-year Operation Permit period.

### **K.3 OPERATING RECORD**

In accordance with Rule 62-701.500(3), FAC copies of all operating records, reports, engineering drawings, training records, etc. are kept on file at the landfill. Upon request, the records will be made available for FDEP inspection. All records pertaining to the operation of the facility will be retained throughout the design life of the landfill. All monitoring records, calibration and maintenance records, and reports required by the operating permit will be retained for at least ten years.

### **K.4 WASTE RECORDS**

In accordance with Rule 62-701.500(4), FAC waste reports that include waste type and quantity are compiled monthly and submitted ~~quarterly to FDEP and provided~~ to the Department annually. The monthly reports shall be kept on file at the facility and are available for inspection by the Department upon request. The waste information shall be reported to the Department through the DEP Business Portal located at: <http://www.fldepportal.com/go>. The waste is categorized and the tonnages are annotated in the appropriate category in the Waste Quantity Form located in the Operation. Reports include: (a) types of solid waste received, and (b) quantities of solid waste received by category. The landfill operator also estimates the amount of the following waste categories:

Residential	Scrap Metals	White Goods	Used Oil
Commercial	Asbestos		
C&D Debris	Battery		
Clean Wood and Yard Trash	Tires		

Additionally, the County maintains all manifests provided by the contractors for the recyclable special wastes on file. These manifests are available for FDEP inspection upon request.

## **K.5 ACCESS CONTROLS**

In accordance with Rule 62-701.500(5), FAC to prevent unauthorized waste disposal and unauthorized access to and use of the landfill, the entire site is surrounded by a fence. The entrance/exit to the facility is controlled by the scalehouse attendant. All vehicles entering the site must pass by the scalehouse. All visitors or customers must stop at the scalehouse either to have their vehicle weighed or to register by signing a "visitor log." When the facility is closed the gates are locked.

## **K.6 LOAD CHECKING PROGRAM**

In accordance with Rule 62-701.500(6), FAC the Operation Plan describes the load checking program implemented at the landfill to discourage disposal of unauthorized wastes. The Operation Plan lists the waste materials and their proper disposal or storage locations and also lists waste materials that are prohibited from entering or being disposed of in the landfill.

## **K.7 SPREADING AND COMPACTING WASTE**

In accordance with Rule 62-701.500(7)a through k, FAC the Operation Plan identifies the procedures for waste layer thickness and compaction frequencies at the landfill. The bulldozer operator at the facility will spread the waste unloaded by trucks. Compaction will be achieved during the spreading and shaping operation by a Caterpillar 816F Compactor and by incoming vehicles driving over the in-place waste.

### **K.7.a Waste Layer Thickness and Compaction Frequencies**

In accordance with Rule 62-701.500(7)a, FAC the Operation Plan describes the waste layer thickness and compaction frequencies. When waste is disposed of, it is spread in two-foot thick layers and compacted with either a Caterpillar D7R Dozer, Caterpillar 816F Compactor, or other equipment of sufficient weight to compact the waste to approximately one-foot in thickness. Generally three to five passes should be sufficient to compact the waste. [The maximum lift height is ten feet high.](#)

### **K.7.b First Layer Thickness**

In accordance with Rule 62-701.500(7)b, FAC the Operation Plan describes the procedure for filling and compacting the first layer of waste to protect the integrity of the liner and leachate collection system. An initial lift of select waste, a minimum of four feet in thickness, will be placed over the projected sand layer. The loose waste will be spread out and inspected for large rigid objects that may puncture the liner system when compacted. Heavy vehicles will not be allowed to drive directly on the sand layer.

### **K.7.c Slopes of Cell Working Face, Side Grades, and Lift Depths**

In accordance with Rule 62-701.500(7)c, FAC the Operation Plan describes the slopes of the cell working face and side grades above land surface, and the planned waste lift depth during

operation. The exterior sideslopes of the Phase II Section I and Phase II Section II Expansion above grade shall not exceed three horizontal to one vertical (3H: 1V). The slopes will vary with daily operations but shall conform to the slopes indicated on the Operation Drawings for the landfill. The typical minimum top slopes to promote drainage will be maintained at approximately two percent within the bermed working face and on the intermediate cover areas. The top slope will be maintained at an approximate slope of 4 or 5 percent based on the area of the landfill to promote positive drainage. Waste will typically be dumped in a single pile by each incoming truck and spread into approximately two-foot thick lifts by either a Caterpillar D7R Dozer, Caterpillar 816F Compactor, or other equipment of sufficient weight to compact the waste to approximately one-foot in thickness. The maximum lift height is ten feet high. When the lift height is reached, daily cover is placed over the lift.

#### **K.7.d Maximum Width of Working Face**

In accordance with Rule 62-701.500(7)d, FAC the Operation Plan describes the working face will be kept as small as practical. The working face will be kept as small as practical but large enough to allow up to four trucks to be unloaded at one time. Berms comprised of clean soil will be placed around the working face at all times to contain all leachate and prevent leachate runoff from the working face from entering the stormwater management system or leaving the lined disposal area. Special attention/maintenance will be used on areas where traffic enters the working area to ensure leachate is contained within the bermed area and to prevent leachate from leaving the working area.

#### **K.7.e Initial Cover Controls**

In accordance with Rule 62-701.500(7)e.1 through 62-701.500(7)e.45, FAC initial cover is used to control disease vector/animal attraction, fires, odors, blowing litter, and moisture infiltration. The initial cover used consists of a 6-inch thick layer of soil obtained from off-site borrow sources. Tarps may be used as a temporary daily cover on the exposed side of the working face of the disposal area if additional waste material will be deposited within 18 hours.

#### **K.7.f Initial Cover Application Procedures and Frequency**

In accordance with Rule 62-701.500(7)f, FAC the Operation Plan describes the procedures for applying initial cover including minimum cover frequencies. The working face shall be covered with a 6-inch thick layer of soil or tarps at the end of each working day. All waste materials will be compacted prior to application of initial cover. The initial cover, if soil is used, will be spread to cover the entire working face with a uniform six-inch soil cover (free of waste) using a dozer or applicable equipment. If tarps are used as temporary daily cover then, the tarps will be spread to cover the waste material. Sand or the tarp spreader bar will be used to minimize uplift by wind. When the working face area exceeds the area of available tarp, then six inches of compacted soil will be placed to cover the waste material. Processed yard trash or clean wood (mulch) may be spread over the initial soil cover for stabilization and erosion control measures.

### **K.7.g Intermediate Cover Application Procedures**

In accordance with Rule 62-701.500(7)g, FAC the Operation Plan describes the procedures for applying intermediate cover including minimum cover frequencies. Intermediate cover, an additional 12-inches thick layer of compacted soil on top of the 6-inch thick layer of compacted initial soil cover, will be applied within seven days over areas that will not receive additional waste within 180 days. Intermediate cover consists of compacted sandy soils from an off-site borrow sources. The intermediate cover soils will be spread using a bulldozer. The bulldozer will make a minimum of three to four passes to compact the soils.

Soils containing any waste materials cannot be used as intermediate cover and must be placed within the bermed area of the disposal area. Berms will be placed around the working face to contain all leachate and to prevent leachate runoff from the working face from entering the stormwater management system. The top of the intermediate cover soil will be graded, generally a minimum of two percent, to allow clean, uncontaminated surface water to runoff and to minimize ponding on the top of the cover soil.

When waste is to be placed in areas with intermediate cover, all or part of the intermediate cover can be removed for future use prior to the additional waste placement. The intermediate cover is removed by pushing the cover material into a stockpile on the side or a new berm around the working face with a front-end loader or dozer; the intermediate cover shall be free of waste. After additional waste is placed, the cover material can be used as initial cover by pushing the material back with the loader or dozer. Processed yard trash or clean wood (mulch), may be spread over the intermediate cover for stabilization and erosion control measures.

### **K.7.h Final Cover Application Time Frame**

In accordance with Rule 62-701.500(7)h, FAC the Operation Plan describes the time frames for applying final cover. The County will place cover over sideslopes and other areas that have reached final grade. Final cover will include a grading layer, low permeability geomembrane, two feet of soil cover, and sod.

### **K.7.i Scavenging and Salvaging**

In accordance with Rule 62-701.500(7)i, FAC the Operation Plan describes the procedures for controlling scavenging and salvaging, which is not permitted. Scavenging and salvaging is not permitted at the Hardee County Landfill. The facility has a fence around the entire perimeter to minimize unauthorized access to the landfill.

### **K.7.j Litter Policing**

In accordance with Rule 62-701.500(7)j, FAC the Operation Plan describes litter control with moveable fences to lessen the amount of blown litter. On a daily basis, landfill personnel and/or county jail trustees collect litter along the entrance and access roads, at buildings, in the parking areas, and in the vicinity of the working face. Litter control fences are used near the working face to lessen the amount of blown litter.

### **K.7.k Erosion Control Procedures**

In accordance with Rule 62-701.500(7)k, FAC the Operation Plan describes the erosion of the initial or intermediate cover material on landfill areas is repaired as soon as possible to maintain the required depth of cover. Erosion of the initial or intermediate cover material on landfill areas is repaired as soon as possible to maintain the required depth of cover. The establishment and maintenance of a good stand of grass on the finished slopes is important to maintaining erosion control. In addition, it may be necessary to use processed yard trash, silt fences, straw bales, or berms to help prevent erosion. The landfill operator will take appropriate measures to prevent and correct erosion problems on the site.

The fill sequence has been designed to minimize erosion of landfill sideslopes and washout of adjacent areas. The landfill surface will be inspected daily for cracks, eroded areas, and depressions in the landfill surface. In areas where standing water develops, the area will be filled, compacted, and graded to provide positive drainage. For intermediately covered areas, or other areas that discharge to the stormwater management system, which exhibit significant erosion, will be repaired as follows:

- If greater than 50 percent of the soil cover material has eroded, then the area will be repaired within 7 days.
- If waste is exposed, then the area will be repaired by the end of the next working day.
- If erosion cannot be corrected within seven days, the FDEP will be contacted with a corrective actions plan and schedule.

## **K.8 LEACHATE MANAGEMENT**

### **K.8.a Leachate Level Monitoring, Sampling, Analysis, and Data Results**

In accordance with Rule 62-701.500(8)a, the landfill operator is responsible for maintenance and monitoring of the leachate collection system.

### **K.8.b Operation and Maintenance of the Leachate Collection and Removal System**

In accordance with Rule 62-701.500(8)b, the landfill operator is responsible for the operation of the leachate collection and removal system and for maintaining the system as designed for the design period. If the leachate is classified as a hazardous waste, it shall be managed in accordance with Chapter 62-730, FAC. The leachate collection and leak detection laterals and headers shown on the Operation Drawings will be cleaned and maintained, ~~as necessary~~, through the cleanout riser pipes. The LCRS pipes will be cleaned by flushing and/or be inspected by video recording in accordance with Rule 62-701.500(8)(h), FAC [effective 8/12/12] at least once every five years during the 20-year Operation Permit period. The pipes will be inspected by video recording after initial construction in accordance with Rule 62-701.500(8)(h), FAC. If

material is found to have settled out in the pipes, the pipes should be cleaned and flushed and re-inspected in 12 months and at the time of permit renewal.

#### **K.8.c Procedures for Managing Leachate upon Regulation Changes**

In accordance with Rule 62-701.500(8)c, leachate may be discharged to an off-site treatment plant. The landfill operator is responsible for having a written contract or agreement with the off-site treatment plant to discharge leachate to the plant. Please refer to Appendix L within the Operation Plan located in Attachment K for a copy of the contract with City of Wauchula Plant. If at any time the leachate is determined to be hazardous, it will be managed in accordance with Rule 62-730, FAC.

#### **K.8.d Offsite Discharge and Treatment of Leachate**

In accordance with Rule 62-701.500(8)c and d, on-site leachate treatment or pretreatment systems part of the leachate collection and removal system have been designed according to the expected characteristics of the leachate. The design includes adjustments to the system as necessary to accommodate changing leachate characteristics. The landfill operator is responsible for having a written contract or agreement with the off-site treatment plant to discharge leachate to the plant. An agreement between the County and the City of Wauchula (City) provides for off-site treatment of leachate. The County retains the City to provide treatment and disposal of leachate on an as-needed basis. The County is responsible for testing, reporting, and transportation of leachate to the City's wastewater treatment plant. The services to be performed and the terms of the agreement are subject to FDEP rules and regulations. Please refer to Appendix L within the Operation Plan located in Attachment K for a copy of the contract with the City of Wauchula Waste Water Treatment Plant.

The County also upgraded or completed construction of two other County-owned and operated wastewater treatment plants. The County plants at the Vandolah and Wauchula Hills wastewater treatment facilities are also available to receive leachate for treatment. Since these facilities are owned and operated by the County no agreements are necessary.

#### **K.8.e Contingency Plan**

In accordance with Rule 62-701.500(8)e, the landfill operator shall have a prepared contingency plan to handle leachate collection, removal, and treatment problems such as interruptions of discharges to a treatment plant. Currently, leachate is trucked to the City of Wauchula Wastewater Treatment Plant for treatment. If the City of Wauchula wastewater treatment plant is unavailable then leachate can be diverted to the Vandolah or Wauchula Hills wastewater treatment plants. Should any or all the available treatment plants become unavailable to the County, arrangements will be made to take the leachate to another treatment facility within seven (7) days.

Leachate may be pumped and stored into either of two leachate storage tanks from the pump station allowing for maintenance on one tank while the other remains in service. Leachate may also be pumped from either storage tank or directly from the pump station into tanker trucks for



transport to the City of Wauchula wastewater treatment plant or other treatment plants. Should this plant become unavailable to the County, arrangements will be made to take the leachate to another treatment facility within seven (7) days.

#### **K.8.f Procedures for Recording Quantities of Leachate Generation**

In accordance with Rule 62-701.500(8)f, the quantities of leachate collected by the leachate collection and removal system are recorded in gallons per day before offsite disposal and are included with the operating record. The quantity of leachate pumped each day is recorded in gallons/day and included with the operating record.

#### **K.8.g Precipitation and Leachate Comparison**

In accordance with Rule 62-701.500(8)g, a rain gauge is located onsite, operated, and maintained to record precipitation at the Hardee County Landfill. Precipitation records are included with the operating record and are maintained and used by the County to compare with leachate generation rates. A rain gauge, located onsite is used to compare precipitation with leachate generation. Rain data, in excess of one tenth of an inch, is recorded daily in the operating record by landfill personnel. In addition, the National Oceanic and Atmospheric Association (NOAA) also has a weather station located in the City of Wauchula that keeps daily records of rainfall in the area.

#### **K.8.h Leachate Collection System Cleaning or Video Inspecting**

In accordance with Rule 62-701.500(8)h, new leachate collection systems shall be water pressure cleaned or inspected by video recording after construction but prior to initial placement of wastes. The Hardee County Landfill leachate collection system ~~shall be water pressure cleaned or inspected by video recording at the time of permit renewal.~~ will be cleaned by flushing and/or be inspected by video recording in accordance with Rule 62-701.500(8)(h), FAC [effective 8/12/12] at least once every five years during the 20-year Operation Permit period.

Per Specific Condition No. C.8.g.(3) of Operation Permit #38414-011-SO/01 the Phase II Section I leachate collection and removal system (LCRS) pipes were jet-cleaned and video-inspected to verify adequate performance by Florida Jetclean (Jetclean) on December 18, 2012. The Phase II Section I LCRS consist of three 8-inch diameter leachate collection lateral pipes identified as south, center and north and one 8-inch diameter leachate detection lateral pipe identified as detection.

The leachate collection lateral pipes were accessed through cleanouts located along the western side of the Phase II Section I Expansion area. The leachate detection lateral pipe was accessed through a cleanout located in the southeast corner of the Phase II Section I Expansion area. The Jetclean video-inspection equipment is capable of recording distances along the LCRS pipes inspected to document the length of LCRS jet-cleaned and video-inspected. The Jetclean video-inspection showed the LCRS pipes viewed with the inspection camera were clean and defect free. In areas where the video quality was obscured by high liquid levels within the LCRS pipes, the fact that both the inspection camera and the high-pressure jetting nozzle were not restricted through those areas would support the contention that those areas of the leachate collection

system are also in good working order. A “Jetting Log” summary table was provided in the Jetclean report *Hardee County Landfill 2012 LCS & GCS Pipe Maintenance Phase I LCS & Phase II LCS/GCS* which indicated the LCRS pipes location, achieved inspection distance (pipe length) and results of the inspection.

The results of the inspection and cleaning are being submitted in conjunction with this Operation Permit renewal application. Please refer to Attachment L for the Florida Jetclean report *Hardee County Landfill 2012 LCS & GCS Pipe Maintenance Phase I LCS & Phase II LCS/GCS*. Based on the findings of the Florida Jetclean report, it is SCS’s professional opinion that the existing Phase II Section I LCRS is operating as intended and will handle the additional leachate generated from the Phase II Section II and Phase II Section I Expansions.

In addition, as required by Specific Condition No. C.8.i.(3) of Operation Permit #38414-011-SO/01 the Phase II Section I groundwater interceptor system pipes were jet-cleaned and video-inspected by Jetclean on December 18, 2012. The Phase II Section I groundwater interceptor system consist of nine 8-inch diameter groundwater collection pipes identified as CO1 through CO9 and one 12-inch diameter wetwell to header pipe.

The groundwater interceptor system pipes were accessed through cleanouts located along the western side of the Phase II Section I Expansion area. The wetwell to header pipe was accessed through the groundwater wetwell located in the southeast corner of the Phase II Section I Expansion area. The Jetclean video-inspection showed the groundwater interceptor system pipes viewed with the inspection camera were clean and defect free. In areas where the video quality was obscured by high liquid levels within the groundwater interceptor system pipes, the fact that both the inspection camera and the high-pressure jetting nozzle were not restricted through those areas would support the contention that those areas of the groundwater interceptor system are also in good working order. A “Jetting Log” summary table was provided in the Jetclean report *Hardee County Landfill 2012 LCS & GCS Pipe Maintenance Phase I LCS & Phase II LCS/GCS* which indicated the groundwater interceptor system pipes location, achieved inspection distance (pipe length) and results of the inspection.

The results of the inspection and cleaning are being submitted in conjunction with this Operation Permit renewal application. Please refer to Attachment L for the Florida Jetclean report *Hardee County Landfill 2012 LCS & GCS Pipe Maintenance Phase I LCS & Phase II LCS/GCS*. Based on the findings of the Florida Jetclean report, it is SCS’s professional opinion that the existing Phase II Section I groundwater interceptor system pipes are operating as intended and will handle the groundwater flow generated from the Phase II Section II and Phase II Section I Expansions.

The LCRS, as shown on the Operation Drawings located in Attachment E, includes the 24-inch thick sloping sand drainage layer, a sloped bi-planar geocomposite (i.e., the geonet or drainage net) and a piping network. The bi-planar geocomposite and the drainage layer are installed at a slope across the Phase II Section II Expansion as indicated on the construction permit application drawings. A series of sloped 8-inch and 10-inch diameter HDPE perforated pipes are placed in rock-filled trenches wrapped with a geotextile that are spaced at regular, predetermined intervals across the geocomposite lining. Together the piping and geocomposite collect leachate flowing through the drainage layer and transport it to the leachate collection header trench which in turn



transports the leachate via gravity to the leachate collection sump. The leachate sump is equipped with submersible pumps that discharge the leachate out of the sump through a pipeline and out of the cell.

From that point the leachate will travel in a pressure pipeline (i.e., a force main) from the cell to the leachate collection sideslope risers located along the western side of the south portion of the Phase II Section II Expansion. The leachate force main is sized to serve the flow from the leachate collection and detection pumps. The sideslope risers are extensions of the leachate collection pipes for the Phase II Section II Expansion which will be connected to the existing leachate collection lines located within the Phase II Section I area during construction. Leachate will then flow via gravity to the existing leachate collection sump and pumps located within the Phase II Section I area. From the Phase II Section I sump the leachate will be pumped into the existing above ground leachate storage tanks.

## **K.9 GAS MONITORING PROGRAM**

In accordance with Rule 62-701.500(9), FAC the Operation Plan identifies the operational procedures for landfill gas management. Gas monitoring locations, frequencies, and reports will be conducted as required by the facility Operation Permit. Gas monitoring locations, frequencies, and reports will be conducted as required by the facility Operation Permit.

## **K.10 STORMWATER MANAGEMENT SYSTEM**

In accordance with Rule 62-701.500(10), FAC the Operation Plan identifies the operational procedures for the stormwater management system operation and maintenance at the landfill. The stormwater management system is operated and maintained as necessary to meet the requirements of subsection 62-701.400(9), FAC. Stormwater management for the facility consists of perimeter ditches and culverts that discharge to on-site retention ponds. Surface water collected from the final cover system, and from the exterior slopes with intermediate cover, is discharged to the perimeter ditch. Operation and maintenance of the stormwater management system includes periodic grass mowing and controlling vegetation in the ditches and swales, inspecting the berms, performing minor repairs if erosion features are observed, and inspecting the outfall structures.

## **K.11 EQUIPMENT AND OPERATION**

### **K.11.a Operating Equipment**

In accordance with Rule 62-701.500(11)a, FAC the Operation Plan identifies the equipment to ensure proper operation of the facility for excavating, spreading, compacting and covering waste. The site will have sufficient equipment to ensure proper operation of the facility for excavating, spreading, compacting and covering waste. Normal maintenance will be performed on site. Major maintenance item repairs (e.g., engine, transmissions, and auxiliary drives) will be handled at off-site service facilities.

#### **K.11.b Reserve Equipment**

In accordance with Rule 62-701.500(11)b, FAC the Operation Plan identifies reserve equipment. The existing equipment on site is sufficient to handle the incoming waste stream. The existing equipment on site, listed in the section above, is sufficient to handle the incoming waste stream. Should unforeseen circumstances require more equipment than is currently available, the County has budget enough funds for one month's leasing or rental of heavy equipment. Additionally, equipment from the Hardee County Public Works Road and Bridge Section is available to the Solid Waste Department for use during an emergency.

#### **K.11.c Communications Equipment**

In accordance with Rule 62-701.500(11)c, FAC the Operation Plan identifies communications equipment for emergency and routine communications onsite. The scalehouse and on-site landfill office are equipped with telephones for emergency communications; two-way radios are available at the scalehouse for distribution to landfill personnel to allow for emergency communications between the scalehouse/landfill office and employees working on the landfill. The scalehouse is equipped with water supply, toilet facilities, and emergency first-aid supplies. The building also provides shelter for employees in case of inclement weather. The maintenance building is equipped with spare parts, tools, equipment, and electrical services for operations and repair.

#### **K.11.d Dust Control**

In accordance with Rule 62-701.500(11)d, FAC the Operation Plan identifies dust control methods. During dry periods, when dust control is needed, such as on haul roads, the yard trash processing area, or in area(s) where dusty conditions cause a vehicle safety problem or dust is blowing offsite, water will be sprayed over these areas as necessary to keep dust particles moist and minimize particles from blowing into the air. Water from the on-site stormwater pond or the onsite water hydrants will be pumped into a 1,000-gallon tanker truck equipped with a spray bar and nozzles to use for wetting the roads. The tanker truck will be provided through the Hardee County Public Works Department.

#### **K.11.e Fire Protection**

In accordance with Rule 62-701.500(11)e, FAC the Operation Plan identifies fire protection and fire-fighting capabilities adequate to control accidental burning of solid waste at the Hardee County Landfill. Fire protection includes procedures for notification of local fire protection agencies for assistance in emergencies. In the event of fire, the responding agency is the Hardee County Fire and Rescue Service, located approximately three miles west of the site, in Wauchula, FL. Additionally, the landfill site is equipped with a dry fire hydrant located adjacent to the pond immediately north of the scalehouse for the filling of pump trucks. Four water hydrants are located along the eastside of Class I Phase I landfill, on the eastside of the entrance road. Fire extinguishers are located in the equipment and at the maintenance barn for use in the event of small fires. There are also six fire extinguishers and five hose bibs located in the on-site MRF.

#### **K.11.f Litter Control**

In accordance with Rule 62-701.500(11)f, FAC the Operation Plan identifies litter control devices, portable fences, or other suitable devices. On a daily basis, landfill personnel or contract laborers collect litter along the entrance and access roads, at buildings, in the parking areas, and in the vicinity of the working face. Litter control fences are used along the perimeter of the working face to lessen the amount of blown litter. The fences are erected at the beginning of each workday and removed at the end of the day.

#### **K.11.g Signs**

In accordance with Rule 62-701.500(11)g, FAC the Operation Plan identifies the signs indicating the name of the operating authority, traffic flow, hours of operations and restrictions or conditions of disposal. A sign at the intersection of S.R. 636 and Airport Road marks the turnoff from S.R. 636 to the Hardee County Landfill. A sign at the entrance to the landfill displays the days and hours of operation. Signs or markers are posted throughout the facility indicating traffic flow directions, types of waste that are not acceptable, speed limits, and underground liner location. All manholes are marked with a warning sign stating "This Manhole Contains Toxic and Explosive Gasses. Do Not Enter Without Proper Ventilation."

#### **K.12 ALL-WEATHER ACCESS ROAD**

In accordance with Rule 62-701.500(12), FAC the Operation Plan identifies the access roads at the landfill. Access roads are passable and safe under normal operating conditions. The perimeter road and other on-site roads are maintained to allow access to monitoring devices and stormwater controls for landfill inspections and fire fighting as needed. The entrance to the landfill, scalehouse, MRF, HHWC, animal control kennel and next to the leachate storage tanks are asphalt paved. The road leading to the waste tire facility, scrap metals and white goods storage area, and Class I Landfill are dirt paved. The roads are crowned and slightly elevated above the surrounding grades with drainage swales on both sides to promote drainage. The roads with excessive washouts are routinely graded by the onsite Landfill personnel or Hardee County Public Works Department. The access ramp to the working face will be compacted soil with shell placed over it. This access ramp will be adequate for landfill operating equipment and waste collection trucks to reach the working area during almost all weather conditions.

#### **K.13 ADDITIONAL RECORDKEEPING**

Operating records, such as permits, plans, inspections and other records are maintained on site at the scalehouse.

##### **K.13.a Permit Application Development**

In accordance with Rule 62-701.500(13)a, FAC the Operation Plan identifies the County shall keep records of all information used to develop or support the permit applications and any supplemental information submitted pertaining to construction of the landfill throughout the design period. Records pertaining to the operation, except for weigh tickets, of the landfill shall

be kept for the design period of the landfill. Weigh tickets shall be kept for five years. In addition to waste and operating records, supplemental information from the permit applications and information pertaining to the landfill's construction and maintenance are on file at the facility. These records will be retained at the site for the remainder of the landfill's life.

#### **K.13.b Monitoring Information**

In accordance with Rule 62-701.500(13)b, FAC the Operation Plan identifies the County shall retain records of all monitoring information, including calibration and maintenance records, all original chart recordings for continuous monitoring instrumentation, and copies of all reports required by permit, for at least ten years. Background water quality records shall be kept for the design period of the landfill. Records of all monitoring information, including calibration and maintenance records, and copies of reports required by the permit will be retained for at least 10 years. The County maintains all monitoring records at the scalehouse. Copies are submitted to FDEP in accordance with its permit requirements.

#### **K.13.c Site Life Estimates**

In accordance with Rule 62-701.500(13)c, FAC the Operation Plan identifies the County shall maintain an annual estimate of the remaining life. Hardee County will maintain an annual estimate of the remaining solid waste disposal capacity (in cubic yards) and life of the existing Class I landfill. The estimate will be based on the geometry of the solid waste disposal area and the scalehouse waste records. These estimates will be reported to the FDEP annually.

#### **K.13.d Archiving and Retrieving Records**

In accordance with Rule 62-701.500(13)d, FAC the Operation Plan identifies records which are more than five years old and which are required to be retained may be archived by the County, provided that the landfill operator can retrieve them for inspection within seven days. All records pertaining to the operation of the facility will be retained throughout the design life of the landfill. All monitoring records, calibration and maintenance records, and reports required by the operating permit will be retained for at least ten years.

Revised Section L

Water Quality and Leachate Monitoring Requirements  
Replacement Page L-9

### **L.1.h Water Quality Monitoring Report Requirements**

Water quality monitoring report requirements were discussed in the *Revised Hydrogeological Investigation Report*, dated November 15, 2004, prepared by SCS included as Attachment I-1 in the *Construction Permit Application For Hardee County Landfill Expansion*, dated April 2004, prepared by SCS. In addition, the *Biennial Groundwater Monitoring Plan Evaluation Report*, dated January 30, 2008, prepared by SCS and updated in the *Revised Groundwater Monitoring Plan*, dated March 10, 2008, prepared by SCS and revised by SCS dated January 18, 2011 [revisions were submitted in support of permit modification #38414-014-SO/MM, issued April 15, 2011] discussed the water quality monitoring report requirements.

In addition, information regarding water quality monitoring report requirements for the Hardee County Landfill has been identified in the updated *Groundwater Monitoring Plan*, dated March 12, 2013, prepared by SCS provided in Attachment J.

#### **L.1.h.1 Semi-annual Report Requirements**

In accordance with Rule 62-701.510(98), FAC procedures for semi-annual reporting requirements, the County will continue to prepare and submit monitoring reports to FDEP every two and a half years regarding monitoring at the Hardee County Landfill. Monitoring wells will be sampled and analyzed for field and laboratory parameters as described in Rules 62-701.510(7)(a) and (c), FAC (in accordance with Rule 62-701.510(5)(b)2, FAC). After an initial sampling event, groundwater samples will be collected semi-annually from all wells identified as background and detection wells and analyzed for the groundwater indicator parameters listed in Rule 62-701.510(7)(a), FAC (in accordance with Rule 62-701.510(5)(c), FAC). In addition, information regarding reporting requirements for the Hardee County Landfill has been identified in the updated *Groundwater Monitoring Plan*, dated March 12, 2013, prepared by SCS provided in Attachment J.

#### **L.1.h.2 Water Quality Data Electronic Format Submittal to the Department**

Procedures for water quality data, monitoring wells will be sampled and analyzed for field and laboratory parameters as described in the Rules. Water quality data has been provided to the Department on a semi-annual basis and as specified.

#### **L.1.h.3 Technical Report Requirements**

The County will continue to prepare and submit monitoring reports to FDEP every two and a half years regarding monitoring at the Hardee County Landfill. Procedures for the Technical Report requirements will be as described in the updated *Groundwater Monitoring Plan*, dated March 12, 2013, prepared by SCS provided in Attachment J. Every two and a half years, a technical report (prepared, signed, and sealed by a professional geologist or professional engineer with experience in hydrogeologic investigations) will be submitted to the FDEP. The Technical Report will also be updated at the time of permit renewal. The Technical Report will summarize and interpret the water quality data and water level measurements collected during the past two and a half years. The report will contain the following, as required by Rule 62-701.510(8)(b) to

Revised Section M

Special Waste Handling Requirements Replacement Page M-2

kept on file at the landfill facility. Accepted contaminated soils are disposed of in the currently active disposal cell. Disposal of contaminated soil is accomplished by adding the contaminated soil to the daily cover used for the solid waste only within the lined and bermed working face. The location of contaminated soil can be determined based on the contaminated soils date of arrival and the filling sequence at the landfill.

~~If the TCLP testing shows the soil cannot be accepted at the landfill the hauler will be notified. A front-end loader will place the soil in a barrel at the Household Hazardous Waste Collection Center. Hardee County will contact the person/entity who dumped the load and request removal within 48 hours. If the 48 hours expire the County will contact an independent waste hauler for proper disposal of the contaminated soil at a permitted hazardous waste management facility.~~

## M.5 BIOLOGICAL WASTES

In accordance with Rule 62-701.520(4), FAC biological waste includes sludges and medical waste. The Hardee County Landfill, neither the Phase II Section I Expansion nor the Phase II Section II Expansion, will accept sludges for disposal. Therefore, this section does not apply and the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1) attached at the beginning of this construction permit application has been designated as "Not Applicable."

The Hardee County Landfill will not accept medical waste for disposal. Therefore, this section does not apply and the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1) attached at the beginning of this construction permit application has been designated as "Not Applicable."



Revised Section N  
Gas Management System Requirements

## SECTION N

### GAS MANAGEMENT SYSTEM REQUIREMENTS

#### N.1 GAS MANAGEMENT SYSTEM DESIGN

Landfill gas (LFG) that is generated by the anaerobic decomposition of the waste buried within the landfill is allowed to vent to the atmosphere. The current LFG management system in place at the Hardee County Landfill consists of 11 LFG monitoring probes located around the perimeter of the existing landfill footprint and at the property boundary. The existing LFG monitoring plan includes quarterly monitoring of these probes, as well as on-site structures in order to demonstrate compliance with Rule 62-701.530(1), FAC.

With the construction of the Phase II Section II Expansion to the west and south of the existing landfill, it will be necessary to relocate several of the existing LFG monitoring probes outside of the expansion area. The County will abandon prior to construction ~~and replace~~ existing LFG monitoring probes GP-3, GP-4, GP-5, and GP-6, ~~GP-7, and GP-8~~, and install replacement LFG monitoring wells designated as GP-3R, GP-4R, GP-5R, GP-6R, GP-7R, and GP-8R, as shown on the Operation Drawings located in Attachment E. In addition, refer to Figure 2 Monitoring Locations that shows the existing and proposed gas probes locations/identification numbers and the ambient gas monitoring locations/descriptions for use as a permit attachment provided in the Operations Plan. The replacement LFG monitoring wells are located along the west side and northwest corner of the property. LFG monitoring well, GP-1, GP-2, and GP-3R, will be used to detect possible subsurface migration of LFG toward the north side of the property.

##### N.1.a Preventing High Combustible Gas Concentrations

The Hardee County Landfill does not currently have a LFG management system. LFG that is generated is allowed to vent to the atmosphere. A passive LFG vent system was incorporated into the Phase I closure project. In accordance with the current Operation Permit, the County conducts LFG monitoring in onsite structures on a quarterly basis as required by Rule 62-701.530(2)(c), FAC and submits the results to FDEP according to permit conditions. The monitoring program is conducted to ensure that concentrations of combustible gases do not exceed 25% of the lower explosive limit (LEL) in structures and 100% of the LEL at the property boundary. Monitoring will continue to be conducted on a quarterly basis as required by Rule 62-701.530(2)(c), FAC with the results submitted to FDEP according to permit conditions, consistent with the existing landfill gas monitoring program and Operation Permit.

##### N.1.b Design for Site Specific Conditions

The design of the replacement LFG monitoring probes are consistent with industry standards and include considerations for site-specific conditions. The replacement LFG monitoring probes were designed based on the landfill configuration, base grades, and groundwater conditions at the site.

The landfill cover has been effective for controlling disease, vectors, objectionable odors, and litter onsite. No objectionable odors have been detected or reported by adjacent property owners. On a quarterly basis, qualified personnel from the County assess the presence of ambient objectionable odors at the location of the perimeter monitoring wells. If objectionable odors are detected at the property line, the County will implement an odor monitoring program as required by Rule 62-701.530(3)(b), FAC.

The following eleven LFG monitoring probes are currently located at the Hardee County Landfill facility. The location of the existing LFG monitoring probes are identified on the Operation Drawings located in Attachment E.

- GP-1
- GP-2
- GP-3
- GP-4
- GP-5
- GP-6
- GP-9
- GP-10
- GP-11
- GP-12
- GP-13

#### **N.1.c Reduction of Gas Pressures Within the Interior of the Landfill**

A passive landfill gas (LFG) venting system was constructed during the Phase I closure project. Along the western sideslope of the Phase I area where the Phase II Section II Expansion will “piggy-back” there is an existing passive LFG vent system which includes horizontal LFG vent trenches under the sideslope (bottom liner system). The horizontal LFG vent trenches also contain a vertical LFG vent under the sideslope (bottom liner system) to collect LFG from the uppermost 2/3 of the waste in accordance with Rule 62-701.530 (1)(a)(3) (vertical component of the horizontal LFG vent trenches). In addition, the horizontal LFG vent trenches (connected to the vertical components) are also connected to a horizontal LFG vent gooseneck located at the crest of the Phase I area.

The existing passive LFG venting system under the western sideslope of the Phase I area will still be permitted to vent freely to the atmosphere due to the Phase II Section II Expansion “piggy-back”. LFG will be vented from the interface between the existing Phase I landfill western sideslope (bottom liner system) and the vertical expansion slopes above to prevent accumulation of gas under the existing liner system. The horizontal vent trenches and vertical component of the horizontal LFG vent trenches will convey LFG to the existing vertical vents (goosenecks) at the western crest of the Phase I area outside of the limits of where the Phase II Section II Expansion will “piggy-back”.

The LFG gas venting system for the Hardee County Landfill will be designed and permitted upon submittal of the closure application for the area. LFG will be permitted to vent freely to the atmosphere through a proposed passive LFG vent system, vertical vents and horizontal vent trenches, thereby limiting the pressure within the landfill and reducing the potential for lateral migration of LFG through the surrounding subsurface. Surface water and groundwater contact with the wastes will be prevented as demonstrated by the facility design.

#### **N.1.d Non-Interference with the Liner, Leachate Control System, or Final Cover**

The LFG gas venting system for the Hardee County Landfill will be designed and permitted upon submittal of the closure application for the area. The LFG management system will be designed to not impact the bottom of the landfill nor the LCRS. The vent boreholes will be designed to terminate above the bottom of the landfill. Any future vents/wells that will be installed will have a buffer between the bottom of the boreholes and the liner and LCRS components. The LFG vent system will be designed to maintain the integrity of the final cover system by minimizing the gas pressure internal to the landfill.

### **N.2 LANDFILL GAS MONITORING**

On a quarterly basis, landfill gas monitoring of ambient points and soil probes occurs in order to comply with the LEL limits set forth in Rule 62-701.530(1)(a)1 and the interior gas pressure reduction rule stated in Rule 62-701.530(1)(a)3. As previously mentioned eleven LFG monitoring probes are currently located at the Hardee County Landfill facility as part of the currently permitted landfill operations. The existing LFG monitoring probes are located around the perimeter of the existing landfill as shown on the Operation Drawings located in Attachment E. These LFG monitoring probes are sampled on a quarterly basis, with the results reported to the FDEP according to permit conditions. In addition, the County also monitors the following structures for landfill gas.

- Maintenance Building
- Materials Recovery Facility (MRF)
- Scalehouse/Administrative Offices
- Kennel

The enclosed structures and gas monitoring points will continue to be sampled and inspected quarterly for the LEL of methane in accordance with the Operation Permit with the results reported to FDEP.

Because the Phase II Section II Expansion to the west and south of the existing landfill, it will be necessary to relocate several of the existing LFG monitoring probes outside of the expansion area. Hardee County proposes to abandon prior to construction, ~~and replace~~ existing LFG monitoring probes GP-3, GP-4, GP-5, and GP-6, ~~GP-7, and GP-8~~, and install replacement LFG

monitoring wells designated as GP-3R, GP-4R, GP-5R, GP-6R, GP-7R, and GP-8R, as shown on the Operation Drawings located in Attachment E. [In addition, refer to Figure 2 Monitoring Locations that shows the existing and proposed gas probes locations/identification numbers and the ambient gas monitoring locations/descriptions for use as a permit attachment provided in the Operations Plan.](#) The replacement LFG monitoring wells are located along the west side of the property. The new probes will be constructed similar to the existing probes, taking into consideration site-specific conditions such as soil characteristics, hydrogeologic conditions surrounding the facility, hydraulic conditions surrounding the facility, and location of facility structures and property boundaries.

### N.3 GAS AND ODOR REMEDIATION PLANS

On a quarterly basis, qualified personnel from the County assess the presence of ambient objectionable odors at the location of the perimeter monitoring wells. If objectionable odors are detected at the property line, the County will immediately take corrective actions and implement an Odor Monitoring Remediation Program as required by Rule 62-701.530(3)(b), FAC.

If the results of gas monitoring show that combustible gas concentration exceeds 100 percent of the LEL at the property boundary or 25 percent of the LEL in the structures previously mentioned, the County will notify FDEP and take all necessary steps to ensure protection of human health. Within 7 days of detection, the County will submit a Gas Remediation Plan to FDEP for approval. The Gas Remediation Plan will describe the nature and extent of the problem and the proposed remedy. The remedy may include installation of additional passive LFG gas vents, active LFG vents, cut-off trenches or other methods appropriate to the situation. The remedy will be completed within 60 days of detection unless otherwise approved by the FDEP.

As per Rule 62-701.530(a), FAC a Gas Remediation Plan will be instituted if:

- The monitoring results from the probes demonstrate that combustible gas concentrations exceed the LEL of 5% methane.
- The onsite structures contain gas concentrations that exceed 25% of the LEL, which is equivalent to 1.25% methane.

If LFG concentrations cause objectionable odors at or beyond the landfill property boundary, per Rule 62-701.530(3)(b), FAC the County will implement a Routine Odor Monitoring Program to determine the timing and extent of any off-site odors. If the Routine Odor Monitoring Program confirms the existence of objectionable odors, the initial action may include equipping the LFG vents with passive flares. If additional remedies are required the County will prepare and submit to the FDEP an Odor Remediation Plan for the gas releases. The Odor Remediation Plan will describe the nature and extent of the problem and the proposed remedy. The remedy will be initiated within 30 days of approval.

#### N.4 LANDFILL GAS RECOVERY FACILITIES

A LFG recovery facility for purposes of energy recovery or similar end uses is not proposed at the time of this Operation Permit renewal application. Therefore, the State of Florida Department of Environmental Protection Application for a Permit to Construct, Operate, Modify or Close a Solid Waste Management Facility Application Form 62-701.900(1) attached at the beginning of this Operation Permit renewal application has been designated as “Not Applicable.”

## Revised Section O

Landfill Final Closure Requirements Replacement Page O-1

## SECTION O

### LANDFILL FINAL CLOSURE REQUIREMENTS

#### O.1 CLOSURE PERMIT REQUIREMENTS

In accordance with Rule 62-701.600(2), FAC at least 90 days prior to the projected date when wastes will no longer be accepted at the ~~proposed~~ facility, Hardee County will submit to FDEP an application for final closure of the ~~storage~~ facility. The Closure Plan submitted with the Closure Permit application will include the following:

- Closure design plan;
- Closure operation plan;
- Plan for long-term care; and
- A demonstration of proof of financial responsibility for long-term care.

##### O.1.a Application Submitted to Department

In accordance with Rule 62-701.600(2), FAC at least 90 days prior to the projected date when wastes will no longer be accepted at the ~~proposed~~ facility, Hardee County will submit to FDEP an application for final closure of the ~~storage~~ facility. The application will include a Closure Plan consisting of the items listed in Item O.1.b Closure Plan below.

##### O.1.b Closure Plan

In accordance with Rule 62-701.600(2), FAC the Closure Plan submitted with the Closure Permit application will include the following:

- (1) Closure Design Plan;
- (2) Closure Operation Plan;
- (3) Plan for long-term care; and
- (4) A demonstration of proof of financial responsibility for long-term care.

#### O.2 CLOSURE DESIGN PLAN REQUIREMENTS

In accordance with Rule 62-701.600(3), FAC the Closure Design Plan consisting of engineering plans and a report on closing procedures that apply to the final closing of the waste disposal units will be submitted at least 90 days before the date when wastes will no longer be accepted. The design will include the information listed below.



Revised Section R

Financial Assurance Requirements Replacement Page R-2

## R.2 ANNUAL COST ESTIMATES

Hardee County prepares an Annual Cost Adjustment Statement for Long-Term Care Estimates as required by Section 62-701.630(4) and (8), FAC and submits these cost estimates to FDEP for review and approval. The estimate will address closure and long-term care costs, as well as corrective action costs, if required.

## R.3 FUNDING MECHANISMS

Hardee County maintains an escrow account as its funding mechanism for financial responsibility which is currently on file with FDEP to comply with the requirements of Rule 62-701.630(4) and (8), FAC. Hardee County submits annual adjustments to FDEP for the cost estimates for the closure and long term-care of the Hardee County Landfill.

## R.4 DELAY OF SUBMITTAL OF PROOF OF FINANCIAL ASSURANCE

Hardee County may delay submitting proof of financial assurance for a solid waste disposal unit in accordance with Rule 62-701.630(2) under the following conditions. No solid waste shall be stored or disposed of at the Hardee County Landfill until the County has received written approval of the financial assurance mechanism from the Department.

- ~~• The solid waste disposal unit for which a permit is being sought has not received solid waste for storage or disposal.~~
- ~~• The permit being sought does not authorize operation of the solid waste disposal unit, or requires a specific separate approval by the FDEP prior to operation being authorized.~~
- Hardee County identifies the type of financial mechanism it intends to use, and provides reasonable assurance as part of the permit application that it is capable of obtaining and using the identified mechanism.

## Attachment D

### Proof of Publication from The Herald-Advocate

AFFIDAVIT OF PUBLICATION

**The Herald-Advocate**  
Published Weekly at Wauchula, Florida

STATE OF FLORIDA,  
COUNTY OF HARDEE

Before the undersigned authority personally appeared Kim Bess  
who on oath says he is the Secretary of The Herald-Advocate, a  
newspaper published at Wauchula, in Hardee County, Florida; that the attached copy of advertise-  
ment, being a Notice of Application  
in the matter of State of Florida Dept. of Environmental Protection  
in the \_\_\_\_\_ Court, was published in said newspaper in the issues  
of April 18, 2013

Affiant further says that the said Herald-Advocate is a newspaper published at Wauchula, in  
said Hardee County, Florida, and that the said newspaper has heretofore been continuously published  
in said Hardee County, Florida, each week and has been entered as second class mail matter at the  
post office in Wauchula, in said Hardee County, Florida, for a period of one year next preceding the  
publication of the attached copy of advertisement; and affiant further says that he has neither paid nor  
promised any person, firm or corporation any discount, rebate, commission or refund for the purpose  
of securing this advertisement for publication in the said newspaper.

Sworn to and subscribed before me this \_\_\_\_\_  
A.D. 20 13

18<sup>th</sup> day of April

My Commission Expires \_\_\_\_\_

May 26 2016  
Nancy P. Davis  
Notary Public



NANCY P. DAVIS

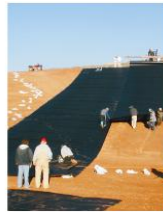
Notary Public - State of Florida  
My Comm. Expires May 26, 2016  
Commission # EE 201632  
Bonded Through National Notary Assn.

**State of Florida**  
**Department of Environmental Protection**  
**Notice of Application**

The Department announces receipt of an application for permit form for Solid Waste Department for renewal of a permit to operate an existing landfill including a proposed Phase II Section II lateral expansion, subject to Department of Environmental Protection, Southwest District Office, 685 Airport Road, Wauchula, Florida.

This application is being processed and is available for public inspection during business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except the Department of Environmental Protection, Southwest District Office, 685 Airport Road, Wauchula, Florida 33637-0926.

Attachment E  
Revised Operation Plan



## **Operation Plan Hardee County Landfill**

### **Phase II Section I and Phase II Section II**

## **Hardee County, Florida**

Prepared for:



### **Hardee County**

Solid Waste Department  
685 Airport Road  
Wauchula, FL 33873  
(863) 773-5089

Prepared by:

### **SCS ENGINEERS**

4041 Park Oaks Blvd, Suite 100  
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(813) 621-0080

File No. 09199033.24

March 12, 2013

[Revised June 28, 2013](#)

**Offices Nationwide**  
**[www.scsengineers.com](http://www.scsengineers.com)**

**Operation Plan  
Hardee County Landfill  
Phase II Section I and  
Phase II Section II**

**Hardee County, Florida**

Prepared for:



**Hardee County**

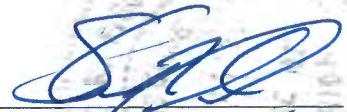
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Certification No. 00004892

  
Shane R. Fischer, P.E. *6/28/13*  
PE 58026

File No. 09199033.24  
March 12, 2013  
Revised June 28, 2013

**Offices Nationwide**  
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## K OPERATION PLAN

### BACKGROUND INFORMATION

The Hardee County (County) Landfill facility is located east of the City of Wauchula on Airport Road. This Operations Plan addresses the regulatory requirements for the operation of the Class I facility and ancillary operations on the site for the Phase II Section I and Phase II Section II landfill expansion, other than the Materials Recovery Facility (MRF) and the Waste Tire Facility. The Waste Tire Facility operates under a separate permit conditions that are currently outlined in Permit No. 129318-004-WT/05. Refer to Appendix A for a copy of the Waste Tire Permit. This Operations Plan will be kept at the administrative offices and shall be accessible to landfill operators. The facilities on the site include:

- Scalehouse and administrative offices,
- Class I Landfill and leachate storage tanks,
- Construction and Demolition (C&D) debris disposal area (closed)
- Materials Recovery Facility (MRF),
- Waste Tire Facility,
- Yard trash processing area,
- Scrap metal site,
- Household Hazardous Waste Collection Center (HHWCC),
- Maintenance building

These facilities are described below and the locations are shown on the Operation Drawings dated March 12, 2013 located in Attachment E of the Operation Permit renewal application. Other facilities present at the site are the County's Animal Control Kennel located west of the MRF and the Sheriff's Target Range located in the northeast corner of the site. This Operations Plan does not address operations for the Animal Control Kennel or the Sheriff's Target Range.

Normal operating hours for the Hardee County Landfill facility are Monday - Saturday 7:30 am - 5:15 pm. The Hardee County Landfill facility is closed for the following holidays:

- New Year Day
- July 4<sup>th</sup>
- Labor Day
- Thanksgiving Day

- Christmas Eve (if waste haulers are not collecting)
- Christmas Day

#### **K.1.a Scalehouse and Administrative Offices**

The scalehouse and administrative offices are located just inside the entrance to the site. All incoming vehicles must stop at the scalehouse to register. Records, reports, analytical results, and modifications to the operating plan are maintained and kept on file at the administrative offices.

#### **K.1.b Class I, Phase II Section I and Phase II Section II Landfill Expansion**

The Hardee County Landfill is located at 685 Airport Road, approximately one mile north of State Road 636 in Wauchula, Florida. The site property lies within Section 35, Township 33 South, Range 25 East in Hardee County, Florida. The Hardee County Landfill is located at Latitude 27°34'17"N, Longitude 81°46'58"W on Airport Road. The Hardee County Landfill serves Hardee County. A Regional Map identifying the location of the Hardee County Landfill is shown on the Cover Sheet of the Operation Drawings located in Attachment E of the Operation Permit renewal application.

#### **K.1.c C&D Debris Disposal Area (Closed)**

A closed C&D debris disposal area is located in the southwest corner of the site. This disposal area was covered with 24-inches of soil, compacted, and sloped to promote drainage. Vegetative cover was placed over the entire closed area for erosion control.

#### **K.1.d MRF Facility**

Below is a general description of the operations for the MRF as related to the operations of the landfill;

- The MRF is equipped with a Harris Badger Baler.
- When electronic items (e-waste), such as computers, VCRs, TVs and TV remote controls, microwaves are found in the incoming waste loads, their batteries are removed and the batteries taken to the on-site Household Hazardous Waste Collection Center (HHWCC). Electronic items such as TVs, computer monitors, cell phones, keyboards, and computer peripherals are separated from the waste, and taken to a covered box trailer located behind the MRF. Bids are taken from various contractors to recycle the electronic waste materials. Should e-waste glass or components be shattered or smashed into small pieces, then the debris will be collected and placed into a container and placed into storage sheds at the HHWCC. The e-waste contractor or Hazardous waste hauler will be contracted to dispose of the small e-waste debris.

#### **K.1.e Waste Tire Facility**

The Waste Tire Facility is currently operating under a separate permit, Permit No. 129318-004-WT/05. Refer to the Waste Tire Facility Operations Plan for a detailed discussion on the operations and procedures. Below is a general description of the operations for the Waste Tire Facility as related to the operations of the landfill;

- Incoming waste tires and tires with rims are temporarily stored on-site in a designated area for storage of waste tires. The tires are collected by a contractor on an as-needed basis for removal from the site for processing. Per the existing permit, no more than 150 tons, or 1,500 ~~of~~ whole waste tires, are to be stored at the facility. Additionally, at least 75 percent of both the waste tires and processed tires that are delivered to or are contained at the Waste Tire Facility at the beginning of each calendar year are to be removed for processing and disposal or recycled during the year. A report on the operations of the Waste Tire Facility is submitted annually to the FDEP.

#### **K.1.f Yard Trash Processing Area**

Yard trash is collected in separate loads by the waste haulers and delivered directly to the Yard Trash Processing Area. When yard trash loads arrive at the landfill, a spotter escort the loads to the area designated for yard trash processing as shown on the Operations Drawings. Loads are spread out to look for unacceptable waste materials or waste material that does not belong in the Yard Trash Processing Area (refer to Section K.2.c for waste material designations). County personnel or contract labor will to remove plastic bags prior to pushing the yard trash into a larger pile.

An independent contractor processes the yard trash material on-site. The minimum frequency for processing yard trash is once every 6 months or when 3,000 tons (12,000 cubic yards) are accumulated, whichever is greater. To be considered processed, material must pass a 6-inch sieve. However, logs with a diameter of 6-inches or greater may be stored for up to 12 months before being processed or removed from the area. The logs shall be separated and stored apart from other yard trash material within the area. The processed material is provided to Hardee County residents. The remaining processed yard trash will be used for stabilizing sideslopes, controlling erosion in the Phase II Section I or Phase II Section II landfill areas, as an organic additive to cover soils, or as general landscaping around the landfill.

The Yard Trash Processing Area is operated such that a 20-foot wide, all weather, access road around the perimeter of the area will be maintained. Interior lanes will be maintained to be at least a minimum of 15 feet wide. Dust control and fire protection for the area is provided in accordance with Section K.11.d and K.2.b.3, respectively. No part of the area that is occupied by processed or unprocessed material is more than 50 feet from access by motorized fire-fighting equipment. Refer to Figure 1 for the Yard Trash Processing Area Layout provided at the end of the Operation Plan.

#### **K.1.g Scrap Metal and White Goods Storage Site**

When scrap metals and white goods arrive at the landfill, a spotter escorts the loads to the area designated for scrap metals and white goods storage as shown on the Operation Drawings located in Attachment E of the Operation Permit renewal application. Incoming loads of scrap

metal, appliances, and white goods (with and without Freon) are segregated and temporarily stored in this area. The storage area has a stable base comprised of compacted shell to minimize rutting due to traffic. The storage area is surrounded by a two foot vegetated stormwater containment berm designed to prevent stormwater from sheet flowing into the nearby wetland. In addition to the berm, silt fence will also be installed around the outer perimeter of the berm to further contain turbidity that may sheet flow off the outer side of the berm. Clean, unused, recyclable metal cans are also transported to the scrap metal site for temporary storage. Propane tanks are accepted only if they are empty and the valves have been removed.

Lawnmowers are also stored at the scrap metal site. However, lawn mowers are not accepted at the facility unless any oil or gasoline has been removed prior to their delivery. If the scalehouse attendant spots a lawnmower, the attendant will question the driver concerning the gasoline and oil content of the lawnmower; if the lawnmower contains gas or oil, the scalehouse attendant will not accept it. If a lawnmower is found in a load delivered the operating personnel inspect the lawnmower to ensure that it is free of gasoline and oil prior to taking it to the scrap metal site. Gasoline and oil, removed from lawnmowers and other yard tools, will be taken to the HHWCC for storage.

White goods and appliances with Freon are stored separately from the rest of the scrap pile. These items are stored in an upright position to prevent the Freon from discharging to the atmosphere. An independent contractor is hired to remove the scrap metal and white goods from the site. The contractor is required to provide certification of qualification for removal of any chlorofluorohydrocarbons (i.e., Freon or CFCs) from the white goods. Up to 400 tons of scrap metal and white goods (a maximum of 200 individual pieces of white goods) can be stored in this area. The minimum frequency for scrap metal and white good removal is semi-annually (every six months).

#### **K.1.h Household Hazardous Waste Collection Center**

A Household Hazardous Waste Collection Center (HHWCC) is located southeast of the MRF. The HHWCC is comprised of a roofed building with a curb in order to promote spill containment. The HHWCC is used for the temporary storage of special wastes such as used oil, paint, lead acid batteries, florescent light bulbs, and household hazardous wastes. Used oil is consolidated into two double-walled oil storage tanks. Lead acid batteries are stacked three high on pallets, with cardboard placed between each layer, and then shrink wrapped when pallets are full. Private contractors are hired for the removal of the special wastes such as the used oil, paint, lead acid batteries, and fluorescent light bulbs. The maximum onsite storage and frequency for removing these recyclable from the site is as follows:

- Used oil (up to 700 gallons) is removed quarterly,
- Paints (up to 100 gallons) removed quarterly,
- Batteries (up to 140 batteries) removed quarterly,
- Light bulbs (up to 400) are to be removed at least every 6 months, and

- Household Hazardous Waste (up to 50 gallons and 250 pound bags of chemicals) to be removed quarterly.

Household hazardous waste is defined as discarded, small quantity residential waste (less than 220 lbs.) which is either listed by the U.S. Environmental Protection Agency (EPA) in its hazardous waste regulations or exhibits one of the four (4) following hazardous characteristics:

- Ignitability - It may catch fire.
- Corrosivity - It can damage other materials (including human tissue) on contact.
- Reactivity - It reacts violently with water and may catch fire or explode.
- Toxicity - It may cause illness or health problems if handled incorrectly.

Amnesty days are held four times per year in which residents can deliver their household hazardous wastes (including cans of paint) at no charge. The contractor removes these wastes from the site that same day. Only empty dried out paint cans are accepted throughout the year. If a can of paint or a propane tank with a valve is found by landfill personnel it is taken to the Household Hazardous Waste Collection Center for temporary storage in hazardous waste storage sheds until removed from the site by the qualified contractor. The HHWCC is also used to temporarily hold any unacceptable wastes found at any of the other on-site disposal or storage areas. Currently, EQ Florida, Inc. is contracted to remove and properly dispose of the household hazardous wastes. The Household Hazardous Waste Haulers Agreement is contained in Appendix B.

#### **K.1.i Maintenance Building**

The onsite maintenance building is within the southeast corner of the lined area of the closed Phase I landfill and to the east of the Phase II Section I Landfill disposal area. Routine maintenance and inspection of landfill equipment is performed in this building. Fuel for the landfill equipment is pumped from a fuel tank, with a containment wall, located immediately adjacent to the maintenance building. Fuel and fluids (engine oil, transmission oil, hydraulic oil, or radiator fluid) are added to the equipment in the maintenance building as needed. If repairs on the equipment are necessary, the equipment is sent to the County's central maintenance shop, located off-site, or to the dealer's authorized maintenance facility.

#### **K.1.j Borrow Area**

There are no active borrow areas at the Hardee County Landfill. If offsite borrow material is needed for additional cover soils or for other operational uses, then a contracted independent contractor will haul in soils.

### **K.1 TRAINED OPERATORS**

#### **K.1.a Personnel Documentation and Training**

In accordance with Rule 62-701.500(1), Florida Administrative Code (FAC), key supervisory



staff has received Landfill Operator Certification training. A State-certified Landfill Operator will be on site when waste is received for disposal, and a trained spotter is on site during all times when waste is deposited at the landfill working face to detect any unacceptable wastes. In addition, the equipment operators have sufficient training and knowledge to move waste and soil, and to develop the site in accordance with the design and operational standards.

As required by Rule 62-701.320(15), FAC a trained operator will be onsite at all times when waste is received at the Hardee County Landfill and a trained spotter will be onsite during all times when solid waste is deposited at the working face. In addition, the equipment operators shall have sufficient training and knowledge to move waste and soil, and to develop the site in accordance with the design and operational standards described in this Operation Plan.

In order to be considered trained; Operators of Class I and Class III landfills shall complete 24 hours of initial training, and shall pass an examination as part of that training. Within three years after passing the examination, and every three years thereafter, operators shall complete an additional 16 hours of continued training.

In order to be considered trained; spotters shall complete 8 hours of initial training. Within three years after attending the initial training, and every three years thereafter, spotters shall complete an additional 4 hours of continued training.

The following staff positions, along with the names of the current staff, are designated for the landfill operation.

- Solid Waste Director - Teresa Carver
- Executive Assistant - Ofelia Reyna
- MRF/Landfill Spotter - Moises Serrano
- Heavy Equipment Operator/Landfill Spotter - Mike Davis
- Heavy Equipment Operator/Landfill Operator/Spotter - Carl Daniels
- Leachate Tanker Driver/Landfill Spotter - Open
- Weighmaster - Joe Roman

Operator and Spotter training courses will be attended as offered by the University of Florida Center for Training, Research and Education for Environmental Occupations (TREEO) and through other FDEP approved sources. A listing of TREEO training courses and schedule is available at [www.treeo.ufl.edu](http://www.treeo.ufl.edu) and as presented in Appendix C of this Operations Plan.

## **K.2 LANDFILL OPERATION PLAN**

### **K.2.a Designation of Responsible Operating and Maintenance Personnel**

In accordance with Rule 62-701.500(2)a, FAC the Operation Plan designates responsible operating and maintenance personnel. The currently designated person responsible for operations and maintenance at the Hardee County Landfill is:

Ms. Teresa Carver  
Solid Waste Director  
Hardee County Solid Waste Department  
685 Airport Road  
Wauchula, FL 33873  
Phone: (863) 773-5089

Any inquiries concerning the management and operation of the Hardee County Landfill facility should be submitted to the Solid Waste Director's attention.

### **K.2.b Contingency Operations**

In accordance with Rule 62-701.500(2)b, FAC the Operation Plan identifies emergency preparedness and response as required in Subsection 62-701.320(16), FAC.

#### **K.2.b.1 Accidental Liquid Spills**

In the case of an accidental spill of oil, fuel, leachate, or chemicals, the spill will be minimized by controlling the source immediately (e.g. by closing a valve, turning off switches, or taking other necessary actions to minimize the amount of spillage). The affected area will be controlled by diverting traffic around the spill. Runoff from the affected area will be controlled by placing a berm around the area, plugging a drain or ditch if appropriate, or adding absorbent material. The affected area will be cleaned and the effectiveness of the cleanup will be confirmed by sampling, as needed, depending upon the nature of the spilled material.

If a liquid spill material is found during offloading of waste materials, the hauler will be asked by the County to remove the liquid from the site. If a liquid is found and the hauler cannot be identified or an accidental spill occurs, then absorbent granules or soils will be placed on the spilled liquid by the County. The absorbent granules or soils will be placed in barrels at the Household Hazardous Waste Area until a private hauler can remove the material.

#### **K.2.b.2 Handling of Hazardous Waste Materials**

Hazardous waste materials are not accepted at the Phase II Section I or Phase II Section II disposal areas. If a hazardous waste is mistakenly delivered to the landfill or identified after unloading, FDEP will be promptly notified by the County and the hauler identified from a license plate or by hauling records. A front-end loader will isolate the hazardous material from other waste while keeping it within the lined area and marking it with applicable markers. The hazardous materials will be covered with 6-mil visqueen or water-proof plastic tarp and a

perimeter berm will be placed around the area to minimize contact with stormwater. The visqueen rolls or plastic tarps are available at the Household Hazardous Waste Collection Center. If the hauler is identified, the County will contact the person/entity who dumped the hazardous materials and request removal of the materials within 48 hours. If the 48 hours expire without removal, the County will contact an independent hazardous waste hauler for proper disposal of the hazardous material at a permitted hazardous waste management facility.

Subsequent shipments from sources previously identified for delivery of or delivery from suspected sources of unacceptable waste will only be allowed to dispose of waste materials at the landfill after the load has been thoroughly inspected by County personnel. The inspection will take place prior to unloading the waste and after unloading the waste. After unloading the waste, in a contained designated area, the load will be spread and inspected while the hauler is present. The hauler will be allowed to leave only after the load has been accepted.

In addition to the measures taken at the landfill, the County is involved with several programs, which should reduce the risk of receiving hazardous wastes. The County contracts with the Central Florida Regional Planning Council (Council) to participate in their Site Notification and Verification and Pollution Prevention Program (Program). In this Program, the Council inspects all businesses in the County, once every five years, to verify the types of wastes generated by each facility and provide proper procedures for handling, storage, transporting, and disposing of any hazardous wastes.

#### **K.2.b.3 Fires**

In the event of fire, the responding agency is the Hardee County Fire and Rescue Service (HCFRS), located approximately three miles west of the site in Wauchula, Florida. Additionally, the landfill site is equipped with a dry fire hydrant for the filling of pumper trucks. The dry fire hydrant is located along the access road and is connected to the stormwater pond located immediately north of the scalehouse. Several on-site ponds are also available for filling fire fighting trucks equipped with pumps. Four water hydrants are located along the eastside of the Phase I landfill on the east side of the access road. Fire extinguishers are located in the equipment and at the maintenance barn for use in the event of small fires. There are also six fire extinguishers and five hose bibs located in the on-site MRF.

If a fire or “hot load” is discovered on the working face, the Solid Waste Director is notified immediately. Landfill equipment is used to pull the burning waste away from the working area and smother it with soil. The area is closed and another area opened to allow landfill operations to continue. If necessary, the HCFRS will be called for assistance. The HCFRS is equipped with self-contained breathing devices. While the service does not receive formal training on fighting landfill fires, the Fire Chief is experienced in dealing with landfill fires and has informed his crew of the proper procedures should a landfill fire occur. Should additional help be necessary, the Hardee County Emergency Management is contacted. In the event that a fire is observed or reported when the landfill is closed, the Sheriff’s Office is instructed to contact the Solid Waste Director. The Hardee County Landfill’s Fire Contingency Operations Plan is contained in Appendix E.

| [In addition, the County will also notify the Department via phone or e-mail within 24 hours of a](#)

fire occurring at the facility. All fires occurring at the landfill are reported to FDEP by letter, within seven days, explaining the cause, remedial actions, and measures taken to prevent a recurrence.

#### **K.2.b.4 Landfill Shutdown**

Should the landfill be shut down for more than 48 hours, FDEP will be notified. The County has a contact list of Class I, Class III, and C&D landfills that neighbor the landfill. Through the “Small County Coalition,” various counties work together during times of emergency. The counties on the contact list will work with Hardee County during a time of emergency. The neighboring county’s Waste Facility Contacts list is contained in Appendix F.

#### **K.2.b.5 Natural Disasters**

Natural Disasters are handled by the Hardee County Emergency Management personnel. The Hardee County Emergency Management telephone number is (863) 773-6373. The Solid Waste Director will approve and extend the facility’s operating hours during the time of the emergency. The Landfill Hurricane Preparation and Recovery Plan is included as Appendix Q.

#### **K.2.b.6 Emergency Contacts**

The following phone numbers can be used to notify the appropriate individual or agency:

Landfill Director:	(863) 773-5089 (Office)
(After hours, call Central Dispatch):	(863) 773-4144
Police:	(863) 773-3265 or 911
Fire and Rescue:	(863) 773-4362 or 911
Hardee Co. Emergency Management:	(863) 773-6373 or 911
FDEP, Tampa:	(813) 632-7600
Public Works:	(863) 773-3272
Equipment Rental:	(813) 671-3700

#### **K.2.c Controlling Types of Waste Received**

The landfill operators and scalehouse personnel are responsible for inspecting loads received at the landfill to detect and discourage attempts to dispose of unacceptable wastes. Each vehicle entering the landfill must stop at the scalehouse and have its load weighed in and classified in one of the following categories:

- Residential
- Commercial
- Yard trash and clean wood
- Appliances/scrap metal
- Construction and Demolition debris

- Mixed loads and garbage
- Special handling (including asbestos)
- Pre-tested contaminated soil
- Tires

After classification, the loads are assigned one of the following destinations:

- Class I Landfill
- Construction and Demolition Debris sent to the Class I Landfill
- Yard trash processing area
- Scrap metals and white goods storage area
- Material Recovery Facility (MRF)
- Waste tire facility
- Household Hazardous Waste Collection Center (HHWCC)

The scalehouse attendant visually checks each load and, depending on the type of material, directs the driver to the appropriate on-site facility. The waste materials is also visually checked by trained County landfill personnel or spotters at the MRF, landfill working face, yard trash processing area, waste tire facility, scrap metals and white goods storage area, and HHWCC. Random inspections of loads is also practiced to detect and discourage attempts to dispose of unacceptable waste, hazardous wastes, special waste materials or materials that require special processing (e.g. asbestos, contaminated soil, used oil, or biomedical waste). If this inspection reveals any unacceptable or potentially hazardous wastes, the Solid Waste Director is notified immediately.

#### **K.2.c.1 Unacceptable Wastes**

Neither Phase II Section I nor the Phase II Section II accepts closed or sealed containers; all drums, tanks and cans must have one end open and must have been flushed. Other unacceptable wastes include septic tank sludge; paint thinners; gasoline or like liquids; biomedical waste from hospitals, doctor's offices or clinics. The facility does not accept any materials that the hauler cannot identify the composition of nor supply certification that the material is non-hazardous waste. Disposal of liquids or non-liquid (soils, rags, or other debris) containing PCB's (polychlorinated biphenyls) are not accepted at the landfill for disposal or storage. Solid wastes generated from outside the borders of Hardee County are not accepted without prior written approval from the Board of County Commissioners or their designee. All unacceptable waste must be managed as described in this Operation Plan.

A Random Load Inspection Form will be filled out for unacceptable waste; the form is located

in Appendix M of this Operation Plan. If the Solid Waste Director deems that the working face should be shut down for safety reasons, another area within the landfill will be opened to allow continuing landfill operations. A private waste hauler will remove unacceptable wastes; the private waste hauler agreement is located in Appendix B.

#### **K.2.c.2 Asbestos**

Asbestos Containing Materials (ACM) are accepted at the Hardee County Landfill under certain provision outlined by Chapter 40 CFR Part 61 and the Hardee County Solid Waste Department. The County has notified all known potential asbestos disposers of the required procedures, which must be followed by any person desiring to dispose of ACM. Accepted asbestos material is disposed of using the following procedures (these procedures are also outlined in Appendix G):

- Prepare a hole three feet in depth and adequate diameter to meet the estimated quantity to be received. Place each package by hand into the prepared hole.
- Cover immediately with one foot of soil and compact with dozer, adding more soil cover material with each pass.
- A site map with the location and depth of each disposal site will be attached in a file with the Waste Shipment Record and record weight ticket.

A minimum of one County personnel will escort the waste hauler to the disposal location and remain with the waste hauler until all of the ACM material has been unloaded and placed into the prepared hole.

#### **K.2.c.3 Contaminated Soils**

The County accepts contaminated soils on the condition that they are not hazardous. As stated in the Contaminate Soil Acceptance Criteria, located in Appendix H, it is a requirement that all incoming contaminated soils be TCLP (Toxicity Characteristic Leaching Procedure) and paint filter (Method 9095) tested first before being accepted at this facility for disposal. Depending on the known or suspected contaminant, additional analyses may be required. Records of tests and analyses are kept on file at the landfill facility. Accepted contaminated soils are disposed of in the currently active disposal cell within the bermed working area. The contaminated soil is mixed with soils obtained on site and disposed of as daily cover used for the solid waste only within the lined and bermed working face. The location of contaminated soil can be determined based on the contaminated soils date of arrival and the filling sequence at the landfill. A minimum of one County personnel will escort the waste hauler to the location for the soil and remain with the waste hauler until all of the soil has been unloaded.

#### **K.2.c.4 Used Oil**

Used oil shall not be commingled or mixed with solid waste and will not be accepted. Used oil will also not be directly disposed in the Phase II Section I or Phase II Section II landfill. Only oily wastes, sorbents, or other materials used for maintenance or to clean up or contain leaks, spills, or accidental releases of oil will be accepted and may be disposed of in the Phase II

Section I or Phase II Section II landfill.

Used oil, generated by residents only, is collected and stored in the used oil containers in the HHWCC. The used oil at the HHWCC is collected by a private waste disposal service for proper offsite recycling. A minimum of one County personnel will escort the waste hauler to the HHWCC area for unloading.

#### **K.2.c.5 Liquid Restrictions**

Noncontainerized liquid waste shall not be placed in solid waste disposal units that accept household waste or construction and demolition debris for disposal unless:

- The waste is household waste other than septic waste; or
- The waste is leachate or gas condensate derived from the solid waste disposal unit, or byproducts of the treatment of such leachate or gas condensate, and the solid waste disposal unit is lined and has a leachate collection system.

Containers holding liquid waste shall not be placed in a solid waste disposal unit unless:

- The container is a small container similar in size to that normally found in household waste;
- The container is designed to hold liquids for use other than storage; or
- The waste is household waste.

Containers or tanks twenty gallons or larger in capacity shall either have one end removed or cut open, or have a series of punctures around the bottom to ensure the container is empty and free of residue. The empty container or tank shall be compacted to its smallest practical volume for disposal.

#### **K.2.c.6 Other Special Waste**

- Batteries - Batteries are not accepted for disposal at the Phase II Section I or Phase II Section II landfill. Batteries are taken to the HHWCC and stored under cover of the HHWCC. The batteries are stacked three high on pallets, with cardboard placed between each layer. The batteries are covered in shrink wrapped when pallets are full. A minimum of one County personnel will escort the waste hauler to the HHWCC area for unloading.
- Paints - Containers with liquid or “wet” paints are not accepted for disposal at the Phase II Section I or Phase II Section II landfill. Only empty dried out paint cans are accepted throughout the year. If a can of paint is found by landfill personnel, the can is taken to the HHWCC for temporary storage in hazardous waste storage sheds until removed from the site by the qualified contractor. A minimum of one County personnel will escort the waste hauler to the HHWCC area for unloading.



- **Electronic Waste (e-waste)** - E-waste is collected in separate loads by the waste haulers. When E-Waste items, such as computers, VCRs, TVs and TV remote controls, microwaves are found in the incoming waste loads, their batteries are removed and the batteries taken to the on-site HHWCC. Electronic items such as TVs, computer monitors, cell phones, keyboards, and computer peripherals separated from the waste at the working face will be temporarily stored until placed into a truck and taken to the covered trailer, located behind the MRF, by the end of the working day or prior to rainfall. Should E-Waste glass or components be shattered or smashed into small pieces, then the debris will be collected and placed into a container and placed into storage sheds at the HHWCC. The E-Waste contractor or hazardous waste haulers will be contracted to dispose of the small E-Waste debris.
- **Tires** - Incoming waste tires and tires with rims are accepted. Tires will not be disposed in the Phase II Section I or Phase II Section II landfill. The waste tires and rims are stored at the waste tire facility. A minimum of one trained spotter will escort the waste hauler to the waste tire facility for unloading.
- **Scrap Metals and White Goods** - Scrap metals and white goods will be accepted. These materials are temporarily stored at the scrap metals and white goods storage area. The white goods will be stored in an upright position. All refrigerants, or CFC gases will be collected by the scrap metals contractor (certified to collect refrigerants and gases) prior to being taken off-site for recycling. A minimum of one trained spotter will escort the waste hauler to the scrap metals and white good area for unloading.
- **Lawnmowers** - Only lawnmowers or other lawn care equipment that has been drained of all the oil and gasoline, prior to delivery, will be accepted. These items will be stored at the white goods and scrap metals area. If a lawnmower or equipment is later found to contain oil and gasoline, the oil and gasoline is drained and the liquids taken to the HHWCC. A minimum of one trained spotter will escort the waste hauler to the scrap metals and white good area for unloading.
- **Agricultural Pesticide Containers** - Only containers with no pesticide residue, have been thoroughly rinsed, and inspected by landfill personnel, will be accepted. The accepted containers will be disposed in the Phase II Section I or Phase II Section II landfill. Containers with liquid or dried pesticide are not accepted for disposal. All residents and business are directed to follow the disposal recommendations on the pesticide container prior to bringing it to the landfill.
- **Construction and Demolition (C&D) Debris** - The Hardee County Landfill currently does not accept C&D debris from commercial haulers. Residential or mixed loads may contain small amounts of C&D debris material. C&D that is mixed or becomes mixed with Class I waste will be considered Class I waste and will be disposed in the Phase II Section I or Phase II Section II disposal areas.

#### **K.2.c.7 Yard Trash and Clean Wood**

Yard trash is defined as vegetative matter resulting from landscaping maintenance or land



clearing operations. “Clean” wood defined as lumber, trees, shrubs trunks, branches, and limbs which are free of paints, glue, filler, pentachlorophenol, creosote, tar, asphalt, or other wood preservatives or treatments.

Yard trash is not accepted for disposal in the Phase II Section I or Phase II Section II landfill areas. Only “Clean” wood and yard trash will be accepted for storage and processing at the yard trash processing area. “Unclean” wood, such as painted wood, pressure treated wood, particle board, etc., with the exception of yard trash, will be accepted for disposal in the Phase II Section I or Phase II Section II landfill.

When a yard trash loads arrive at the landfill, a minimum of one trained spotter will escort the loads to the designated for yard trash processing area.

#### **K.2.c.8 Biomedical**

Biomedical waste from hospitals, doctor’s offices or clinics is not accepted. The County has a Household Sharps Collection Program permitted through the Florida Department of Health. This program is used to prevent the unauthorized disposal of non-regulated household biomedical waste. The collected materials (i.e. needles, etc.) are temporarily stored in a designated room at the on-site County Animal Control Kennel. The operating procedures for the Sharps Collection program are provided in Appendix I.

#### **K.2.c.9 Procedures for Handling Unacceptable or Improperly Placed Waste Loads**

- If unacceptable wastes are discovered, the Solid Waste Director is immediately notified. The waste hauler or generator of the waste is contacted to retrieve and remove the unacceptable waste and instructed on the proper disposal.
- If the waste hauler or generator of the waste is unknown and the unacceptable waste that does not pose a threat to County staff, then the unacceptable waste may be stored, if containers and space are available, at the HHWCC for temporary storage prior to being removed from the site and disposed of properly.
- If unacceptable wastes are of an unknown waste material or pose a threat to County staff or the waste hauler or generator is identified and the quantity of wastes cannot be moved or stored in the HHWCC, a front-end loader will isolate the unacceptable waste from other waste while keeping it within the lined area and marking it with applicable markers. The load will be covered with 6-mil visqueen or water-proof tarp and a perimeter berm will be placed around the load to minimize contact with stormwater. The visqueen rolls or plastic tarps are available at the HHWCC. The County will contact the person/entity who dumped the unacceptable waste and request removal within 48 hours. If the 48 hours expire without removal, the County will contact an independent waste hauler for proper disposal of the waste at a permitted facility.
- Waste materials that can be accepted for storage and disposal; however, are not placed in the appropriate disposal or storage area will be separated from the waste and moved to the appropriate storage or disposal area.

- A Random Load Inspection Form will be filled out for unacceptable waste; the form is located in Appendix M. If the Solid Waste Director deems that the working face should be shut down for safety reasons, another area within the landfill will be opened to allow continuing landfill operations. A private waste hauler will remove unacceptable wastes; the private waste hauler agreement is located in Appendix B.

#### **K.2.d Weighing Incoming Waste**

All waste hauling vehicles entering and exiting the landfill are required to pass over the scales located at the facility entrance. Upon entering the facility, the scale house attendant weighs the vehicle and classifies each load, as described in Section K.2.c. The load weights are printed on tickets and recorded on computer. The waste is categorized and the tonnages are annotated in the appropriate category in the Waste Quantity Form located in Appendix J of this Operation Plan.

#### **K.2.e Vehicle Traffic Control**

Signs are posted that indicate name of the operating authority, traffic flow, hours of operation, and restrictions or conditions of disposal. Signs posted at the gate state hours of operation and types of waste restrictions. Upon entering the site, all vehicles are required to stop at the scalehouse for weighing. The scalehouse attendant directs the driver to the appropriate on-site facility for unloading. All site roads are adequate for two-way traffic, and the speed limits are clearly marked. At each on-site facility, landfill personnel direct traffic to unload at the proper area.

#### **K.2.f Method and Sequence of Filling Waste**

Refer to the Operation Drawings located in Attachment E of the Operation Permit renewal application for the sequence of filling waste. Loose waste will be spread in two-foot thick layers and compacted to approximately one foot in thickness.

To ensure compliance with the permitted facility filling sequence, the County will survey waste filling approximately monthly, or as needed during operations, to confirm and monitor waste filling elevations, slopes, and dimensions. In addition, as part of the Operation Permit for the facility, an aerial topographic survey is conducted annually which is reviewed to verify waste filling elevations, slopes, and dimensions as part of the annual site life calculations.

The following subsections describe the sequence and procedures for placement and removal of rain tarps on the Phase I sideslope prior to and during the operation of the vertical expansion over Phase I during Phase II Section I and Phase II Section II operations at the facility.

##### **K.2.f.1 Phase II Section I Vertical Expansion Filling**

The Phase II Section I area will continue filling in the western portion of the “valley” between the Phase I and Phase II Section I areas to approximately EL 125 feet NGVD. Filling will progress from south to north and west to east. This has been identified as Fill Sequence No. 1 on the Operation Drawings located in Attachment E of the Operation Permit renewal application.

Following, the eastern portion of the “valley” between the Phase I and Phase II Section I areas will be filled while raising the entire Phase II Section I area to a peak of approximately EL 130.6 feet NGVD (132.1 feet NGVD top of intermediate cover). Filling will progress from west to east in the “valley” portion and south to north over the top. This has been identified as Fill Sequence No. 2 on the Operation Drawings located in Attachment E of the Operation Permit renewal application.

Fill Sequences 1 and 2 will bring the Phase II Section I area to the current permitted elevation of EL 130.6 feet NGVD (132.1 feet NGVD top of intermediate cover). By the end of Fill Sequence No. 2, the Operation Permit renewal application should be approved by FDEP. Approval of the Operation Permit will allow the Phase II Section I area to be raised vertically higher and operate to the proposed elevations as identified in the Phase II Section II Expansion construction permit application submitted to FDEP dated August 31, 2012 (i.e. fill above the current permit height).

Following approval of the Operation Permit renewal application, the Phase II Section I area will be raised to approximately EL 166 feet NGVD. Filling will progress from north to south and west to east. This has been identified as Fill Sequence No. 3 on the Operation Drawings located in Attachment E of the Operation Permit renewal application. The filling of Phase II Section I in this manner shall provide sufficient time to allow the construction, creation/submittal of the Certification of Construction Completion Report for the Department and approval by the Department for waste filling in the Phase II Section II Expansion.

The Phase II Section II Expansion area consists of the northern portion, approximately 2.33 acres, the center portion approximately 2.22 acres, and the southern portion approximately 1.63 acres. Waste filling of the Phase II Section II Expansion areas will be generally conducted as follows.

#### **K.2.f.2 Phase II Section II Expansion Southern Portion Filling**

Generally, the filling of the Phase II Section II Expansion area will begin in the southern portion of the disposal area adjacent to the western side of the existing Phase II Section I disposal area. This has been identified as Fill Sequence No. 4. The filling will proceed by placing waste along the southern end of this portion and proceeding north and from west to east in this area.

An initial lift of select loose municipal solid waste, a minimum of four feet in thickness, will be placed over the protective sand layer. The select waste will be spread out and inspected for large rigid objects that may puncture the liner system when compacted. This waste thickness will bring the southern portion disposal area slightly below the proposed western and southern perimeter road and the interior separation berm along the north side of the area (which separates it from the Phase II Section II Expansion center portion). After the layer of select waste has been placed, additional waste will be placed in order to make the first lift approximately 10 feet thick across the Phase II Section II Expansion within this area. The limits of waste (as shown on the Operation Drawings located in Attachment E of the Operation Permit renewal application) and surface of the waste layer will be placed so it is sloped back “into” the landfill cell. Also, the limits of waste along the northern portion of this area will be placed

approximately 10 feet to the south of the interior separation berm along the north side of the area to ensure waste/leachate runoff does not enter the Phase II Section II Expansion center portion.

In addition, a perimeter berm will be placed around the exterior of the placed waste (southern and western sides) to ensure no runoff of stormwater from the waste will occur outside of the lined cell area. Successive waste layers will be added in this southern portion in 10-foot lifts working from south to north and west to east. Each layer will be placed across the cell bottom and against the existing western sideslope of the Phase II Section I disposal area. Once the Phase II Section II Expansion southern portion has reached a vertical elevation of approximately EL113.5 feet NGVD top of waste, filling within the portion will be temporarily stopped. Depending on the quantity of waste received at the facility, filling within this portion could resume within approximately 60 months. During the time period when filling within the portion has been temporarily stopped cover and erosion control measures that will be implemented in the temporarily inactive areas could include soil cover, seeding, mulching, and/or rain tarp placement. Please refer to the Operation Drawings located in Attachment E of the Operation Permit renewal application for a plan view and section views of Fill Sequence No. 4 within the Phase II Section II Expansion southern portion.

#### **K.2.f.3 Phase II Section II Expansion Center Portion Filling**

Filling will then begin in the center portion of the Phase II Section II Expansion area working from north to south. This has been identified as Fill Sequence No. 5. An initial lift of select loose municipal solid waste, a minimum of four feet in thickness, will be placed over the protective sand layer. The select waste will be spread out and inspected for large rigid objects that may puncture the liner system when compacted. After the layer of select waste has been placed, additional waste will be placed in order to make the first lift approximately 10 feet thick across the Phase II Section II Expansion within this area. This waste thickness will bring the center portion disposal area slightly below the proposed western perimeter road and the interior separation berm along the south side of the area (which separates it from the Phase II Section II Expansion southern portion). The limits of waste (as shown on the Operation Drawings located in Attachment E of the Operation Permit renewal application) and surface of the waste layer will be placed so it is sloped back “into” the landfill cell.

Also, the limits of waste along the northern portion of this area will be placed approximately 50 feet to the south of the east/west main LCS header trench which has been elevated with protective cover material to create an interior separation berm. This interior separation berm will separate the Phase II Section II Expansion center portion from the northern portion to ensure waste/leachate runoff does not enter the Phase II Section II Expansion northern portion which is covered with a rain tarp. In addition, a perimeter berm will be placed along the exterior of the placed waste (western side) to ensure no runoff of stormwater from the waste will occur outside of the lined cell area.

After the initial 10-foot lift according to the above-mentioned methods, successive waste layers will be added in this center portion in 10-foot lifts. Filling will proceed from north to south and east to west. Each layer will be placed across the cell bottom and against the existing western sideslope of the Phase I disposal area. In addition, while filling from north to south, waste will

also be placed against the north sideslope of the Phase II Section II Expansion south portion previously filled in Fill Sequence No. 4. Eventually, waste filling will reach an elevation that waste will also be placed on the western and top portion of the Phase II Section I area previously filled in Fill Sequence No. 3. Filling in this manner will meet the peak elevation obtained in Fill Sequence No. 3 of approximately EL 166 feet NGVD.

Prior to placing waste against the Phase I sideslope, the procedures outlined below in “Waste Placement Against Phase I Sideslope” will be followed by the County. Once Fill Sequence No. 5 has been completed, filling within the portion will be temporarily stopped. [Depending on the quantity of waste received at the facility, filling within this portion could resume within approximately 72 months. During the time period when filling within the portion has been temporarily stopped cover and erosion control measures that will be implemented in the temporarily inactive areas could include soil cover, seeding, mulching, and/or rain tarp placement.](#) Please refer to the Operation Drawings located in Attachment E of the Operation Permit renewal application for plan views and section views of the proposed fill sequencing within the Phase II Section II Expansion center portion.

#### **K.2.f.4 Phase II Section II Expansion Northern Portion Filling**

Filling will then begin in the northern portion of the Phase II Section II Expansion working from south to north after removal of the rain tarp. This has been identified as Fill Sequence No. 6. An initial lift of select loose municipal solid waste, a minimum of four feet in thickness, will be placed over the protective sand layer. This will also include the 50 foot offset created during Fill Sequence No. 5 between the north and center portions of the Phase II Section II Expansion. The select waste will be spread out and inspected for large rigid objects that may puncture the liner system when compacted. After the layer of select waste has been placed, additional waste will be placed in order to make the first lift approximately 10 feet thick across the entire Phase II Section II Expansion within this area. This waste thickness will bring the northern portion (and the 50 foot offset area) disposal area below the proposed western and northern perimeter road. The limits of waste (as shown on the Operation Drawings located in Attachment E of the Operation Permit renewal application) and surface of the waste layer will be placed so it is sloped back “into” the landfill cell. In addition, a perimeter berm will be placed along the exterior of the placed waste (western and northern sides) to ensure no runoff of stormwater from the waste will occur outside of the lined cell area.

After the initial 10-foot lift according to the above-mentioned methods, successive waste layers will be added in this northern portion in 10-foot lifts. Filling will proceed from south to north and east to west. Each layer will be placed across the cell bottom and against the existing western sideslope of the Phase I disposal area. In addition, while filling from south to north, waste will also be placed against the north sideslope of the Phase II Section II Expansion center portion previously filled in Fill Sequence No. 5. Prior to placing waste against the Phase I sideslope, the procedures outlined below in “Waste Placement Against Phase I Sideslope” will be followed by the County.

#### **K.2.f.5 Waste Placement Against Phase I Sideslope**

Prior to placement of waste against the western sideslope of the Phase I disposal area (as

indicated above during filling of the center and northern portions of the Phase II Section II Expansion), the County will remove only as much of the [rain tarp \(installed over the existing sod during construction of the Phase II Section II Expansion\) and](#) existing sod within an area of the sideslope where waste would be placed as needed. [Rain tarp and Sod](#) within select areas will only be removed by the County as needed prior to waste filling. The remainder of the [rain tarp and](#) sod along the western sideslope of the Phase I disposal area will remain in place until further removal is required for additional waste placement to prevent washout of the existing drainage sand material along the sideslope during storm events [and stormwater infiltration/runoff into the active waste filling area](#).

As soon as the [rain tarp and](#) sod is removed within a select area of the Phase I sideslope prior to waste filling, County personnel will conduct depth checks by hand (on an approximately 25-foot grid) of the remaining sideslope protective cover material to ensure there is 24-inches (measured perpendicular to the slope) of protective material remaining. If the County depth checks and measurements indicate there is 24-inches of protective material remaining, no other field work will be conducted by the County prior to waste placement along the Phase I sideslope in that area. The County will then notify FDEP according to Part K.2.f.7. prior to waste placement.

If the County depth checks indicate less than 24-inches of protective material is remaining after [the rain tarp and](#) sod removal the County will place additional protective material within the area prior to waste placement as needed to obtain the required depth. Following material placement to the required depth by the County, the County will notify FDEP according to Part K.2.f.7. prior to waste placement.

#### **K.2.f.6 Protective Soil/Drainage Sand Material**

During construction of the Phase II Section II Expansion, the County will ensure that additional protective soil/drainage sand material, which has met the requirements of the project Technical Specifications (minimum hydraulic conductivity of  $1 \times 10^{-3}$  cm/sec, gradation, etc.) and has been approved by the Engineer during construction, is stockpiled onsite for future use. This material would be placed as needed by the County against the Phase I sideslope prior to waste placement in the locations identified from the depth checks that less than 24-inches of the existing protective material was remaining after [the rain tarp and](#) sod removal. If the stockpiled protective material has been depleted by the County and additional material is required, the County shall perform material testing as required for protective soil/drainage sand by Specification Section 02220 Excavation, Backfill, Fill, and Grading from a suitable source. After the material has met the requirements of the Specification, the additional material may be utilized by the County.

#### **K.2.f.7 Confirmation of Protective Soil/Drainage Sand Material Depth**

After confirmation by the County that 24-inches of protective material is in place along the Phase I sideslope [after removal of the rain tarp and existing sod](#), through the processes as indicated above in Part K.2.f.5., the County shall provide FDEP a certification statement to the effect prior to waste placement. [In addition, the County shall provide confirmation that the processes as indicated above in Part K.2.f.6 were followed regarding the protective material](#)



placed against the Phase I sideslope after sod removal.

The certification statement shall either be signed and sealed by the Engineer of Record that conducted and/or monitored the protective soil/drainage sand depth checks and soil replacement or reviewed appropriate documentation of the work; or shall include adequate documentation of work that can be reviewed by the Department. In the event that the certification statement is not signed and sealed by the Engineer of Record, the certification statement and supporting documentation shall be submitted at least seven days prior to waste placement over the certified area to allow for Department review of the submittal.

#### **K.2.f.8 Temporary Sideslope Berms**

In addition, to reduce the amount of stormwater infiltration and surface water runoff into the Phase II Section II Expansion center and northern portions (and generating additional leachate), the County will ensure the rain tarp (placed during construction of the Phase II Section II Expansion over the existing sod) is maintained as needed along the western sideslope of the Phase I area. In addition, the County will construct temporary sideslope berms along the western Phase I sideslope during operations as needed (discussed further below). The temporary sideslope berms will be active in nature to ensure the rain tarp directs the surface water runoff away from the active filling area. The County will create temporary sideslope berms as needed to accommodate fill sequencing which will be used to control the surface water runoff from the rain tarp and direct it away from the active filling area to reduce surface water runoff into active waste filling to the extent practical.

The temporary sideslope berms will help direct the southern half of the rain-tarped western Phase I sideslope surface water runoff into the Phase II Section II Expansion northern portion (which will be covered with a rain tarp while waste filling is not occurring) while filling in the center portion. This surface water runoff can then be pumped as needed from the northern portion area into the perimeter stormwater management system.

The temporary sideslope berms created along the northern half of the rain-tarped western Phase I sideslope will help direct the surface water runoff into the northern perimeter stormwater management system swale while filling in the northern portion. This will also reduce the amount of surface water runoff entering the northern portion and generating additional leachate.

In addition, prior to filling, the County will remove the concrete rubble rip rap from within the temporary stormwater downchutes located along the sideslope. After removal of the rip rap, the County will place drainage sand within the area downchute areas to a minimum of two feet.

After removal of rain tarp, sod, and rip rap, filling will begin by placing waste against the sideslope of the Phase I disposal area and raising the Phase II Section II Expansion disposal area up. Final filling will achieve the grades shown on the Operation Drawings located in Attachment E of the Operation Permit renewal application.

The County will not recirculate leachate but will conduct leachate evaporation during operation of the Phase II Section II area. Ditches, berms, or other devices shall be constructed to control leachate runoff. However, the quantity of leachate applied during leachate evaporation shall not be in such a quantity as to require ditches, berms, or other devices to control leachate runoff or

the need to shed runoff to the leachate collection system. Initial and intermediate cover receiving leachate from the leachate evaporation process shall be graded to shed runoff into the leachate collection system and to minimize mixing of leachate runoff and storm water. Initial and intermediate cover shall be permeable to the extent necessary to prevent perched water conditions and gas buildup. Leachate evaporation shall not be conducted during weather conditions or in quantities that may cause runoff outside the solid waste disposal unit, surface seeps, wind-blown spray, or exceedance of the limits of the leachate head on the liner. The application of leachate for evaporation shall be such that leachate runoff is prevented and leachate is only applied to those areas and cover soils that do not runoff to stormwater.

In summary, while no waste filling is occurring in the center and north portions of the Phase II Section II Expansion, the rain tarp placed along the Phase I western sideslope during the Phase II Section II Expansion will remain intact and unchanged. Just prior to waste filling within the center portion of the Phase II Section II Expansion, the County will remove only as much of the existing rain tarp and sod along the south portion of the Phase I western sideslope as needed to accommodate filling within the center portion (north portion of the sideslope rain tarp will remain in place). After the rain tarp and sod removal the County will construct a temporary sideslope berm within the area which will direct the southern half of the rain-tarped western sideslope surface water runoff into the Phase II Section II Expansion north portion. The County will also wrap the rain tarp over the top of the temporary sideslope berm to minimize erosion of the berm. After the required field work and Department notification has been conducted and provided by the County as indicated within Parts K.2.f.5, K.2.f.6, and K.2.f.7 the County will then begin waste filling within the center portion. Once waste filling within the center portion and up against the Phase I western sideslope has reached the temporary sideslope berm constructed in the area the County will then repeat this process. Rain tarp and sod will be removed, a temporary sideslope berm will be constructed, the remaining rain tarp will be wrapped over the top of the sideslope berm, required field work and Department notification will be conducted and provided as indicated within Parts K.2.f.5, K.2.f.6, and K.2.f.7 and waste filling will continue as per the fill sequencing plans. Once the grades have reached the elevations as indicated in the fill sequencing plans for the center portion, the County will repeat the process along the northern portion of the Phase I western sideslope for waste filling within the Phase II Section II Expansion north portion. The only difference will be the temporary sideslope berms will be constructed by the County in a manner to direct the sideslope surface water runoff into the northern perimeter stormwater management system swale while waste filling in the northern portion.

#### **K.2.g Waste Compaction and Cover Procedures**

Waste compaction and cover procedures are discussed in Section K.7 of this Operation Plan.

#### **K.2.h Operations of Gas, Leachate, and Stormwater Controls**

##### **K.2.h.1 Operation of Gas Controls**

Landfill gas (LFG) that is generated by the anaerobic decomposition of the waste buried within the landfill is allowed to vent to the atmosphere. The current LFG management system in place at the landfill consists of 11 LFG monitoring probes located around the perimeter of the



existing landfill footprint and at the property boundary. The existing LFG monitoring plan includes quarterly monitoring of these probes, as well as on-site structures.

With the construction of the Phase II Section II Expansion to the west and south of the existing landfill, it will be necessary to relocate several of the existing LFG monitoring probes outside of the expansion area. The County will abandon, prior to construction, ~~and replace~~ existing LFG monitoring probes GP-3, GP-4, GP-5, and GP-6, ~~GP-7, and GP-8~~, and install replacement LFG monitoring wells designated as GP-3R, GP-4R, GP-5R, GP-6R, GP-7R, and GP-8R, as shown on the Operation Drawings located in Attachment E of the Operation Permit renewal application. The replacement LFG monitoring wells are located along the west side and northwest corner of the property. LFG monitoring well, GP-1, GP-2, and GP-3R, will be used to detect possible subsurface migration of LFG toward the north side of the property.

The Hardee County Landfill does not currently have a LFG management system. LFG that is generated is allowed to vent to the atmosphere. A passive LFG vent system was constructed during the Phase I closure project. Along the western sideslope of the Phase I area where the Phase II Section II Expansion will “piggy-back” there is an existing passive LFG vent system which includes horizontal LFG vent trenches under the sideslope (bottom liner system). The horizontal LFG vent trenches are identified as HC-2, HC-3, and HC-4. The horizontal LFG vent trenches also contain a vertical LFG vent under the sideslope (bottom liner system) to collect LFG from the uppermost 2/3 of the waste (vertical component of the horizontal LFG vent trenches). The vertical components of the horizontal LFG vent trenches, 4 within the area, are identified as HC-2.1, HC-2.2, HC-3.1 and HC-4.1. In addition, the horizontal LFG vent trenches (connected to the vertical components) are also connected to a horizontal LFG vent gooseneck located at the crest of the Phase I area. The horizontal LFG vent goosenecks, 3 total, are identified as HC-2, HC-3, and HC-4. Refer to the Operation Drawings located in Attachment E of the Operation Permit renewal application.

The existing passive LFG venting system under the western sideslope of the Phase I area will still be permitted to vent freely to the atmosphere due to the Phase II Section II Expansion “piggy-back”. LFG will be vented from the interface between the existing Phase I landfill western sideslope (bottom liner system) and the vertical expansion slopes above to prevent accumulation of gas under the existing liner system. The horizontal vent trenches and vertical component of the horizontal LFG vent trenches will convey LFG to the existing vertical vents (goosenecks) at the western crest of the Phase I area outside of the limits of where the Phase II Section II Expansion will “piggy-back”.

The LFG gas venting system for the Hardee County Landfill will be designed and permitted upon submittal of the closure application for the area. LFG will be permitted to vent freely to the atmosphere through a proposed passive LFG vent system, vertical vents and horizontal vent trenches, thereby limiting the pressure within the landfill and reducing the potential for lateral migration of LFG through the surrounding subsurface. Surface water and groundwater contact with the wastes will be prevented as demonstrated by the facility design.

#### **K.2.h.2      Operation of Leachate Controls**

Operation of the leachate management system is discussed in Section K.2.j of this Operations

Plan.

### **K.2.h.3 Operation of Stormwater Controls**

Operation of the stormwater control system is discussed in Section K.2.10 of this Operations Plan.

### **K.2.i Water Quality Monitoring**

Refer to the updated Groundwater Monitoring Plan located in Attachment E of the Operation Permit renewal application for site-specific test parameters, locations, frequencies, and reports.

### **K.2.j Maintaining and Cleaning the Leachate Collection System**

The Operation Plan identifies maintaining and cleaning the leachate collection system at the landfill. The leachate collection and leak detection laterals and headers shown on the Operation Drawings located in Attachment E of the Operation Permit renewal application will be cleaned and maintained, ~~as necessary~~, through the cleanout riser pipes. The LCRS pipes will be cleaned by flushing and/or be inspected by video recording in accordance with Rule 62-701.500(8)(h), FAC [effective 8/12/12] at least once every five years during the 20-year Operation Permit period. The pipes will be inspected by video recording after initial construction in accordance with Rule 62-701.500(8)(h), FAC and after one year of waste placement. If material is found to have settled out in the pipes, the pipes will be cleaned and flushed and re-inspected in 12 months and at ~~the time of permit renewal~~ least once every five years during the 20-year Operation Permit period. The Phase II Section I and Phase II Section II landfill disposal areas have independent and separate leachate collection systems.

#### **Phase I Leachate Collection System**

Leachate generated in the Phase I disposal area (with the natural clay bottom and geomembrane sideliner) is collected in a perimeter collection pipe surrounding the waste materials. The leachate collection pipes are accessible through a series of manholes, designated as Manholes 1 through 9 (Manhole Number 8 is the main leachate collection pump station). Leachate in the collection system drains to Manhole Number 8 and is then pumped to one of the leachate storage tanks. The leachate collection lines in the Phase I cell are eight-inch diameter HDPE pipes. The Phase II Section I landfill construction included replacing the existing 8-inch diameter HDPE leachate collection pipes from MH-6 to MH-7 and MH-7 to MH-8 with new 10-inch diameter HDPE leachate collection pipes. This 10-inch diameter pipe can be accessed through MH-8 for inspection and cleaning as needed. These pipes are adequately sized to allow access for jet cleaning hoses and video cameras.

Manholes one (MH-1), two (MH-2), three (MH-3), four (MH-4), eight (MH-8), and nine (MH-9) will not be waste filled above the manhole and therefore will remain accessible for cleanout and inspection of the pipelines. The Phase I leachate collection system can be video inspected as well as cleaned through MH-1, MH-2, MH-3, MH-4, MH-8, or MH-9. From MH-4, a camera can travel to MH-5, MH-6, and MH-7 to inspect the leachate collection lines.

As part of the maintenance of the leachate collection system for the Phase I disposal area, the

manholes will be opened and inspected, at least monthly, for sediment buildup that may impede the flow of leachate. Jet cleaning and/or video taping of the entire system will occur prior to renewal of the operations permit in accordance with Rule 62-701.500(8)(h), FAC [effective 8/12/12] at least once every five years during the 20-year Operation Permit period. **(Note the manholes can gather landfill gases and are a confined space entry. Personnel are required to properly ventilate the manholes and have proper confined space entry training prior to working in the manholes).** Sediment buildup will be removed, using a vacuum assisted truck, and the manhole re-inspected to assess the clean-up operation.

#### Phase II Section I Landfill Leachate Collection/Detection System

The entire Phase II Section I landfill leachate collection and detection system comprises of geocomposite materials that collect and drain leachate toward eight-inch perforated HDPE pipe spaced approximately 105 feet on center. The eight-inch pipes drain towards a sump located in the northeast corner of the Phase II Section I landfill area. A 24-inch leachate sideslope riser pipe is located in the sump with a pump to discharge leachate into the leachate storage tanks. Access to the leachate collection system can be attained from the 24-inch riser pipe. The leachate collection and detection systems are sized adequately to fit jet cleaning and video camera for cleaning and inspection.

As part of the maintenance of the Phase II Section I landfill leachate collection system, the 24-inch riser pipes can be accessed, annually, for inspection of sediment buildup that may impede the flow of leachate. **(Note the sideslope risers can gather landfill gases. Personnel are required to properly ventilate the risers prior to inspecting or cleaning).** Sediment buildup will be removed using a vacuum assisted truck, and the sideslope riser and sump re-inspected to assess the clean-up operation.

#### Phase II Section II Landfill Leachate Collection/Detection System

In accordance with Rule 62-701.500(8)h, new leachate collection systems shall be water pressure cleaned or inspected by video recording after construction but prior to initial placement of wastes. The Hardee County Landfill leachate collection system shall be water pressure cleaned and/or inspected by video recording at the time of permit renewal in accordance with Rule 62-701.500(8)(h), FAC [effective 8/12/12] at least once every five years during the 20-year Operation Permit period.

Per the requirement of the Operation Permit, the entire leachate collection and removal system (Phase I and Phase II Section I) shall be water pressure cleaned and/or video inspected to verify adequate performance. Components not performing adequately shall be cleaned and/or repaired. The inspection report shall include an evaluation of the effectiveness of the system, the location (indicated on a Site Plan) and cause of obstructions encountered, proposed corrective actions as appropriate. The results of the most recent inspection and cleaning conducted in December 2012 have been provided with the Operation Permit renewal application.

The LCRS, as shown on the Operation Drawings located in Attachment E, includes the 24-inch thick sloping sand drainage layer, a sloped bi-planar geocomposite (i.e., the geonet or drainage

net) and a piping network. The bi-planar geocomposite and the drainage layer are installed at a slope across the Phase II Section II Expansion. A series of sloped 8-inch [and 10-inch](#) diameter HDPE perforated pipes are placed in rock-filled trenches wrapped with a geotextile that are spaced at regular, predetermined intervals across the geocomposite lining. Together the piping and geocomposite collect leachate flowing through the drainage layer and transport it to the leachate collection header trench which in turn transports the leachate via gravity to the leachate collection sump. The leachate sump is equipped with submersible pumps that discharge the leachate out of the sump through a pipeline and out of the cell.

From that point the leachate will travel in a pressure pipeline (i.e., a force main) from the cell to the leachate collection sideslope risers located along the western side of the south portion of the Phase II Section II Expansion. The sideslope risers are extensions of the leachate collection pipes for the Phase II Section II Expansion which will be connected to the existing leachate collection lines located within the Phase II Section I area. Leachate will then flow via gravity to the existing leachate collection sump and pumps located within the Phase II Section I area. From the Phase II Section I sump the leachate will be pumped into the existing above ground leachate storage tanks.

#### Leachate Storage Tanks

The County pumps the leachate tanks on a daily basis and takes loads of leachate to the City of Wauchula Municipal Wastewater Treatment Plant. The Hardee County Landfill has an agreement with the City of Wauchula Municipal Wastewater Treatment Plant to receive and treat leachate from the landfill facility; this agreement is located in Appendix L.

The exterior of the leachate storage tanks will be inspected, at least weekly, for the adequacy of overfill protection system, the cathodic protection system, for leaks, corrosion, and maintenance deficiencies. The interior of the tanks shall be inspected when the tank is drained, at a minimum of every three years, or at the manufacturers recommended frequency. Interior inspection shall include inspection of the tank wall for corrosion, coatings, or structural damage.

If the inspection reveals a tank or equipment deficiency or leaks that could result in the failure of the tank to contain the leachate, then remedial measures shall be taken immediately to correct the deficiency or leak.

Hardee County personnel monitor the overfill protection system on a weekly basis. County personnel monitor the amount of liquid entering the tanks at the control panel to prevent possible overfilling of the tank, however ultra-sonic liquid level indicators continually monitor the levels in the tank as described in this Operations Plan. The ultra-sonic level indicators shut-off flow to the tanks from the lift station should the levels exceed a pre-determined level.

Routine inspections of the overfill protection systems include:

- Inspection of flow meters from the lift station to the tanks to ensure proper operation.
- Inspection and testing of the overfill alarms and shut-off controls for proper operations.
- Examining the overflow pipes in tank 1 for obstructions.

- Check the operations of the ultra-sonic level indicators located on top of each of the tanks for proper operations.
- Monitoring the liquid levels in both tanks.

#### **K.2.k Maintaining and Cleaning the Groundwater Intercept System**

Per the requirement of the Operation Permit, the entire groundwater interceptor system (Phase II Section I) shall be water pressure cleaned and video inspected to verify adequate performance. Components not performing adequately shall be cleaned and/or repaired. The inspection report shall include an evaluation of the effectiveness of the system, the location (indicated on a Site Plan) and cause of obstructions encountered, proposed corrective actions as appropriate. The results of the most recent inspection and cleaning conducted in December 2012 have been provided with the Operation Permit renewal application to demonstrate adequate performance.

The Phase II Section I and a portion of the Phase II Section II Landfill Expansion areas have a series of nine 8-inch diameter underground groundwater collection pipes, identified as CO1 through CO9, to intercept and collect groundwater variances above the seasonal high groundwater elevations. The underground groundwater collection system consists of a series of 8-inch HDPE laterals running west to east that intercepts rises in the groundwater elevation before it impacts the subbase of the Phase II Section I and Phase II Section II areas. The laterals flow west to east into a 12-inch HDPE common header pipe located beneath the eastern side of the Phase II Section I area. The header pipe then flows into a groundwater pump station located southeast of the Phase II Section I Landfill area.

As part of the maintenance of the Phase II Section I and Phase II Section II Landfill Expansion groundwater intercept system, a series of 10-inch groundwater clean-out risers are located along the western side of the Phase II Section II Landfill Expansion area that can be accessed to allow jet cleaning (water pressure cleaning) and/or video inspection of the groundwater intercept system. Jet cleaning and/or video inspection of the entire groundwater intercept system will occur ~~at least once during the permit period, prior to renewal of the operations permit in accordance with Rule 62-701.500(8)(h), FAC [effective 8/12/12] at least once every five years during the 20-year Operation Permit period.~~ The groundwater intercept system laterals are 8-inch diameter pipes and are sized adequately to fit jet cleaning hoses and video cameras. The inspection of the groundwater interceptor system, including the pumps on/off levels (groundwater intercept system pumps on/off levels are listed in the Section Operation and Maintenance of Leachate Collection and Removal System and Groundwater Control System under subsection Groundwater Interceptor System), the stormwater swale located adjacent to the groundwater interceptor system pump station which transports the pumped groundwater to the stormwater management system, and the maintained liquid level within the wet well will be used to evaluate the function of the system. **(Note the groundwater cleanout risers can gather landfill gases. Personnel are required to properly ventilate the risers prior to cleaning).**

Sediment that has been jet cleaned from the groundwater intercept system will be flushed

toward the groundwater intercept pump station. The flushed sediment will be removed from the groundwater intercept pump station using a vacuum assisted truck. **(Note the pump station can gather landfill gases and should be considered a confined space entry). Personnel are required to properly ventilate the pump station and have proper confined entry training prior to working in the pump station).**

### K.3 LANDFILL OPERATING RECORD

Copies of the FDEP Operation Permit, all operating records, reports, engineering drawings, training records, etc. are kept on file at the landfill scalehouse. Upon request, the records will be made available for FDEP inspection. All records pertaining to the operation of the facility, except for weigh tickets, will be retained throughout the design life of the landfill. Weigh tickets shall be kept for five years. All water quality records, monitoring records, calibration and maintenance records, and reports required by the Operation Permit will be retained for at least ten years.

### K.4 WASTE RECORDS

Waste reports that include waste type and quantity are compiled monthly and submitted quarterly to FDEP to the Department annually. The monthly reports shall be kept on file at the facility and are available for inspection by the Department upon request. The waste information shall be reported to the Department through the DEP Business Portal located at: <http://www.fldeportal.com/go>. The waste is categorized and the tonnages are annotated in the appropriate category in the Waste Quantity Form located in Appendix J of this Operation Plan. Reports include: (a) types of solid waste received, and (b) quantities of solid waste received by category. The landfill operator also estimates the amount of the following waste categories:

Residential	Scrap Metals White Goods	Used Oil
Commercial	Asbestos	
C&D Debris	Battery	
Clean Wood and Yard Trash	Tires	

Additionally, the County maintains all manifests provided by the contractors for the recyclable special wastes on file. These manifests are available for FDEP inspection upon request.

### K.5 METHODS OF ACCESS CONTROL

To prevent unauthorized waste disposal and unauthorized access to and use of the landfill, the entire site is surrounded by a fence. The entrance/exit to the facility is controlled by the scalehouse attendant. All vehicles entering the site must pass by the scalehouse. All visitors or customers must stop at the scalehouse either to have their vehicle weighed or to register by signing a "visitor log." When the facility is closed the gates are locked.

### K.6 LOAD CHECKING PROGRAM

This Operation Plan lists the waste materials and their proper disposal or storage locations at



the landfill. Also listed are waste materials that are prohibited from entering or being disposed of in the landfill. Load inspections at the yard trash processing area, and the Phase II Section I, and Phase II Section II disposal areas occur as part of the facility's normal operating procedures. During operations, trained spotters will look for unacceptable waste or waste materials that are not properly stored in the appropriate location on the landfill.

The County will conduct a load-checking program to detect and discourage attempts to dispose of unacceptable and special waste materials. Of these inspections, a minimum of three (3) random load inspections are recorded each week. Each inspection will be completed by personnel trained to recognize unacceptable wastes, regulated hazardous waste, and PCB waste.

At the landfill working face, a waste delivery vehicle will be selected at random and directed by County personnel to an area away from the active disposal area (but still within the lined area). The waste delivery vehicle will discharge the load for a detailed inspection by a minimum of one trained County personnel. The waste delivery vehicle will not be allowed to leave the facility until the load the inspection is complete and determination on the acceptance has been made on the waste load. The waste hauler will be required to remove unacceptable waste materials from the landfill. Waste materials that are not placed in the appropriate disposal or storage area will be reloaded on the vehicle and County personnel will escort the vehicle to the appropriate unloading area. The random load inspections will be documented on a inspection form which includes the date and time, name of the hauling company and the driver of the vehicle, the vehicle's license plate number, the source of the waste or generator, and any notes made by the inspector. **The inspector will identify and note all unacceptable or prohibited wastes found during the random load inspection, estimated quantities, and the action taken for the waste material. The inspector will sign the inspection form. The inspection form will be retained at the Hardee County Landfill.**

The inspection results will be recorded on the Random Load Inspection form, located in Appendix M of this Operation Plan. Upon completion of the random load inspection, the procedures for handling waste loads will be followed as described in this Operation Plan.

## **K.7 WASTE SPREADING AND COMPACTION PROCEDURES**

The bulldozer operator at the facility will spread the waste unloaded by trucks. Compaction will be achieved during the spreading and shaping operation with a Caterpillar 816F Compactor and by incoming vehicles driving over the in-place waste.

### **K.7.a Waste Layer Thickness and Compaction Frequencies**

When waste is disposed of, it is spread in two-foot thick layers and compacted with either a Caterpillar D7R Dozer, Caterpillar 816F Compactor, or other equipment of sufficient weight to compact the waste to approximately one-foot in thickness. Generally three to five passes should be sufficient to compact the waste. [The maximum lift height is ten feet high.](#)

Waste will be placed and compacted on the designated slopes of the landfill to match the contours as shown on the Operation Drawings located in Attachment E of the Operation Permit renewal application however;

- Previously filled outside slopes designated to receive additional waste shall be surveyed and marked in the field to ensure that at least a two foot compacted thick waste layer is available prior to disturbance, and
- All slopes shall not exceed 3(horizontal):1(vertical) at any time during waste filling, after application of cover soils, and final closure. All slopes shall conform to the design dimensions, slopes, and elevations shown on the Operations Drawings located in Attachment E of the Operation Permit renewal application.

#### **K.7.b First Layer of Waste**

The procedure for filling and compacting the first layer of waste in the Phase II Section II Landfill Expansion footprint will protect the integrity of the liner and leachate collection system. An initial lift of select waste, a minimum of four feet in thickness, will be placed over the protective sand layer. The select waste will be loose municipal solid waste. The loose waste will be spread out and inspected for large rigid objects that may puncture the liner system when compacted. Large rigid objects will be removed from the loose waste and placed in an area for future placement and disposal above the initial four foot lift. Heavy vehicles will not be allowed to drive directly on the sand layer.

#### **K.7.c Slopes of Cell Working Face, Side Grades, and Lift Depths**

The exterior side slopes of the Phase II Section I and Phase II Section II Landfill Expansion above grade shall not exceed three horizontal to one vertical (3H: 1V). The slopes will vary with daily operations but shall conform to the slopes indicated on the Operation Drawings for the landfill. The typical minimum top slopes to promote drainage will be maintained at approximately two are generally one percent within the bermed working face and two percent on the intermediate cover areas. All slopes shall conform to the slopes indicated on the Operation Drawings located in Attachment E of the Operation Permit renewal application. The top slope will be maintained at an approximate slope of 4 or 5 percent based on the area of the landfill to promote positive drainage. Waste will typically be dumped in a single pile by each incoming truck and spread into approximately two-foot thick lifts by either a Caterpillar D7R Dozer, Caterpillar 816F Compactor, or other equipment of sufficient weight to compact the waste to approximately one-foot in thickness. The maximum lift height is ten feet high. When the lift height is reached, daily cover is placed over the lift.

#### **K.7.d Maximum Width of Working Face**

Berms comprised of clean soil will be placed around the working face at all times to contain all leachate and prevent leachate runoff from the working face from entering the stormwater management system or leaving the lined disposal area. Special attention/maintenance will be used on areas where traffic enters the working area to ensure leachate is contained within the bermed area and to prevent leachate from leaving the working area.

#### **K.7.e Initial Cover Type**

In accordance with Rule 62-701.500(7)e.1 through 62-701.500(7)e.4, FAC ~~I~~initial cover is used to control disease vector/animal attraction, fires, odors, blowing litter, and moisture infiltration.



The initial cover used at the landfill consists of a 6-inch thick layer of soil obtained from off-site borrow sources. Tarps may be used as a temporary daily cover on the exposed side of the working face of the disposal area if additional waste material will be deposited within 18 hours.

#### **K.7.f Initial Cover Application Procedures and Frequency**

The working face shall be covered with a 6-inch thick layer of soil or tarps at the end of each working day. All waste materials will be compacted prior to application of initial cover.

The initial cover, if soil is used, will be spread to cover the entire working face with a uniform six-inch soil cover (free of waste) using a dozer or applicable equipment. If tarps are used as temporary daily cover then, the tarps will be spread to cover the waste material. Sand or the tarp spreader bar will be used to minimize uplift by wind. When the working face area exceeds the area of available tarp, then six inches of compacted soil will be placed to cover the waste material. Processed yard trash or clean wood (mulch) may be spread over the initial soil cover for stabilization and erosion control measures.

#### **K.7.g Intermediate Cover Application Procedures**

Intermediate cover, an additional 12-inches thick layer of compacted soil on top of the 6-inch thick layer of compacted initial soil cover, will be applied within seven days over areas that will not receive additional waste within 180 days. Intermediate cover consists of compacted sandy soils from an off-site borrow sources. The intermediate cover soils will be spread using a bulldozer. The bulldozer will make a minimum of three to four passes to compact the soils.

Soils containing any waste materials cannot be used as intermediate cover and must be placed within the bermed area of the disposal area. Berms will be placed around the working face to contain all leachate and to prevent leachate runoff from the working face from entering the stormwater management system. The top of the intermediate cover soil will be graded, generally a minimum of two percent, to allow clean, uncontaminated surface water to runoff and to minimize ponding on the top of the cover soil.

When waste is to be placed in areas with intermediate cover, all or part of the intermediate cover can be removed for future use prior to the additional waste placement. The intermediate cover is removed by pushing the cover material into a stockpile on the side or a new berm around the working face with a front-end loader or dozer; the intermediate cover shall be free of waste. After additional waste is placed, the cover material can be used as initial cover by pushing the material back with the loader or dozer. Processed yard trash or clean wood (mulch), may be spread over the intermediate cover for stabilization and erosion control measures.

#### **K.7.h Final Cover Application Time Frame**

The Phase II Section I and Phase II Section II areas will be closed in their entirety with a final closure cap once the disposal areas have been filled to the design dimensions.

As areas of the Phase II Section I and Phase II Section II landfill reach their design elevations they will receive intermediate cover prior to final closure. The landfill area exterior side slopes

will be maintained at a maximum ratio of three horizontal to one vertical (3H: 1V) as shown on the Operation Drawings located in Attachment E of the Operation Permit renewal application.

Solid waste disposal units which have been filled to design dimensions shall receive final cover within 180 days after attaining final elevations or in accordance with an approved closure plan for the landfill.

The schedule for final closure of the landfill will comply, at a minimum, with Rule 62-701.600 FAC, and is as follows;

- At least one year prior to projected date when wastes will no longer be accepted or when all solid waste disposal units are expected to reach design dimensions, the owner or operator will provide written notice to FDEP with a schedule for cessation of waste acceptance and closure of the landfill.
- At 120 days prior to the date when wastes will no longer be accepted at the landfill, the owner or operator shall advise users of the landfill of the intent to close the landfill by posting signs at the entrance to the landfill. The signs will indicate the date of closure, the location of alternative disposal facilities, and the name of persons responsible for the closure activities.
- At least 10 days prior to the date when waste will no longer be accepted at the landfill, the owner or operator will publish notification of the landfill closure in the legal advertising section of the newspaper of general circulation where the activity is proposed.
- The owner or operator of the landfill shall submit a Closure Permit Application to FDEP for final closure of the landfill at least 90 days before the date when wastes will no longer be accepted at the landfill.

#### **K.7.i Controlling Scavenging and Salvaging**

Scavenging and salvaging is not permitted at the Hardee County Landfill. The facility has a fence around the entire perimeter to minimize unauthorized access to the landfill.

#### **K.7.j Litter Policing Methods**

On a daily basis, landfill personnel and/or county jail trustees collect litter along the entrance and access roads, at buildings, in the parking areas, and in the vicinity of the working face. Litter control fences are used near the working face to lessen the amount of blown litter.

#### **K.7.k Erosion Control Procedures**

Erosion of the initial or intermediate cover material on landfill areas is repaired as soon as possible to maintain the required depth of cover. The establishment and maintenance of a good stand of grass on the finished slopes is important to maintaining erosion control. In addition, it may be necessary to use processed yard trash, silt fences, straw bales, or berms to help prevent

erosion. The landfill operator will take appropriate measures to prevent and correct erosion problems on the site.

The fill sequence has been designed to minimize erosion of landfill sideslopes and washout of adjacent areas. The landfill surface will be inspected daily for cracks, eroded areas, and depressions in the landfill surface. In areas where standing water develops, the area will be filled, compacted, and graded to provide positive drainage. For intermediately covered areas, or other areas that discharge to the stormwater management system, which exhibit significant erosion, will be repaired as follows:

- If greater than 50 percent of the soil cover material has eroded, then the area will be repaired within 7 days.
- If waste is exposed, then the area will be repaired by the end of the next working day.
- If erosion cannot be corrected within seven days, the FDEP will be contacted with a corrective actions plan and schedule.

## **K.8 LEACHATE MANAGEMENT PROCEDURES**

### **K.8.a Leachate Level Monitoring, Sampling, Analysis, and Data Results**

The landfill operator is responsible for maintenance and monitoring of the leachate collection system.

#### **K.8.a.1 Leveling**

##### **Phase I**

The leachate levels within the Phase I landfill can be lowered by adjusting the pumping rate from Manhole Number 8; however leachate levels can only be lowered to the invert of the perimeter collection pipe. The lowest elevation of perimeter collection pipe is located on the south side of the disposal area at approximately Elevation 72.8 (source: PBS&J record drawings dated July, 2000). The leachate levels in Phase I shall be maintained lower than the top of the perimeter liner.

~~On a monthly basis the landfill operator or designee will collect depth to leachate level readings from the interior piezometers and depth to water level readings in either a piezometer or monitoring well across from the lined area on the exterior. The depth to water level readings will be subtracted from the top of casings and water elevations calculated. Refer to Appendix N of the section for the Monthly Leachate Leveling Form that has the piezometer and monitoring well information to be used on a monthly basis. Based upon the levels of leachate on the interior of the Phase I landfill;~~

- ~~• If the exterior water levels are higher than the interior levels, then an inward gradient is acting on the sidewall barrier geomembrane;~~

- ~~If the interior water levels are higher than the exterior levels, then increase the leachate removal (pumping) from Manhole Number 8 (Lift Station) until the interior water levels are lower.~~
- ~~If the interior water levels are not lower, then check the manholes to see if clogs or debris is present which may not be allowing for adequate leachate collection. If clogs or debris is present, then the County will contract with a vacuum truck service to remove the debris and a jet cleaning service to clean the collection pipes.~~

#### Phase II Section I Landfill Expansion Leveling

The liquid level inside of the Phase II Section I landfill will be controlled by the pressure transducers attached to the leachate collection/detection pumps casing or intakes. Once the liquid levels rise above a predetermined elevation, the pumps will be automatically activated and the liquid will be pumped to the existing leachate storage tanks.

#### Phase II Section II Landfill Expansion Leveling

The liquid level inside of the Phase II Section II landfill will be controlled by the pressure transducers attached to the leachate collection/detection pumps casing or intakes. Once the liquid levels rise above a predetermined elevation, the pumps will be automatically activated and the liquid will be pumped to the leachate collection cleanout risers.

#### Leachate Tank Leveling

Liquid levels in the two leachate storage tanks are monitored, either visually or by reading the liquid level readouts on the side of the tanks, to estimate available storage and prevent possible overflow of the tanks. To adjust the levels of leachate in the tanks, liquid can be transferred from one tank to another or additional truckloads can be sent offsite for disposal.

#### Temporary Sideslope Berms

In addition, to reduce the amount of surface water runoff into the Phase II Section II Expansion center and northern portions (and generating additional leachate), the County will construct temporary sideslope berms along the western Phase I sideslope during operations as needed [\(discussed further above in Section K.2.f.8\)](#). The temporary sideslope berms will be active in nature. The County will create temporary sideslope berms as needed [as discussed above in Section K.2.f.8](#) to accommodate fill sequencing to reduce surface water runoff into active waste filling to the extent practical.

The temporary sideslope berms will help direct the southern half of the western Phase I sideslope surface water runoff into the Phase II Section II Expansion northern portion (which will be covered with a rain tarp while waste filling is not occurring) while filling in the center portion. This surface water runoff can then be pumped from the northern portion area into the perimeter stormwater management system.

The temporary sideslope berms created along the northern half of the western Phase I sideslope will help direct the surface water runoff into the northern perimeter stormwater management system swale while filling in the northern portion. This will also reduce the amount of surface water runoff entering the northern portion and generating additional leachate.

#### Leachate Evaporation

The County will not recirculate leachate but will conduct leachate evaporation during operation of the Phase II Section II area. Ditches, berms, or other devices shall be constructed to control leachate runoff. However, the quantity of leachate applied during leachate evaporation shall not be in such a quantity as to require ditches, berms, or other devices to control leachate runoff or the need to shed runoff to the leachate collection system. Initial and intermediate cover receiving leachate from the leachate evaporation process shall be graded to shed runoff into the leachate collection system and to minimize mixing of leachate runoff and storm water. Initial and intermediate cover shall be permeable to the extent necessary to prevent perched water conditions and gas buildup. Leachate evaporation shall not be conducted during weather conditions or in quantities that may cause runoff outside the solid waste disposal unit, surface seeps, wind-blown spray, or exceedance of the limits of the leachate head on the liner. The application of leachate for evaporation shall be such that leachate runoff is prevented and leachate is only applied to those areas and cover soils that do not runoff to stormwater.

#### **K.8.b Operation and Maintenance of Leachate Collection and Removal System and Groundwater Control System**

~~Surface water runoff that comes in contact with solid waste is considered leachate. Surface water (leachate) will be directed into low, bermed areas. If this low area is needed to collect leachate generated from runoff for operational purposes, the low area will be excavated downstream and away from the working face. Liquids in the low area will be allowed to percolate. The berms that surround the working face and the low area excavated downstream and away from the working face used to collect leachate generated from runoff will be maintained at all times.~~

With the addition of the Phase II Section II Expansion, leachate generated from the Phase II Section II Expansion north and center portions will be pumped to the leachate collection sideslope risers located along the western side of the south portion of the Phase II Section II Expansion. The sideslope risers are extensions of the leachate collection pipes for the Phase II Section II Expansion which will be connected to the existing leachate collection lines located within the Phase II Section I area during construction. Leachate will then flow via gravity to the existing leachate collection sump and pumps located within the Phase II Section I area. From the Phase II Section I sump the leachate will be pumped into the existing above ground leachate storage tanks.

Therefore, to determine the amount of leachate that is generated from Phase I, Phase II Section I, and Phase II Section II the readings from the flow meters in Section K.8.f will be conducted by the County. The values obtained by the County from the meter readings will then be input into the Monthly Leachate Water Balance Form as outlined below for the quantity calculations. Refer to Appendix O of the Operation Plan for a Monthly Leachate Water Balance Form.

- Column A is daily total reading from Phase II Section II north and center collection flow meter.
- Column B is daily total reading from Phase II Section II north and center detection flow meter.
- Column C is daily total reading from leachate sprayed for evaporation.
- Column D is Phase II Section II north and center collection flow meter reading + Phase II Section II north and center detection flow meter reading - reading from leachate sprayed for evaporation {Col A + Col B - Col C}.
- Column E is Phase II Section I collection flow meter reading.
- Column F is Phase II Section I detection flow meter reading.
- Column G is Phase II Section I collection + Phase II Section II South collection + Phase II Section I detection + Phase II Section II South detection - total leachate Phase II Section II North and Center (less evaporation) {Col E + Col F - Col D}.
- Column H is Phase II Section I detection and Phase II Section II South detection + total leachate Phase II Section I collection and Phase II Section II South collection and Phase II Section I detection and Phase II Section II South detection {Col D + Col G}.
- Column I is daily total reading from MH-8 pump station flow meter (Phase I leachate).
- Column J is total leachate Phase II Section II and Phase II Section I + Phase I (pumped from MH-8) {Col H + Col I}.
- Column K is the total daily amount of rainfall read from rain gauge.
- Column L is total daily rainfall times one-inch of depth of tank {Col K \* gallon per inch rainfall}.
- Column M is total leachate added to tanks + rainfall added to tanks {Col J + Col L}.
- Column N is total liquid balance in tanks end of previous day {Col Q}.
- Column O is previous day liquid remaining in tanks + total leachate and rainfall added to tanks {Col N + Col M}.
- Column P is liquid hauled from tanks per day.
- Column Q is previous day liquid remaining in tanks and total leachate added and rainfall added - liquid hauled from tanks {Col O - Col P}.

### Phase I Collection System

Leachate, from water that is in contact with the waste materials within the Phase I disposal area is collected in a perimeter subsurface collection pipe surrounding the waste materials. The perimeter subsurface collection pipe is a perforated pipe that is located along the outside waste limit. A coarse drainage media, wrapped in geotextile, surrounds the perforated pipe and minimizes migration of fine material into the collection pipe.

The perimeter subsurface leachate collection pipes are accessible through a series of manholes, designated as Manholes 1, [2, 3, 4, 8 and through 9](#) (Manhole Number 8 is the main leachate collection pump station). [The lids on Manholes 5, 6, and 7 were covered with a concrete cap during the Phase I closure per Permit Number 38414-012-SF/01 dated November 9, 2009.](#)

Leachate in the collection system drains to Manhole Number 8 where it is then pumped to one of the leachate storage tanks. The County pumps the leachate tanks on a daily basis and transports loads of leachate to the City of Wauchula Municipal Wastewater Treatment Plant.

### Phase II Section I Landfill Expansion Collection/Detection System

The Phase II Section I Landfill Expansion collection/detection system collects leachate and drains via gravity to a sump located at the east end of the disposal area. Two sideslope riser pumps collect and discharge leachate to the leachate storage tanks. One pump collects from the detection system and one pump collects from the collection system. Both pumping systems are controlled by independent control panels. The control panels have automatic turn-on and shut-off controls for the pumps.

Independent flow meters [were originally installed during the construction of the Phase II Section I Expansion to](#) track the amount of leachate collected from the collection and detection systems from the Phase II Section I Landfill Expansion.

The main leachate collection header pipe is located along the eastern and southern toe of slope in a manner so that access is provided to insert a TV camera and flushing equipment. The leachate collection pipes have also been sized to accommodate a TV camera and flushing equipment.

The leachate collection and detection pumps are easily accessible from the surface and are equipped so that the pumps and discharge piping can be completely removed for repairs or replacement. In addition, with the pumps removed, the portion of the pipe forming the intake section in the sump can have TV camera and flushing equipment inserted.

### Phase II Section II Landfill Expansion Collection/Detection System

The leachate collection and removal system (LCRS), as shown on the Operation Drawings located in Attachment E of the Operation Permit renewal application, includes the 24-inch thick sloping sand drainage layer, a sloped bi-planar geocomposite (i.e., the geonet or drainage net) and a piping network. The bi-planar geocomposite and the drainage layer are installed at a slope across the Phase II Section II Expansion. A series of sloped 8-inch [and 10-inch](#) diameter HDPE perforated pipes are placed in rock-filled trenches wrapped with a geotextile that are spaced at regular, predetermined intervals across the geocomposite lining. Together the piping



and geocomposite collect leachate flowing through the drainage layer and transport it to the leachate collection header trench which in turn transports the leachate via gravity to the leachate collection/detection sump located within the Phase II Section II Expansion area. The leachate sump is equipped with submersible pumps that discharge the leachate out of the sump through a pipeline and out of the cell.

From the point of discharge the leachate will travel in a pressure pipeline (i.e., a force main) from the leachate collection/detection sump to three leachate collection sideslope risers located along the western side of the south portion of the Phase II Section II Expansion. The leachate force main is sized to serve the flow from the leachate collection and detection pumps. The three sideslope risers are extensions of the leachate collection pipes for the Phase II Section II Expansion which will be connected to the existing leachate collection lines located within the Phase II Section I area during construction. Leachate will then flow via gravity to the existing leachate sump and collection/detection pumps located within the Phase II Section I area. From the Phase II Section I sump the leachate will be pumped into the existing above ground leachate storage tanks.

The Phase II Section I area sump has one collection and one detection pump located within two sideslope risers. One pump collects from the detection system and one pump collects from the collection system. Both pumping systems are controlled by independent control panels. The control panels have automatic turn-on and shut-off controls for the pumps.

Near the control panel for the Phase II Section II Expansion the collection and detection discharge lines from the sideslope risers each have independent flow meters. The independent flow meters track the amount of leachate collected from the collection and detection systems from the Phase II Section II Landfill Expansion north and center portions.

The main leachate collection header pipe for the Phase II Section I area is located along the eastern and southern toe of slope in a manner so that access is provided to insert a TV camera and flushing equipment. The main leachate collection header pipe for the Phase II Section II area is located east/west between the north and center portions of the Expansion and slope to the west in a manner so that access is provided to insert a TV camera and flushing equipment. The leachate collection pipes for the Phase II Section I and Phase II Section II disposal areas have also been sized to accommodate a TV camera and flushing equipment.

The Phase II Section I and Phase II Section II leachate collection and detection pumps are easily accessible from the surface and are equipped so that the pumps and discharge piping can be completely removed for repairs or replacement. In addition, with the pumps removed, the portion of the pipe forming the intake section in the sump can have TV camera and flushing equipment inserted.

#### **Leachate Lift Station**

The submersible leachate pump station, designated as Manhole Number 8, is a duplex system having a nominal capacity of approximately 130 gallons per minute (gpm). This pump station is operated by float control using the following five floats:



- Lead pump on,
- Lag pump on,
- Pump(s) off,
- High level alarm, and
- Low level shut-off

A control panel, located immediately adjacent to the pump station, has controls to activate the pumps. The pumps can be activated for manual or automatic operations. Meters on the control panel record the amount of leachate pumped [from the Phase I area](#) into the storage tanks. The pump station discharges into a 4-inch force main flowing to the leachate storage tanks. For additional reliability, the submersible leachate pump station is also furnished with an emergency pump out connection to allow for removal of leachate directly from the lift station should the storage tanks not be operational.

The overfill protection system of the tanks is provided by ultra-sonic liquid level indicators, located on the top of each of the tank, that provide continual monitoring of the liquid levels. The ultra-sonic level indicators provide both overflow protection and low liquid level monitoring to protect the pumps at the truck loading area. As liquid levels rise in the tank above a pre-determined height, the ultra-sonic level indicators send a signal to an alarm (an audible and flashing light) on the control panel located at the lift station. A signal is also sent to the control panel at the lift station to shut-off the pump(s). When leachate is pumped from the tanks to the truck loading area, the ultra-sonic level indicators monitor the liquid level in the tanks and shut off the pumps at the truck loading area should the level drop below a pre-determined level. This prevents the pumps from running dry and possibly overheating.

As a back-up contingency plan (**only used should signal alarms and pump shut-offs fail**) the back-up overfill protection system for the tanks are as follows:

1. Tank 1 is filled by the pump station located at Manhole 8 (MH-8). If the liquid level rises above the overflow pipe in Tank 1, the flow is diverted to Tank 2.
2. As Tank 2 fills and equalizes with Tank 1, the two tanks fill simultaneously.
3. Should both tanks continue to fill, each tank has a final overflow pipe, which allows any overfill to be captured in the containment area for each individual tank.

Tanker trucks are used to transport leachate off-site for disposal. The tanker trucks pull around to the western side of the storage tanks and park on top of a concrete lined unloading area. The unloading area is designed to collect accidental spills and convey the spill back into the lift station. After parking the truck, the driver has the option of selecting which tank to begin draining. The control panel, located immediately adjacent to the truck unloading area, allows the truck driver to control the pump while a meter readout allows the driver to monitor the amount of leachate transferred to the truck. Once the truck is full, the leachate is hauled offsite for disposal.

As part of the weekly responsibilities of the landfill operator, the condition of the tanks will be visually inspected, for corrosion, leaks, structural damage to the tanks, loose or broken equipment, for leachate in the secondary containment area of the tanks, integrity of the cathodic protection system, overfill protection system and overflow control piping (located near the top of the tanks). Inspection of the interior of the tanks will be performed whenever the tank is drained or at a minimum of every three years. If the inspection reveals a tank or equipment deficiency, leak, or any other deficiency which could result in the failure of the tank to contain the leachate, then remedial actions will be taken to correct the deficiency immediately.

### **Groundwater Interceptor System**

The Phase II Section I Landfill Expansion and a portion of the Phase II Section II areas have a series of underground groundwater collection pipes to intercept and collect groundwater variances above the seasonal high groundwater elevation. The groundwater interceptor system pump station, designated as Manhole Number 10, is located to the southeast of the Phase II Section I Landfill Expansion. There are two skid-mounted duplex pumps located on top of the concrete pad surrounding the wet well. The groundwater interceptor system pumps are operated by float control using the following five floats:

- Lead pump on (Elevation 77.5); Lag pump on (Elevation 78.0); Pump(s) off (Elevation 76.9); High level alarm (Elevation 78.5); Low level shut-off (Elevation 76.9).

A control panel located immediately adjacent to the groundwater interceptor system pump station contains the controls to activate the groundwater interceptor pumps. The groundwater pumps may be activated manually or by automatic operations. To activate the pumps manually, the control panel would be opened and the switch which initiates the required pump(s) would be turned and held to the “manual” position. The switch would be held in the “manual” position during the time the pump(s) was required to operate. Once the switch was released the pump(s) would shut down. The switch would be manually manipulated in this manner to activate the pump(s) when needed. The groundwater interceptor system pump station discharges through a 6-inch ductile iron pipe into the adjacent stormwater swale.

Should the groundwater interceptor pumps in the wet well be rendered inoperable, the hatch would be opened on the top of the wet well and a submersible trash pump (or similar type pump) would be lowered into the wet well for temporary operations. The temporary pump would be operated as needed and the groundwater pumped from the wet well would be discharged into the rip rap lined discharge point located adjacent to the wet well as during normal operations.

### **K.8.c Procedures for Managing Leachate if Regulated as Hazardous Waste**

If at any time the leachate is determined to be hazardous, it will be managed in accordance with Rule 62-730, FAC. If the leachate analysis indicates a contaminant listed in 40 CFR Part 261.24 exceeds the regulatory level, a monthly sampling of leachate will be instituted and FDEP notified. If in any three consecutive months no listed contaminant is found to exceed the

regulatory limit, the monthly sampling will be discontinued and the routine sampling schedule will be implemented.

#### **K.8.d Off-Site Leachate Treatment Agreements**

An agreement between the County and the City of Wauchula (City) provides for off-site treatment of leachate. The County retains the City to provide treatment and disposal of leachate on an as-needed basis. The County is responsible for testing, reporting, and transportation of leachate to the City's wastewater treatment plant. The services to be performed and the terms of the agreement are subject to FDEP rules and regulations. A copy of the Resolution for the Interlocal Agreement between the County and the City for leachate treatment and disposal is included in Appendix K. A copy of the Interlocal Agreement between the County and the City for leachate treatment and disposal is included in Appendix L.

The County recently upgraded or completed construction of two other County-owned and operated wastewater treatment plants. The County plants at the Vandolah and Wauchula Hills wastewater treatment facilities are also available to receive leachate for treatment. Since these facilities are owned and operated by the County no agreements are necessary.

#### **K.8.e Contingency Plan for Managing Leachate**

##### **Treatment Plant Options**

Currently, leachate is trucked to the City of Wauchula wastewater treatment plant for treatment. If the City of Wauchula Waste Treatment Plant is unavailable then leachate can be diverted to the Vandolah or Wauchula Hills wastewater treatment plants. Should any or all the available treatment plants become unavailable to the County, arrangements will be made to take the leachate to another treatment facility within seven (7) days.

##### **Leachate Lift Station or Tank Repair Options**

Leachate may be pumped and stored into either of two leachate storage tanks from the pump station allowing for maintenance on one tank while the other remains in service. Leachate may also be pumped from either storage tank or directly from the pump station into tanker trucks for transport to the City of Wauchula wastewater treatment plant or other treatment plants. Should this plant become unavailable to the County, arrangements will be made to take the leachate to another treatment facility within seven (7) days.

#### **K.8.f Procedures for Recording Quantities of Leachate Generation**

The quantities of leachate collected by the leachate collection and removal system are recorded in gallons per day before offsite disposal and are included with the operating record. The quantity of leachate pumped each day is recorded in gal/day and included with the operating record.

##### **Phase II Section I Quantities**

The leachate collection and detection pumps have independent flow meters to measure the amount of leachate pumped from each layer in the Phase II Section I landfill area to the leachate storage tanks. Daily readings from the two flow meters will be recorded. The amount of leachate generated from the Phase II Section I Expansion area will be calculated by the County based on the flow meter readings obtained and calculated from the Monthly Leachate Water Balance Form provided in Appendix O.

#### Phase II Section II Quantities

The leachate collection and detection pumps have independent flow meters to measure the amount of leachate pumped from each layer in the Phase II Section II landfill north and center portions area to the leachate storage tanks. Daily readings from the two flow meters will be recorded. The amount of leachate generated from the Phase II Section II Expansion area will be calculated by the County based on the flow meter readings obtained and calculated from the Monthly Leachate Water Balance Form provided in Appendix O.

#### Lift Station

A 4-inch magnetic flow meter is connected to the forcemain leading from the submersible leachate lift station to the leachate storage tanks. Daily readings of leachate generated from the Phase I area, in gallons per day, are read directly from the meter.

#### Phase I Quantities

The amount of leachate generated from the Phase I area are read directly off of the MH-8 pump station flow meter (Phase I leachate)~~will be the difference between the amount pumped out of the lift station and the amount pumped in by the two Phase II Section II Landfill Expansion pumps.~~

#### Leachate Truck Loading Station

Leachate can be pumped from either of the two storage tanks. Flow meters measure flow in the forcemain leading from the tanks to the truck loading station. The amount of leachate hauled off-site will be recorded daily. The amount hauled off-site versus the amount pumped into the tanks will be recorded as storage. Any differences in storage can be accounted for as precipitation or evaporation.

Leachate generation data and the amounts hauled for treatment are recorded daily by landfill personnel. A copy of the daily leachate summary form and leachate balance form is located in Appendix O.

#### **K.8.g Procedures for Comparing Precipitation with Leachate Generation Rates**

A rain gauge is located onsite, operated, and maintained to record precipitation at the Hardee County Landfill. Precipitation records are included with the operating record and are maintained and used by the County to compare with leachate generation rates. A rain gauge, located onsite is used to compare precipitation with leachate generation. Rain data, in excess of

one tenth of an inch, is recorded daily in the operating record by landfill personnel. In addition, the National Oceanic and Atmospheric Association (NOAA) also has a weather station located in the City of Wauchula that keeps daily records of rainfall in the area.

#### **K.8.h Procedures for Cleaning and Inspecting the Leachate Collection System**

A videotape inspection of the leachate collection system for Phase I and the collection/detection system for the Phase II Section I and Phase II Section II areas shall be conducted ~~prior to permit renewal~~ in accordance with Rule 62-701.500(8)(h), FAC [effective 8/12/12] at least once every five years during the 20-year Operation Permit period. The leachate collection and detection systems will be pressure jet cleaned prior to the video inspection. The video inspection will be conducted using a camera that can provide sufficient light to illuminate the interior of the pipelines clearly. The video camera will also be capable of recording distances along the pipeline so deficiencies, such as crushed or separated pipe, can be located and repaired if possible.

#### **K.9 ROUTINE GAS MONITORING PROGRAM**

The County will conduct landfill gas (LFG) monitoring along the property boundaries and within structures located on the facility property. The LFG monitoring program will monitor gas from gas monitoring probes to detect possible subsurface migration of LFG. The regulatory limit for LFG at the property boundary is 100 percent of the Lower Explosive Limit (LEL) for combustible gases and twenty-five (25) percent of the LEL in the structures.

The LFG management system in place at the Hardee County Landfill consists of 11 LFG monitoring probes located around the perimeter of the existing landfill footprint and at the property boundary. With the construction of the Phase II Section II Expansion to the west and south of the existing landfill, it will be necessary to relocate several of the existing LFG monitoring probes outside of the expansion area. The County will abandon and replace existing LFG monitoring probes GP-3, GP-4, GP-5, and GP-6, ~~GP-7, and GP-8,~~ and install replacement LFG monitoring wells designated as GP-3R, GP-4R, GP-5R, GP-6R, GP-7R, and GP-8R, as shown on the Operation Drawings located in Attachment E of the Operation Permit renewal application. The replacement LFG monitoring wells are located along the west side and northwest corner of the property. LFG monitoring well, GP-1, GP-2, and GP-3R, will be used to detect possible subsurface migration of LFG toward the north side of the property.

The LFG monitoring program will also include monitoring for gas from within structures located on the facility property to detect possible gas migration into structures from penetrations in the supporting foundation. The LFG gas monitoring will be conducted at foundation penetrations (restrooms, electrical and mechanical rooms), enclosed spaces such as ground-level cabinets, electrical control boxes, outlets and openings to conduits as well as monitoring the ambient air within the structure for LFG.

The locations of the gas monitoring probes and the monitoring locations within the structures located onsite are shown on Figure 1 Monitoring Locations contained at the end of the Operation Plan and the building layouts contained at the end of the Operation Plan.

At a minimum the LFG monitoring points will be tested quarterly and the results forwarded to FDEP. LFG is monitored following the procedure below:

- Calibrate the field instrument (calibrated to methane),
- Monitoring for gas in the Gas Monitor probes and on-site structures, which include the maintenance building, materials recovery facility, scalehouse, and animal control kennel for methane. Monitoring in the gas monitoring probes will be conducted in the upper portion of the probe and the probe will not be purged (vented) prior to sampling, and
- Record data on the LFG Monitoring Form, located in Appendix P of this Operations Plan.

The LFG Monitoring Form is located in Appendix P. The gas form includes the required monitoring locations, date and time of the sampling event, weather conditions, and methane content as a percentage of the lower explosive limit (LEL).

Gas monitoring at the Hardee County Landfill will be performed using the appropriate hand-held gas-monitoring device capable of measuring and reporting methane as a percentage of the lower explosive limit (LEL) for methane. Hardee County currently owns a X-Check Gas Detector for LFG monitoring. Other industry-standard equipment (such as a GEM-500 Landfill Gas Analyzer) also may be utilized.

If methane gas levels exceed twenty five percent of the lower explosive limit for gases in structures, excluding gas control or recovery components, or the LEL in the gas monitoring probes the landfill operator shall:

- Immediately take all necessary steps to ensure protection of human health and notify FDEP;
- Within seven days of detection, submit to FDEP for approval a remediation plan for the methane gas releases. The plan shall describe the nature and extent of the problem and the proposed remedy. The remedy shall be completed within sixty days of detection unless otherwise approved by FDEP.

Personnel will abide by the following precautions before entering areas where dangerous gases may be present and before entering confined spaces, at a minimum, for worker safety:

- Personnel shall follow the requirements in the “Code of Federal Regulations Title 29, Part 1910.146 OSHA” and the safety guidelines outlined in “A Compilation of Landfill Gas and Field Practices and Procedures” prepared by the SWANA Landfill Gas Division Health and Safety Task Force. The Landfill Manager will keep the most up-to-date version of the above documents available at the facility for personnel to use. The above documents can be obtained at the following websites;
  - **Title 29 CFR Part 1910.146 – <http://www.gpoaccess.gov/cfr/index.html> (Browse for Latest version of Title 29 CFR Part 1910.146)**

- **SWANA Landfill Gas Document – <http://www.swanastore.com> (Publications – landfill Gas Publications)**
- Notify the Landfill Manager prior to entry into the area,
- Follow all County safety procedures,
- Ventilate the area with blowers or fans, if possible, or allow to vent a minimum of 24 hours,
- Monitor the air for explosive or hazardous gases, oxygen, and hydrogen sulfide levels, at a minimum, prior to entering the area,
- Monitor the air quality within the immediate working area at all times, using a hand-held or personal monitoring device.
- Provide safety equipment (radios, respirators, gas monitors, air supplies, ladders, ropes, harnesses, first aid kits, emergency contact list, etc) in case of emergency.

If the facility generates gas concentrations that cause objectionable odors beyond the property boundaries, the follow procedure will be implemented:

- Implement a routine odor monitoring program to determine the timing and extent of any off-site odors;
- If the monitoring program confirms the existence of objectionable odors, an odor remediation plan will be submitted to FDEP for approval. Upon approval, the remediation plan will be initiated within 30 days.

## **K.10 STORMWATER MANAGEMENT SYSTEM OPERATION AND MAINTENANCE**

The stormwater management system at the Hardee County Landfill consists of a series of swales and pipes that divert stormwater from the non-working areas of the landfill to the onsite stormwater ponds. The swales discharge into pipes and/or other swales, or directly into the stormwater ponds. Runoff from the stormwater ponds ultimately discharges into the Peace River.

Stormwater runoff [during operation of the facility](#) from the areas that have at least a 6-inch compacted soil cover (free of waste) over the waste materials can be directed to flow into the stormwater management system. Stormwater runoff that has been in contact with waste materials is classified as leachate and cannot be diverted into the stormwater management system. Stormwater runoff from the upper portion of the landfill travels via sheet flow into collection terraces located along the sideslopes of the landfill. Stormwater runoff flows within the collection terraces and is conveyed, via stormwater structures, down the landfill and into ditches that are located on the perimeter of the landfill. The perimeter ditches convey stormwater runoff to a stormwater management pond located in the northeast corner of the



facility. Stormwater runoff collected in the pond is allowed to percolate. As the water in the pond rises, an overflow structure located on the south side of the pond, allows water to be discharged into the heavily vegetative wetland area designated as Wetland No. 1, located on the eastside of the facility. Two culverts, located beneath the main access road, allow stormwater to flow from the eastside of the site under the road and along a channel to the southwest corner of the site. The stormwater will then enter the old borrow pit that has been transformed into a wet detention system with a manmade littoral zone. The wet detention system will allow for sediments to fall out of suspension. The littoral zone will enhance removal of sediments and turbidity. The wet detention system is designed to allow for the gradual release of stormwater beneath the road where the water will flow into a ditch that leaves the facility. Once offsite the runoff flows overland and via naturally occurring channels until the flows eventually flows into the Peace River.

Certain procedures have been implemented at the landfill to minimize maintenance requirements and to ensure efficient performance of the stormwater system during operation of the facility. These procedures include:

- No excavated cover material is stockpiled in such a manner as to direct sediment laden runoff outside the project site property limits or into any adjacent stormwater collection facility;
- All drainage ditches are inspected periodically for erosion and reshaped and resodded as required;
- Erosion and siltation control devices are cleaned and repaired when clogged or damaged;
- Temporary erosion control features such as silt fencing or hay bales are removed after installation of permanent erosion controls been completed and any permanent erosion control features damaged by such removal are repaired;
- After vegetation has been established, all swales, channels, and detention ponds are mowed regularly; minimum-mowing frequency is once per year.
- The plant types in the littoral zone are checked periodically and any intruding vegetation is removed if required;
- Drainage sumps are cleaned out at least once per year and the storm sewer lines checked for plugging;
- The area in front of the control structure is checked at least quarterly to remove any excess plants or debris that could cause the structure to plug;
- Additional erosion control measures are implemented when field conditions warrant (i.e. cover material stockpiling, on-site construction activities, etc.).



- Stormwater runoff flows within the collection terraces and is conveyed down the landfill and into ditches that are located on the perimeter of the landfill.
- Rain tarps to reduce the amount of stormwater infiltration and reduce the amount of leachate generation.
- Temporary sideslope berms help rain tarp direct surface water runoff away from the active filling area to the extent practical.

## **K.1.1 EQUIPMENT AND OPERATION FEATURE REQUIREMENTS**

The site will have sufficient equipment to ensure proper operation of the facility for excavating, spreading, compacting and covering waste. Normal maintenance will be performed on site. Major maintenance item repairs (e.g., engine, transmissions, and auxiliary drives) will be handled at off-site service facilities.

### **K.1.1.a Sufficient Equipment for Operations**

There is sufficient equipment on-site so that landfill operations would not cease in the event of an equipment failure. The County has budgeted enough funds for one month's leasing or rental of heavy equipment for contingency purposes. The contingency equipment type and source is located in Appendix D. Equipment from the Hardee County Public Works Road and Bridge Section is available to the Solid Waste Department for use during an emergency. During power outages at the landfill, small portable generators, capable of running the scales and scalehouse computers are available for use from the Hardee County Public Works Department. In addition, the County has developed a comprehensive emergency management plan to allow County department the ability to obtain material and equipment immediately thereby minimizing delays due to purchasing procedures.

The following equipment is owned by the County and is currently available at the landfill:

2003	Ford Explorer
2001	Ford F-250
2001	Ford F-150
2002	Dodge 2500 12 passenger van Ram
1987	Ford dump truck
1995	White GMC Tractor Truck, Model WG641, CAT ENG 3306
1993	Ford Truck, Flat bed Dump 8 Cylinder, F70
2000	CAT 950G Nortrax Loader 950G

2002	CAT Dozer D7R
2001	Yale GC060T Fork Lift
2005	Caterpillar 816F Compactor

#### **K.11.b Reserve Equipment**

The existing equipment on site, listed in the section above, is sufficient to handle the incoming waste stream. Should unforeseen circumstances require more equipment than is currently available, the County has budget enough funds for one month's leasing or rental of heavy equipment. Additionally, equipment from the Hardee County Public Works Road and Bridge Section is available to the Solid Waste Department for use during an emergency.

#### **K.11.c Communication Equipment and Shelter**

The scalehouse and on-site landfill office are equipped with telephones for emergency communications; two-way radios are available at the scalehouse for distribution to landfill personnel to allow for emergency communications between the scalehouse/landfill office and employees working on the landfill. The scalehouse is equipped with water supply, toilet facilities, and emergency first-aid supplies. The building also provides shelter for employees in case of inclement weather. The maintenance building is equipped with spare parts, tools, equipment, and electrical services for operations and repair.

#### **K.11.d Dust Control Methods**

During dry periods, when dust control is needed, such as on haul roads, the yard trash processing area, or in area(s) where dusty conditions cause a vehicle safety problem or dust is blowing offsite, water will be sprayed over these areas as necessary to keep dust particles moist and minimize particles from blowing into the air. Water from the on-site stormwater pond or the onsite water hydrants will be pumped into a 1,000-gallon tanker truck equipped with a spray bar and nozzles to use for wetting the roads. The tanker truck will be provided through the Hardee County Public Works Department.

#### **K.11.e Fire Protection**

In the event of fire, the responding agency is the Hardee County Fire and Rescue Service, located approximately three miles west of the site, in Wauchula, FL. Additionally, the landfill site is equipped with a dry fire hydrant located adjacent to the pond immediately north of the scalehouse for the filling of pump trucks. Four water hydrants are located along the eastside of Class I Phase I landfill, on the eastside of the entrance road. Fire extinguishers are located in the equipment and at the maintenance barn for use in the event of small fires. There are also six fire extinguishers and five hose bibs located in the on-site MRF. A Fire Contingency Operations Plan is contained in Appendix E.

#### **K.11.f Litter Control Devices**

On a daily basis, landfill personnel or contract laborers collect litter along the entrance and access roads, at buildings, in the parking areas, and in the vicinity of the working face. Litter control fences are used along the perimeter of the working face to lessen the amount of blown litter.

#### **K.11.g Signs**

A sign at the intersection of S.R. 636 and Airport Road marks the turnoff from S.R. 636 to the Hardee County Landfill. A sign at the entrance to the landfill displays the days and hours of operation. Signs or markers are posted throughout the facility indicating traffic flow directions, types of waste that are not acceptable, speed limits, and under ground liner location. All manholes are marked with a warning sign stating "This Manhole Contains Toxic and Explosive Gasses. Do Not Enter Without Proper Ventilation".

### **K.12 SITE ACCESS ROADS**

The entrance to the landfill, scalehouse, MRF, HHWC, animal control kennel and next to the leachate storage tanks are asphalt paved. The road leading to the waste tire facility, scrap metals and white goods storage area, and Class I Landfill are dirt paved. The roads are crowned and slightly elevated above the surrounding grades with drainage swales on both sides to promote drainage. The roads with excessive washouts are routinely graded by the onsite Landfill personnel or Hardee County Public Works Department. The access ramp to the Phase II Section II Expansion working face will be compacted soil with shell placed over it. This access ramp will be adequate for landfill operating equipment and waste collection trucks to reach the working area during almost all weather conditions.

### **K.13 ADDITIONAL RECORD KEEPING AND REPORTING REQUIREMENTS**

Operating records, such as permits, plans, inspections and other records are maintained on site at the scalehouse

#### **K.13.a Records for Development of Permit Applications**

In addition to waste and operating records, supplemental information from the permit applications and information pertaining to the landfill's construction and maintenance are on file at the facility. These records will be retained at the site for the remainder of the landfill's life.

#### **K.13.b Monitoring Information**

Records of all monitoring information, including calibration and maintenance records, and copies of reports required by the permit will be retained for at least 10 years. The County maintains all monitoring records at the scalehouse. Copies are submitted to FDEP in accordance with its permit requirements

## Appendix F

### Waste Facility Contact List

## NEIGHBORING LANDFILLS TO HARDEE COUNTY

LANDFILL NAME		TYPE	COUNTY	CITY	PHONE NUMBER
Polk	County North Central Landfill	Class I/ <a href="#">C&amp;D</a>	Polk	<a href="#">Winter Haven Eaton Park</a>	(863) 284-4319
	Southeast County Landfill	Class I	Hillsborough	<a href="#">Balm Pienie</a>	(813) 671- <del>7674</del> <a href="#">7739</a>
	Sun County C&D Landfill	C&D	Hillsborough	Balm	(813) 642-9594
	Central County Solid Waste Disposal Complex	Class I/ <a href="#">C&amp;D</a>	Sarasota	<a href="#">Nokomis Sarasota</a>	(941) 861- <del>5000</del> <a href="#">4570</a>
	Highlands County Solid Waste Management Center	Class I / C&D	Highlands	Sebring	(863) <del>402655-</del> <a href="#">77866483</a>
	Pembroke - Fort Meade Landfill	C&D	Polk	Fort Meade	(863) 285-8393
	Cedar Trail Landfill	Class <del>II</del> <a href="#">III</a>	Polk	Bartow	(863) 533- <del>38</del> <a href="#">776</a>

Appendix J  
Waste Quantity Form

**WASTE QUANTITY REPORT**  
**REPORTED IN TONS**  
**CALENDAR YEAR**

MONTH	RESIDENTIAL WASTE	COMMERCIAL WASTE	CONSTRUCTION AND DEMOLITION DEBRIS	WOOD AND YARD WASTE	SCRAP METAL	TIRES	TOTALS
Jan-13							0.00
Feb-13							0.00
Mar-13							0.00
Apr-13							0.00
May-13							0.00
Jun-13							0.00
Jul-13							0.00
Aug-13							0.00
Sep-13							0.00
Oct-13							0.00
Nov-13							0.00
Dec-13							0.00
TOTALS	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**DISPOSITION REPORT**  
**REPORTED IN TONS**  
**CALENDAR YEAR**

MONTH	SCRAP METAL RECYCLED	WOOD AND YARD WASTE PROCESSED	WASTE TIRES RECYCLED	PROCESSED AND RECYCLED THROUGH MRF	TOTAL WASTE DISPOSED
Jan-13					0.00
Feb-13					0.00
Mar-13					0.00
Apr-13					0.00
May-13					0.00
Jun-13					0.00
Jul-13					0.00
Aug-13					0.00
Sep-13					0.00
Oct-13					0.00
Nov-13					0.00
Dec-13					0.00
TOTALS	0.00	0.00	0.00	0.00	0.00

Appendix N  
Leachate Leveling Form



MONTHLY LEACHATE WATER LEVELING FORM  
HARDEE COUNTY LANDFILL

Date: \_\_\_\_\_  
 Personnel: \_\_\_\_\_  
 Weather \_\_\_\_\_  
 Conditions: \_\_\_\_\_

Piezometers and Monitoring Wells	Top of Casing	Ground Surface	Depth to Groundwater Table	Estimated Water Level	Comments
P-7	84.47	82.41			
P-8	85.32	83.25			
P-11	88.69	86.16			
P-13	87.96	85.28			
P-14	87.31	84.05			
P-17	88.82	85.88			
P-18	88.74	84.37			
P-19	86.73	84.14			
P-20	87.60	84.68			
P-21	86.63	83.57			
P-22	87.04	84.09			
P-23	86.45	83.71			
MW-1	88.22	86.46			
MW-2	86.19	84.56			
MW-3*	88.06	86.46			
MW-4	87.15	84.22			
MW-5*	89.12	86.28			
MW-6	88.25	85.06			
MW-7	87.88	84.98			
MW-8*	89.39	86.63			
MW-10R	88.57	85.49			
MW-11	88.11	85.17			
MW-12R	89.00	85.71			
MW-13**	88.90	85.90			
MW-14**	89.00	86.00			

Notes:

1. Estimated Water Level = Top of Casing - Depth to Groundwater Table.
2. \* Monitoring well to be abandoned during construction of Phase II Section II Landfill Expansion.
3. \*\* Monitoring well to be installed during construction of Phase II Section II Landfill Expansion. Approximate elevation and location based upon April 3, 2012 Aerial Topography Survey of the site by Pickett & Associates, Inc.

## Appendix O

### Leachate Management Record Keeping Forms

Hardee County Landfill Monthly Leachate Water Balance

Month

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
	Phase II Section II North/Center Collection (gal)	Phase II Section II North/Center Detection (gal)	Total Leachate Sprayed for Evaporation (gal)	Total Leachate Phase II Section II North/Center (Less Sprayed for Evaporation) (gal)	Phase II Section I Collection and Phase II Section II South Collection (gal)	Phase II Section I Detection and Phase II Section II South Detection (gal)	Total Leachate Phase II Section I Collection and Phase II Section II South Collection and Phase II Section I Detection and Phase II Section II South Detection (gal)	Total Leachate Phase II Section II and Phase II Section I (gal)	Phase I (Pumped From MH-8) (gal)	Total Leachate Added to Tanks (gal)	Rainfall (inches)	Rainfall Added to Tanks (gal)	Total Leachate and Rainfall Added to Tanks (gal)	Previous Day Liquid Remaining in Tanks (gal)	Previous Day Liquid Remaining in Tanks and Total Leachate Added and Rainfall Added (gal)	Liquid Hauled From Tanks (gal)	Total Liquid Balance in Tanks End of Day (gal)
Day																	
1																	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	
18																	
19																	
20																	
21																	
22																	
23																	
24																	
25																	
26																	
27																	
28																	
29																	
30																	
31																	
Totals																	
Next Months Beginning Storage =																	

Notes:

1) Column A is daily total reading from Phase II Section II north and center collection flow meter.

2) Column B is daily total reading from Phase II Section II north and center detection flow meter.

3) Column C is daily total reading from leachate sprayed for evaporation.

4) Column D is Phase II Section II north and center collection flow meter reading + Phase II Section II north and center detection flow meter reading - reading from leachate sprayed for evaporation {Col A + Col B - Col C}.

5) Column E is Phase II Section I collection flow meter reading.

6) Column F is Phase II Section I detection flow meter reading.

7) Column G is Phase II Section I collection + Phase II Section II South collection + Phase II Section I detection + Phase II Section II South detection - total leachate Phase II Section II North and Center (less evaporation) {Col E + Col F - Col D}.

8) Column H is Phase II Section I detection and Phase II Section II South detection + total leachate Phase II Section I collection and Phase II Section II South collection and Phase II Section I detection and Phase II Section II South detection {Col D + Col G}.

9) Column I is daily total reading from MH-8 pump station flow meter (Phase I leachate).

10) Column J is total leachate Phase II Section II and Phase II Section I + Phase I (pumped from MH-8) {Col H + Col I}.

11) Column K is the total daily amount of rainfall read from rain gauge.

12) Column L is total daily rainfall times one-inch of depth of tank {Col K \* gallon per inch rainfall}.

13) Column M is total leachate added to tanks + rainfall added to tanks {Col J + Col L}.

14) Column N is total liquid balance in tanks end of previous day {Col Q}.

15) Column O is previous day liquid remaining in tanks + total leachate and rainfall added to tanks {Col N + Col M}.

16) Column P is liquid hauled from tanks per day.

17) Column Q is previous day liquid remaining in tanks and total leachate added and rainfall added - liquid hauled from tanks {Col O - Col P}.

Leachate Tanks

Tank No.	Diameter (ft)	Water In Tank Per Inch Depth (gal/in)
1	29	411.7
2	29	411.7
Total =		823.5 gal/inch of rainfall

Maximum Total Tank Storage

Tank No.	Gallons	
1	79,000 gallons	
2	79,000 gallons	
Total =		158,000 gallons

## FIGURES

C:\Users\2483srf\Documents\Hardee\091990.33.24\RAI No. 1\Attachment E - Revised Operation Plan\093324Fig2.dwg Jun 21, 2013 - 3:51pm Layout Name: Figure 2 By: 2483srf

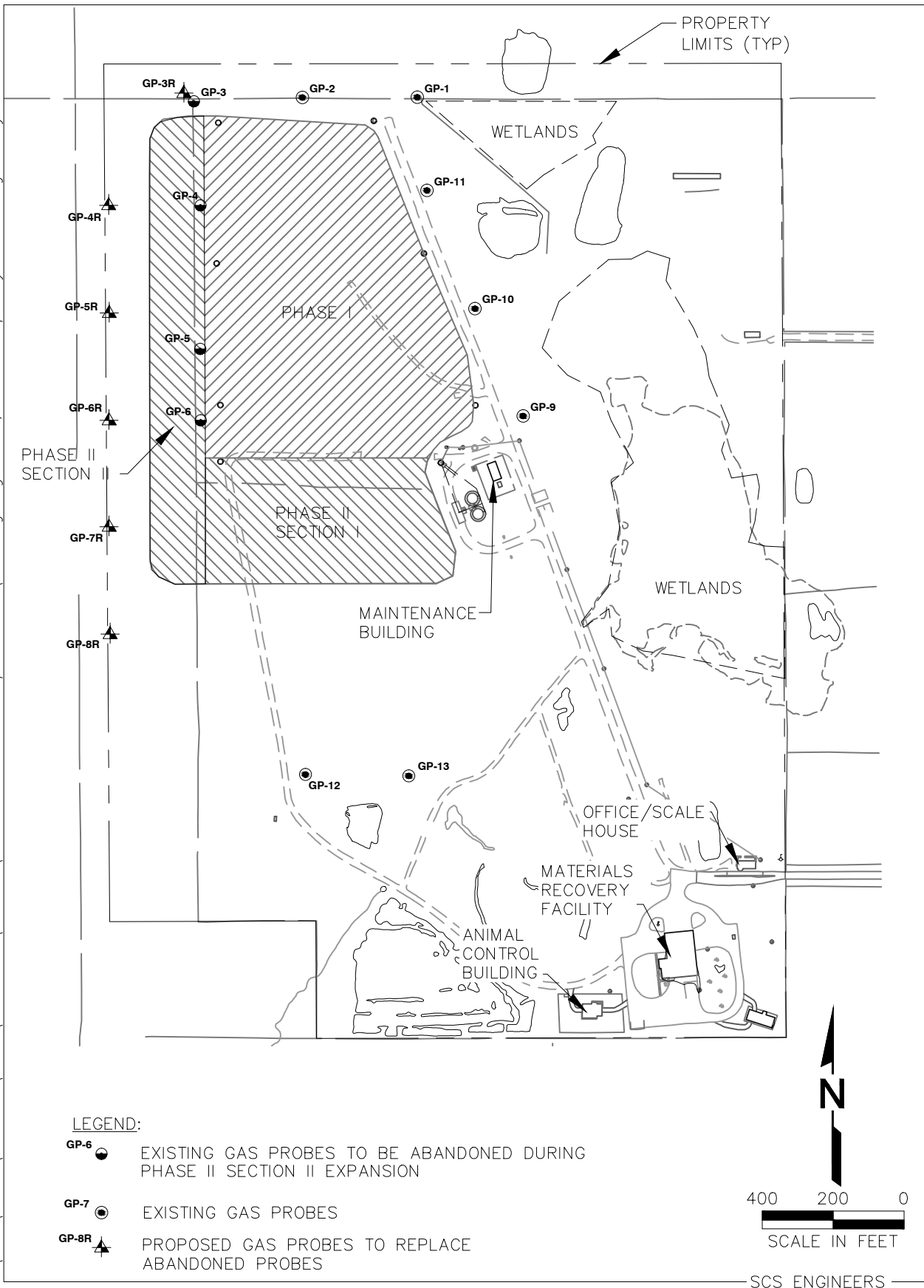
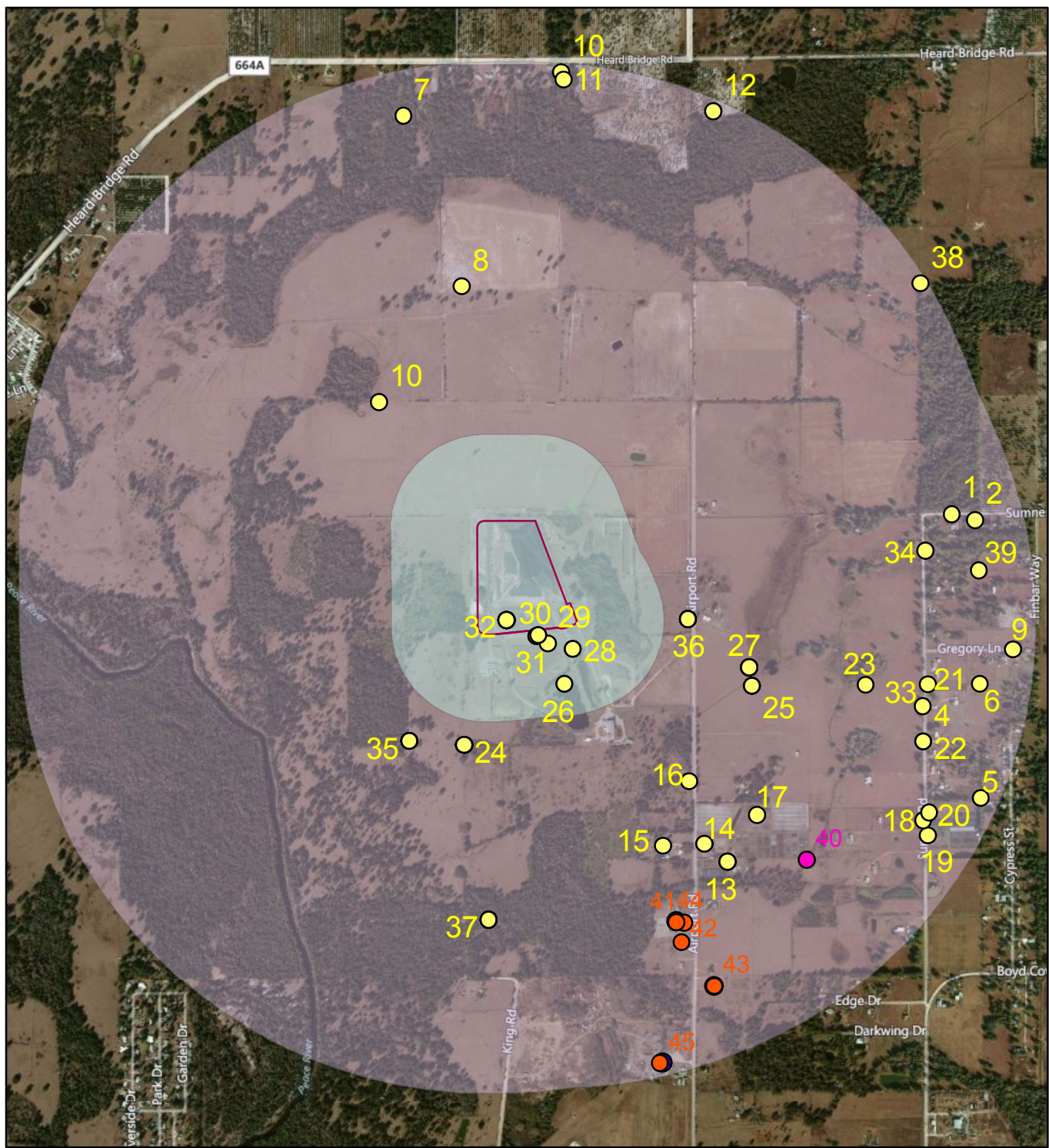


Figure 2. Hardee County Solid Waste, Monitoring Locations  
Hardee County, Florida.

## Attachment F

### Revised Figure 1 Well Inventory



SCS ENGINEERS

## Legend

- SWFWMD Well Construction
- Super Act Wells
- WSRP Wells
- FGS Wells
- Approximate Edge of Waste
- 1,000 ft Buffer
- 1 Mile Buffer

Well inventory database queries  
were conducted March 3, 2013.



1 inch = 1,700 feet

Figure 1. Well Inventory, Hardee County Landfill, Hardee County, Florida.

Revised June 28, 2013

Map ID	Construction Permit Number	Well Use	Well Depth	Owner	Address	Latitude	Longitude
1	631797	DOMESTIC	157	JOYCE LYERLY	1028 SUMNER ROAD	27 34 23.69	81 46 02.82
2	760217	DOMESTIC	220	RUBEN SALAS	1044 SUMNER RD	27 34 23.00	81 45 59.80
4	412499	DOMESTIC	0	DRAKE, GEORGE W	11214 NORTH SUMMER ROAD	27 33 57.73	81 46 06.48
5	545871	DOMESTIC	203	MANUEL HERRERA	126 CYPRESS STREET	27 33 51.27	81 45 59.14
6	414023	DOMESTIC	220	DRAKE, GEORGE	1342 HWY S 17	27 34 04.27	81 45 59.23
7	680065	DOMESTIC	138	WILLIAM E DAVIS	1992 HEARN BRIDGE RD	27 35 09.20	81 47 12.87
8	601175	DOMESTIC	180	MARY SCHUMANN	1998 HEARD BRIDGE RD	27 34 49.74	81 47 05.44
9	647646	DOMESTIC	280	GREGORY MORGAN	2598 GREGORY LN	27 34 08.21	81 45 54.99
10	783932	MONITOR	24	SOUTH FT MEADE PARTNERSHIP L P	2612 HEARD BRIDGE RD	27 34 36.57	81 47 16.06
10	805156	PLUGGED	130	SOUTH FT MEADE PARTNERSHIP L P	2612 HEARD BRIDGE RD	27 35 14.13	81 46 52.67
11	802184	DOMESTIC	190	SOUTH FT MEADE PARTNERSHIP L P	2660 HEARD BRIDGE RD	27 35 13.30	81 46 52.40
12	763224	DOMESTIC	132	CARGILL FERTILIZER INC	2894 HEARD BRIDGE ROAD	27 34 49.97	81 46 06.73
13	607114	IRRIGATION	220	NICK MIRANDA	498 AIRPORT RD	27 33 44.10	81 46 31.60
13	659635	DOMESTIC	200	CARL & MARYIANE SISSOMS	498 AIRPORT RD	27 33 57.73	81 46 06.48
14	673367	IRRIGATION	200	NICK MIRANDA	510 AIRPORT RD	27 33 57.73	81 46 06.48
14	685705	IRRIGATION	220	NICK MIRANDA	510 AIRPORT ROAD	27 33 57.73	81 46 06.48
15	806217	DOMESTIC	200	FIELD JASON C &	515 AIRPORT RD	27 33 45.90	81 46 39.80
16	586779	IRRIGATION	173	GENE FIELD	515 AIRPORT RD	27 33 53.26	81 46 36.47
17	809297	IRRIGATION - AGRICULTURAL	220	ARAUJO DAVID	520 AIRPORT RD	27 33 49.43	81 46 27.80
18	731418	DOMESTIC	220	ROBERT & JOY ROBERTS	543 SUMMER ROAD	27 33 57.73	81 46 06.48
19	753985	IRRIGATION	200	IGNACIO LUCATERO	552 SUMMER RD	27 33 48.77	81 46 06.49
20	656331	DOMESTIC	170	LARRY FIEGLE	555 SUMMER RD	27 33 57.73	81 46 06.48
21	643154	DOMESTIC	160	BOBBY AND ESTER BRAGG	671 SUMNER RD	27 34 01.80	81 46 06.52
22	418987	DOMESTIC	235	BURNETT, HENRY P	RT 2	27 33 57.73	81 46 06.48
23	366380	DOMESTIC	210	HINES, HOWARD	RT 2 LOT 09	27 34 04.19	81 46 13.82
24	435610	MONITOR	20	HARDEE COUNTY REGIONAL SANITARY LANDFILL	AIRPORT RD	27 33 57.46	81 47 05.26
24	435611	MONITOR	18	HARDEE COUNTY REGIONAL SANITARY LANDFILL	AIRPORT RD	27 33 57.46	81 47 05.26
24	435612	MONITOR	21	HARDEE COUNTY REGIONAL SANITARY LANDFILL	AIRPORT RD	27 33 57.46	81 47 05.26
24	435613	MONITOR	21	HARDEE COUNTY REGIONAL SANITARY LANDFILL	AIRPORT RD	27 33 57.46	81 47 05.26
24	384055	MONITOR	15	HARDEE COUNTY REGIONAL SANITARY LANDFILL	AIRPORT RD	27 33 57.46	81 47 05.26
24	384055	MONITOR	11	HARDEE COUNTY REGIONAL SANITARY LANDFILL	AIRPORT RD	27 33 57.46	81 47 05.26
24	384056	MONITOR	11	HARDEE COUNTY REGIONAL SANITARY LANDFILL	AIRPORT RD	27 33 57.46	81 47 05.26
24	384468	INDUSTRIAL	200	HARDEE COUNTY REGIONAL SANITARY LANDFILL	AIRPORT RD	27 33 57.46	81 47 05.26
24	510327	PUBLIC SUPPLY	197	HARDEE COUNTY REGIONAL SANITARY LANDFILL	AIRPORT RD	27 33 57.46	81 47 05.26
25	554873	MONITOR	15	HARDEE COUNTY SOLID WASTE RECYCLING CENTER	685 AIRPORT RD	27 34 04.11	81 46 28.41
25	554873	MONITOR	15	HARDEE COUNTY SOLID WASTE RECYCLING CENTER	685 AIRPORT RD	27 34 04.11	81 46 28.41
25	554873	MONITOR	15	HARDEE COUNTY SOLID WASTE RECYCLING CENTER	685 AIRPORT RD	27 34 04.11	81 46 28.41
25	554873	MONITOR	15	HARDEE COUNTY SOLID WASTE RECYCLING CENTER	685 AIRPORT RD	27 34 04.11	81 46 28.41
26	758080	MONITOR	8	HARDEE COUNTY REGIONAL SANITARY LANDFILL	685 AIRPORT RD	27 34 04.38	81 46 52.36
26	758080	MONITOR	8	HARDEE COUNTY REGIONAL SANITARY LANDFILL	685 AIRPORT RD	27 34 04.38	81 46 52.36
27	808434	PLUGGED	19	SOUTH FT MEADE PARTNERSHIP L P	685 AIRPORT RD	27 34 06.28	81 46 28.79
27	808434	PLUGGED	16	SOUTH FT MEADE PARTNERSHIP L P	685 AIRPORT RD	27 34 06.28	81 46 28.79
27	808434	PLUGGED	17	SOUTH FT MEADE PARTNERSHIP L P	685 AIRPORT RD	27 34 06.28	81 46 28.79
27							

1. Well information obtained from the SWFWMD Well Construction Permits website.



**Table 2. Department of Health Listed Wells, Hardee County Landfill, Hardee County, Florida.**

Map ID	FLUWID	STATUS	Casing Mat	Longitude	Latitude	Diameter	Permit Nar	Comment	Sanitary Se	Name	Address	Zip Code	City	WSRP ID	Action	POTABLE
41	AAE3543	ACTIVE	PVC	-81.77699	27.56031	2	Carls Recy	Around Ca	Yes	BRENDA H	425 AIRPO	33873	WAUCHULA			POTABLE
42	AAE3544	ACTIVE	Galvanized	-81.77707	27.55970	2	Carls Recy	Around Ca	Yes	REBA M. R	407 AIRPO	33873	WAUCHULA			POTABLE
43	AAG9900	ACTIVE	Galvanized	-81.77592	27.55831	4	Carls Recy	Around Ca	Yes	ANDREW F	348 AIRPO	33873	WAUCHUL	25002510	UNFILTERE	POTABLE
44	AAG9901	ACTIVE	PVC	-81.77726	27.56034	2	Carls Recy	Around Ca	Yes	FLOYD CHA	445 AIRPO	33873	WAUCHUL	25002500	UNFILTERE	POTABLE
45	AAG9930	ACTIVE	PVC	-81.77786	27.55587	2	Carls Recy	Around Ca	Yes	CARL'S REC	249 AIRPO	33873	WAUCHUL	25002480	NEW WELL	POTABLE

Notes:

1. Well information obtained from the DOH Super Act Well listing. This information can be downloaded at <http://www.doh.state.fl.us/environment/water/petroleum/saindex.html>

**Table 3. Florida Geologic Survey Wells, Hardee County Landfill, Hardee County, Florida.**

MAP ID	Well Number	Latitude	LONG_DEG	WELL_NAME	WELL_USE	OWNER_DRLR	TOTALDEPTH
40	9070	27 33 43.14	81 46 22.14	F-182/182A / HORC CT # 3 T.M. Carlton	Stratigraphic Test	Humble Oil	830

**Table 4. Water Supply Restoration Program (WSRP) Wells, Hardee County Landfill, Hardee County, Florida.**

Map ID	Florida ID	Well ID	Address	City	Longitude	Latitude	Well Depth
43	AAG9901	250025001	445 AIRPORT RD	WAUCHULA	81 46 33.31	27 33 29.87	30
44	AAG9900	250025101	348 AIRPORT RD	WAUCHULA	81 46 38.15	27 33 37.32	265
45	AAG9930	250024801	249 AIRPORT ROAD	WAUCHULA	81 46 39.97	27 33 21.21	0

## Attachment G

### Revised Groundwater Monitoring Plan

- Replacement Page A-3
- Replacement Page A-10
- Replacement Page A-17
- Replacement Pages A-18 Through A-20
- Revised Table L-2 Well Construction Details

- MW-11 - 53 feet (detection)
- MW-12R - 50 feet (detection)

Prior to construction of the Phase II Section II Expansion groundwater monitoring wells MW-3, MW-5, and MW-8 will be abandoned which are located within the Expansion area. Additional detection groundwater monitoring wells MW-13 and MW-14 will be installed. These detection monitoring wells will be located approximately 50 feet from the edge of liner of the Phase II Section II Expansion. Upon construction of the Phase II Section II Expansion, the overall site groundwater monitoring plan will include the following background and detection groundwater monitoring wells from the edge of liner:

- MW-1 - 52 feet (background)
- MW-2 - 70 feet (detection)
- MW-4 - 730 feet (background)
- MW-10R - 56 feet (detection)
- MW-11 - 53 feet (detection)
- MW-12R - 50 feet (detection)
- MW-13 - 50 feet (detection)
- MW-14 - 50 feet (detection)

The current permit indicates that MW-2, MW-5, MW-8, MW-10R, MW-11, and MW-12R are detection wells. Detection wells should be located down gradient from and within 50 feet of disposal units, unless site-specific conditions make such placement impossible. Due to the presence of perimeter ditches on the north and west side of the landfill, monitoring well MW-5 was placed greater than 50 feet from the edge of waste. At the time of installation of MW-8, a leachate containment ditch was located on the southern edge of the landfill. MW-8 was placed down gradient of the leachate containment ditch. Also a heavily traveled road is located on the east side of the landfill. MW-2 was placed east of the access road to avoid traffic. It is located approximately 70 feet west of the edge of waste.

According to [Chapter 62-791 Rule 62-701.510\(3\)\(c\)](#), FAC, background wells are required to be hydraulically up gradient from waste. MW-1 and MW-4 serve this purpose in the Monitoring Plan.

Up-gradient wells are generally spaced at 1,500 foot intervals and side-gradient and downgradient wells are spaced at approximately 500 foot intervals according to the regulations.

All groundwater monitoring wells included in the Groundwater Monitoring Plan is shown on Figure L-2 Groundwater Monitoring Plan Sampling Locations Map.

After construction, each monitoring well will be sampled and analyzed for field and laboratory parameters as described in Rules 62-701.510(7)(a) and (c), FAC (in accordance with Rule 62-701.510(5)(b)2, FAC).

Procedures for properly abandoning the monitoring wells will be conducted per Rule 62-701.510(3)(d)6, FAC. Well abandonment requirements will be according to Rule 62-532.500(5), FAC, per the amendments to Chapter 62-532, FAC, that were effective on February 16, 2012 and applicable rules of the Southwest Florida Water Management District (SWFWMD). Documentation of abandonment will be provided to the Department.

## A.7 SURFACE WATER MONITORING

Surface water samples will be collected semi-annually at location SW-2. The location is shown on Figure L-2 Groundwater Monitoring Plan Sampling Locations Map. Staff gages SG-1 and SG-2 will be used for water level monitoring only.

The surface water at SW-2 will be sampled and analyzed semi-annually for the parameters listed below unless no surface water is present for the entire semi-annual period. If during the semi-annual sampling event the site is dry a sample will be taken at a later date, during the semi-annual period if possible, when surface water is present. Hardee County personnel will prepare a daily log (excluding Sundays) in order to document the occurrence or absence of water at SW-2.

## A.8 FIELD PARAMETERS

- Specific Conductivity
- pH
- Dissolved Oxygen
- Turbidity
- Temperature
- Color and Sheen by observation

## A.9 LABORATORY PARAMETERS (UNFILTERED)

- |                                   |  |
|-----------------------------------|--|
| • Zinc                            | • Total Dissolved Solids (TDS)                           |
| • Unionized Ammonia               | • Total Organic Carbon (TOC)                             |
| • Total Hardness                  | • Fecal Coliform   |
| • Biochemical Oxygen Demand (BOD) | • Total Phosphorous                                      |
| • Copper                          | • Chlorophyll A  |
| • Iron                            | • Chemical Oxygen Demand (COD)                           |
| • Mercury                         | • Total Suspended Solids (TSS)                           |
| • Nitrate                         | • <u>Total Nitrogen</u>                                  |
|                                   | • Those Parameters listed in 40 CFR part 258, Appendix I |

The following documentation will be submitted for each piezometer constructed:

- Well Identification
- Aquifer Monitored
- Screen type and slot size
- Screen length
- Screen Diameter
- Elevation at top of casing
- Boring Logs
- Total depth of wells
- Casing Diameter
- Casing type and length
- SWFWMD well construction permit Number
- Elevation at ground surface
- Latitude and longitude

During construction of the Phase I Closure per FDEP Construction Permit Number 38414-008-SC/01 piezometers P-1, P-2, and P-15 were abandoned.

### **A.13 WATER QUALITY SAMPLING AND ANALYSIS**

Groundwater monitoring wells included in this Groundwater Monitoring Plan will be sampled semi-annually and the groundwater level in each well will be recorded. Per Rule 62-701.330(3)(g), FAC water quality monitoring will be performed by an approved laboratory in accordance with Rule 62-160, FAC. All water quality sampling and testing shall be conducted in accordance with the Department's Standard Operating Procedures and all sample analyses will be conducted by a firm that is certified by the Florida Department of Health's Environmental Laboratory Certification Program.

Measures will be taken to lower turbidity by eliminating the use of bailers for sampling or purging monitoring wells. Additionally, a low flow pump will be used for purging and sample collection. Due to three well volumes will be purged from each well before a sample will be collected. The volume of water removed from each well will be recorded in the field notes.

In addition, immediately following all sampling events, the following measures will be taken:

- All wells will be locked and the keys retained by the Hardee County Solid Waste Director.
- The Solid Waste Director or appointee will immediately review all Chains of Custody, and field notes to assure all required data has been recorded.

#### **A.13.a Water Quality Monitoring Reporting Requirements**

The Water Quality Monitoring Report will summarize and interpret the water quality and leachate monitoring results and will be signed and sealed by a professional geologist or professional engineer and submitted to FDEP semi-annually and will include the following:

- A cover letter summarizing water quality standards and water quality exceedances.
- Surface water and groundwater quality monitoring results reported on the Department Form 62-~~701.900(31)~~~~522.900(2)~~ Groundwater Monitoring Report. The report will include all items listed in Rule 62-701.510(8)(a), FAC. The analytical report provided by the contract

laboratory will include the above referenced form along with field parameters, water level reading, and field observations in addition to applicable groundwater standards.

- A potentiometric surface map indicating groundwater flow and elevation.

#### **A.13.b Biennial Review of the Water Quality Report**

A Technical Report will be prepared every two and one half years and upon permit renewal. The Technical report will be prepared by and signed and seal by a professional geologist or professional engineer with experience in hydrogeologic investigations. The report shall summarize and interpret the water quality data and water level measurements collected during the past two years and one half (minimum). The report shall contain, at a minimum, the following:

1. Tabular and Graphical displays of the data, including hydrographs for all monitoring wells
2. Trend Analyses of any monitoring parameters consistently detected
3. Comparisons among shallow, middle and deep zone wells, if applicable
4. Comparison between upgradient and downgradient wells
5. Correlations between related parameters such as total dissolved solids and specific conductance
6. Discussion of erratic and/or poorly correlated data, and
7. A summary groundwater table contour map and an interpretation of the groundwater contour maps

All field and laboratory records specified shall be made available to the Department and shall be retained for the design period of the landfill.

#### **A.13.c Preventative Measures and Corrective Action**

If indicator parameters are detected in detection wells in concentrations which are significantly above background water quality, or which are at levels above the FDEP's water quality standards or criteria specified in Chapter 62-520, FAC, the permittee shall resample the wells within 30 days after the sampling data is received, to confirm the data. If the data is confirmed, the permittee shall notify the FDEP in writing within 14 days of this finding. Upon notification by the FDEP, the permittee shall initiate evaluation~~assessment~~ monitoring as follows:

1. Routine monitoring of all monitoring wells, surface water monitoring locations and leachate sampling locations shall continue according to the requirements of Chapter 62-701.510(5), FAC and this plan.
2. Within 60 days of initiating evaluation ~~assessment~~ monitoring and annually thereafter,



the permittee shall sample and analyze a representative sample of the background wells and all affected detection wells for the parameters listed in 40 CFR Part 258, Appendix II. Any new parameters detected and confirmed in the affected downgradient wells shall be added to the routine ground water monitoring parameter lists required in this Plan.

3. Within 90 days of initiating ~~evaluation assessment~~ monitoring, the permittee shall install and sample compliance monitoring wells at the compliance line of the zone of discharge and downgradient from the affected detection monitoring wells. These wells shall be installed according to the requirements of Chapter 62-701.510(3)(d), FAC and samples from these wells and the affected detection wells shall be analyzed quarterly for the parameters listed in Chapter 62-701.510(7)(a), FAC and any other parameters detected in the affected detection and downgradient wells sampled in Chapter 62-701.510(6)(a)2, FAC and annually for the parameters listed in Chapter 62-701.510(7)(c), FAC, this Plan and also 40 CFR Part 258, Appendix II. If any contaminants are detected and confirmed in compliance wells in concentrations that exceed both background levels and Department water quality standards or criteria, then the provisions of Chapter 62-701.510(6)(c), FAC apply; otherwise, the following subparagraphs apply.
4. Within 180 days of initiating ~~evaluation assessment~~ monitoring, the permittee shall submit a contamination ~~evaluation assessment~~ plan to the FDEP. This plan shall be designed to delineate the extent and cause of the contamination, to predict the likelihood that FDEP water quality standards will be violated outside the zone of discharge, and to evaluate methods to prevent any such violations. Upon approval by the FDEP, the permittee shall implement this plan and submit a contamination ~~evaluation assessment~~ report in accordance with the plan. All reasonable efforts shall be made by the permittee to prevent further degradation of water quality from the landfill activities.
- ~~3.5.~~ If the contamination evaluation report indicates that water quality standards are likely to be violated outside the zone of discharge, the permittee shall, within 90 days, submit a prevention measures plan to the FDEP. Upon approval, the permittee shall initiate prevention measures to prevent such violations.
- ~~4.6.~~ If for two (2) consecutive sampling events the concentrations of all indicator parameters and the parameters listed in 40 CFR Part 258, Appendix II are at or below background values, the permittee, upon approval by the FDEP, may discontinue ~~evaluation assessment~~ monitoring and return to the routine monitoring requirements in this Plan.

B. Corrective Actions

- ~~1. If the contamination assessment report indicates that water quality standards are likely to be violated outside the zone of discharge, the permittee shall, within 90 days, submit a remedial action plan to the FDEP. Upon approval, the permittee shall initiate corrective actions to prevent such violations.~~
- ~~2.1.~~ If any contaminants are detected and confirmed in compliance wells in concentrations

which exceed both background levels and FDEP water quality standards or criteria; ~~are detected and confirmed in detection wells in concentrations which are above FDEP water quality minimum criteria~~, the permittee shall notify the Department within 14 days of this finding and shall initiate corrective actions. Evaluation Assessment monitoring shall continue according to the requirements of this section.

#### A.1.4 SUPPLY WELLS

As referenced in the Hardee County Hydrogeological Investigation, two supply wells are located within 500 feet of the Hardee County Landfill Disposal Unit. The locations of the wells are shown on Figure L-1. These wells are constructed into the intermediate aquifer at approximately 200 feet below land surface.

The maintenance supply well will be plugged and abandoned in accordance with Rule 62-532.500(4), FAC by filling the well with grout from the bottom to the top within 120 days of permit issuance. Before abandonment of this well, a replacement supply well will be constructed. The location of the proposed supply well is shown on Figure L-1 and the construction characteristics are outlined in Table L-2.

TABLE L-2. WELL CONSTRUCTION DETAILS

Well ID	Well Diameter	Current Permit Designation	Permit Designation Phase II Section I	Permit Designation Phase II Section II	Total Depth (bls)	Casing Length (ft bls)	Screen Length	TOC Elevation (NGVD)	Ground Surface Elevation (Ft-NGVD)	Screen top/bottom (ft. bls)	screen top/bottom (NGVD)	Maximum Water Level (NGVD)	Minimum Water Level (NGVD)
MW-1	4"	Background	Background	Background	11.00'	7.80'	5'	88.22	86.46	6.0/11.0	80.46/75.46	85.44 (Feb 95)	78.27 (June 00)
MW-2	4"	Detection	Detection	Detection	10.50'	7.80'	5'	86.46	84.56	5.5/10.5	79.06/74.06	82.46 (Dec 02)	75.56 (June 00)
MW-3	2"	Piezometer	Piezometer	Abandoned	unknown	unknown	unknown	88.06	86.46	unknown	unknown	unknown	unknown
MW-4	2"	Background	Background	Background	18.90'	12.20'	10'	87.15	84.22	8.9/18.9	75.32/65.32	83.06 (Dec 02)	76.56 (June 00)
MW-5	2"	Detection	Detection	Abandoned	18.10'	11.00'	10'	89.12	86.28	8.1/18.1	78.18/68.18	82.91 (Dec 97)	76.46 ( June 00)
MW-6	2"	Piezometer	Piezometer	Piezometer	13.50'	3.50'	10'	88.25	85.06	3.5/13.5	81.56/71.56	83.11 (Dec 02)	75.31 (June 01)
MW-7	2"	Piezometer	Piezometer	Piezometer	13.50'	3.50'	10'	87.88	84.98	3.5/13.5	81.48/71.48	83.11 (Dec 02)	75.31 (June 01)
MW-8	2"	Detection	Detection	Abandoned	13.50'	3.50'	10'	89.39	86.63	3.5/13.5	83.13/73.13	83.18 (Dec 02)	75.58 (June 01)
MW-9	2"	Abandoned	Abandoned	Abandoned	13.50'	3.50'	10'	88.71	85.90	3.5/13.5	82.40/72.40	83.11 (Dec 02)	75.31 (June 01)
MW-10*	2"	Abandoned	Abandoned	Abandoned	12.00'	2.00'	10'	88.0**	85.0**	3.8/12.0	81.2/71.2**	82.5***	74.5 (MW-6 Jun 00)***
MW-10R	2"	Detection	Detection	Detection	20.00	5.00	15'	88.57	85.49	5/20	80.49/65.49	78.19 (Jan 08)	78.19 (Jan 08)
MW-11	2"	Detection	Detection	Detection	12.00'	2.00'	10'	88.11	85.17	2.0/12.0	79.17/69.17	77.76 (Jan 08)	77.76 (Jan 08)
MW-12*	2"	Abandoned	Abandoned	Abandoned	17.00'	2.00'	15'	88.3**	85.3**	2.0/12.0	83.3/68.3**	82***	74.4 (MW-7 Jun 00)***
MW-12R	2"	Detection	Detection	Detection	17.00'	2.00'	15'	89.00	85.71	5/20	80.71/65.71	77.81 (Jan 08)	77.81 (Jan 08)
MW-13****	2"	Proposed	Phase II Section II	Detection	17.00'	2.00'	15'	88.9 87.4****	85.9 84.4****	2.0/17.0	83.9 82.4/68.9 67.4****	83***	74.4 (MW-7 Jun 00)***
MW-14****	2"	Proposed	Phase II Section II	Detection	17.00'	2.00'	15'	89.0 88.5****	86.0 85.5****	2.0/17.0 4.5-0	84.0 83.5/69.0 68.5****	82***	76.6 (MW-5 Jun 00)***
Maintenance Supply Well	4"	Supply Well	To Be Abandoned	To Be Abandoned	197'	63'	NA	unknown	unknown	NA	NA	NM	NM
Material Recover Facility Supply Well	4"	Supply Well	Supply Well	Supply Well	200'	67'	NA	unknown	unknown	NA	NA	NM	NM
Proposed Supply Well*	4"	Proposed	Supply Well	Supply Well	197'	63'	NA	TBD	TBD	NA	NA	NM	NM

NOTES:

\* = Abandoned on January 22, 2008.

\*\* = Approximate Elevation based upon March 2003 Aerial Topography Survey of the Site by I.F. Rooks and Associates

\*\*\* =Approximate based on potentiometric flow maps

\*\*\*\* = Approximate elevation based upon April 3, 2012 Aerial Topography Survey of the site by Pickett & Associates, Inc.

TBD =To Be Determined

NA =Not Applicable

NM = Not Measured

Attachment H

Jetclean Report December 2012

# **FLORIDA JETCLEAN**

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HIGH PRESSURE WATER JETTING  
PIPELINE VIDEO INSPECTION (EX)  
VACUUM TRUCK SERVICES  
LASER PROFILING / NO DIG REPAIRS

7538 DUNBRIDGE DR., ODESSA, FL 33556  
TEL: 800-226-8013 FAX: 813-926-4616  
WEB: WWW.FLORIDAJETCLEAN.COM  
EMAIL: FLORIDAJETCLEAN@YAHOO.COM

## **Hardee County Landfill 2012 LCS & GCS Pipe Maintenance Phase I LCS & Phase II LCS/GCS**

### **Work Performed December 2012**

Conducted By:  
**Florida Jetclean**  
**800-226-8013**

# FLORIDA JETCLEAN

HIGH PRESSURE WATER JETTING  
PIPELINE VIDEO INSPECTION (EX)  
VACUUM TRUCK SERVICES  
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WEB: WWW.FLORIDAJETCLEAN.COM  
EMAIL: FLORIDAJETCLEAN@YAHOO.COM

DATE : 12/31/2012  
TO : Teresa Carver - Hardee County, Shane Fischer – SCS Engineers  
FROM : Ralph Calistri (floridajetclean@yahoo.com)  
SUBJECT : Hardee County LF – Phase I LCS & Phase II LCS/GCS - Maintenance

Florida Jetclean completed the high-pressure water-jetting and explosion-proof video-inspection work at the Hardee County landfill (Phase I Leachate Collection & Phase II Leachate and Groundwater Collection) on 12/18/2012. This report contains the applicable Jetting Logs, CCTV Survey List, Pipe Graphic Reports, and DVD inspection footage for complete reference.

## **PHASE I - LEACHATE COLLECTION SYSTEM:**

All accessible Phase I leachate collection piping was jetcleaned utilizing high-pressure water-jetting nozzle. Upon completion of jetcleaning activities, all debris, silt, and sludge were vacuum removed from the accessible Phase I manholes and lift station. Manholes 5, 6, and 7 could not be located and provided no access into the leachate collection system, but the adjoining pipe segments were also jetcleaned from the manhole(s) on the other end of the pipes where possible. Jetting distances achieved in each access location are documented in the below table:

### **\*\*\* JETTING LOG \*\*\***

<b><u>LOCATION</u></b>	<b><u>ACHIEVED DISTANCE (ft) *</u></b>	<b><u>RESULT</u></b>
Manhole 1 to 2	447'	Entire pipe cleaned
Manhole 2 to 3	397'	Entire pipe cleaned
Manhole 4 to 3	432'	Entire pipe cleaned
Manhole 4 to 5	390'	Entire pipe cleaned
Manhole 5 to 6	395'	Entire pipe cleaned
Manhole LS to 7	617'	Entire pipe cleaned
Manhole 7 to 6	154'	Entire pipe cleaned
Manhole 1 to 9	120'	Entire pipe cleaned
Manhole 9 to LS	100'	Entire pipe cleaned

The explosion-proof video-inspections of the Phase I leachate collection pipes (see attached CCTV Survey List, Pipe Graphic Reports and DVD inspection footage) show that with the exception of the following noted areas of concern, all pipes viewed with the inspection camera were clean and defect free. In any areas where video quality was obscured by high liquid levels, the fact that both the inspection camera and the high-pressure jetting nozzle were not restricted through those areas in any way would support the contention that those areas of the leachate collection system are also in good working order.

- Manholes 5, 6, and 7 could not be located and therefore provided no access into the leachate collection system for pipe video-inspections.
- Pipe runs MH9-MH1, MH9-LS, and LS-MH7 had high leachate levels and could not be pumped further down by landfill staff. As a result, the pipe openings in these manholes were submerged under liquid and could not be accessed for proper video-inspection camera insertion.
- MH4-MH5 - The video-inspection camera could not progress past 276.1' of the total pipe length of 390'. Since the inspection-camera was under murky leachate at the point of the stoppage, the reason for the camera's impasse could not be visually identified. Since MH5 could not be located, there was no additional access to attempt to inspect the pipe from the other side to better identify the cause of the camera stoppage. It is important to note that the jetting nozzle was able to pass through this entire pipe length without obstruction, indicating the existence of some capability for leachate flow.

### **PHASE II SECTION I - GROUNDWATER COLLECTION SYSTEM:**

All Phase II - Section I groundwater collection pipes were jetcleaned utilizing high-pressure water-jetting nozzle. Upon completion of jetcleaning activities, all debris, silt, and sludge were vacuum removed from the accessible wet well. Jetting distances achieved in each access location are documented in the below table:

#### **\*\*\* JETTING LOG \*\*\***

<u>LOCATION</u>	<u>ACHIEVED DISTANCE (ft) *</u>	<u>RESULT</u>
CO1	800'	Entire pipe cleaned
CO2	730'	Entire pipe cleaned
CO3	710'	Entire pipe cleaned
CO4	690'	Entire pipe cleaned
CO5	670'	Entire pipe cleaned
CO6	650'	Entire pipe cleaned
CO7	640'	Entire pipe cleaned
CO8	630'	Entire pipe cleaned
CO9	620'	Entire pipe cleaned
Wetwell to Header	180'	Entire pipe cleaned

The explosion-proof video-inspections of the Phase II - Section I groundwater collection pipes (see attached CCTV Survey List, Pipe Graphic Reports and DVD inspection footage) show that all pipes viewed with the inspection camera were clean and defect free. In any areas where video quality was obscured by high liquid levels, the fact that both the inspection camera and the high-pressure jetting nozzle were not restricted through those areas in any way would support the contention that those areas of the groundwater collection system are also in good working order.

### **PHASE II SECTION I - LEACHATE COLLECTION SYSTEM:**

All accessible Phase II - Section I leachate collection piping was jetcleaned utilizing high-pressure water-jetting nozzle. Upon completion of jetcleaning activities, all debris, silt, and sludge were vacuum removed from the accessible Phase II - Section I sump. Jetting distances achieved in each access location are documented in the below table:

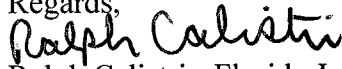
\*\*\* JETTING LOG \*\*\*

<u>LOCATION</u>	<u>ACHIEVED DISTANCE ft) *</u>	<u>RESULT</u>
South CO to Sump.Riser	690'	Entire pipe cleaned
Center CO (West to East)	620'	Entire pipe cleaned
North CO to Sump.Riser	562'	Entire pipe cleaned
Detection CO to Sump	204'	Entire pipe cleaned

The explosion-proof video-inspections of the Phase II - Section I leachate collection pipes (see attached CCTV Survey List, Pipe Graphic Reports and DVD inspection footage) show that all pipes viewed with the inspection camera were clean and defect free. In any areas where video quality was obscured by high liquid levels, the fact that both the inspection camera and the high-pressure jetting nozzle were not restricted through those areas in any way would support the contention that those areas of the leachate collection system are also in good working order.

Please call with questions or concerns at 800-226-8013.

Regards,



Ralph Calistri - Florida Jetclean



# CCTV Surveys List for SCS

Number of surveys in this list is 18 as of Wednesday, December 19, 2012

Unit of measure: ft

Setup Date	Street	Start MH	Finish MH	Dir	Size inch	Pre Clean	Vid Cassette	Scheduled Length	Surveyed Length
1	GROUND WATER SYSTEM	GWCO.1	HEADER.1	D	8	Y	DVD.1	800.4	800.4
2	GROUND WATER SYSTEM	GW CO.2	HEADER.2	D	8	Y	DVD.1	712.0	712.0
3	GROUND WATER SYSTEM	GW CO.3	HEADER.3	D	8	Y	DVD.1	689.4	689.4
4	GROUND WATER SYSTEM	GW CO.4	HEADER.4	D	8	Y	DVD.1	677.7	677.7
5	GROUND WATER SYSTEM	GW CO.5	HEADER.5	D	8	Y	DVD.1	662.7	662.7
6	GROUND WATER SYSTEM	GW CO.6	HEADER.6	D	8	Y	DVD.2	650.9	650.9
7	GROUND WATER SYSTEM	GW CO.7	HEADER.7	D	8	Y	DVD.2	638.2	638.2
8	GROUND WATER SYSTEM	GW CO.8	HEADER.8	D	8	Y	DVD.2	626.8	626.8
9	GROUND WATER SYSTEM	GW CO.9	HEADER.9	D	8	Y	DVD.2	619.3	619.3
10	GROUND WATER SYSTEM	WET WELL	HEADER	U	12	Y	DVD.2	68.1	68.1
11	LEACHATE COLLECTION SYSTEM	SOUTH CO	SUMP RISER	D	8	Y	DVD.3	690.9	690.9
12	LEACHATE COLLECTION SYSTEM	W.CENT.CO	E.CENT.CO	D	8	Y	DVD.3	620.8	620.8
13	LEACHATE COLLECTION SYSTEM	NORTH.CO	SUMP RISER	D	8	Y	DVD.3	561.2	561.2
14	LEACHATE COLLECTION SYSTEM	DET CO	DET.SUMP	D	8	Y	DVD.3	204.2	204.2
15	LEACHATE COLL PHASE.1	MH.4	MH.5	U	8	N	DVD.3	389.0	276.1
16	LEACHATE COLL PHASE.1	MH.4	MH.3	D	8	N	DVD.3	432.4	432.4
17	LEACHATE COLL PHASE.1	MH.2	MH.3	U	8	N	DVD.3	396.3	396.3
18	LEACHATE COLL PHASE.1	MH.2	MH.1	D	8	N	DVD.3	446.6	446.6

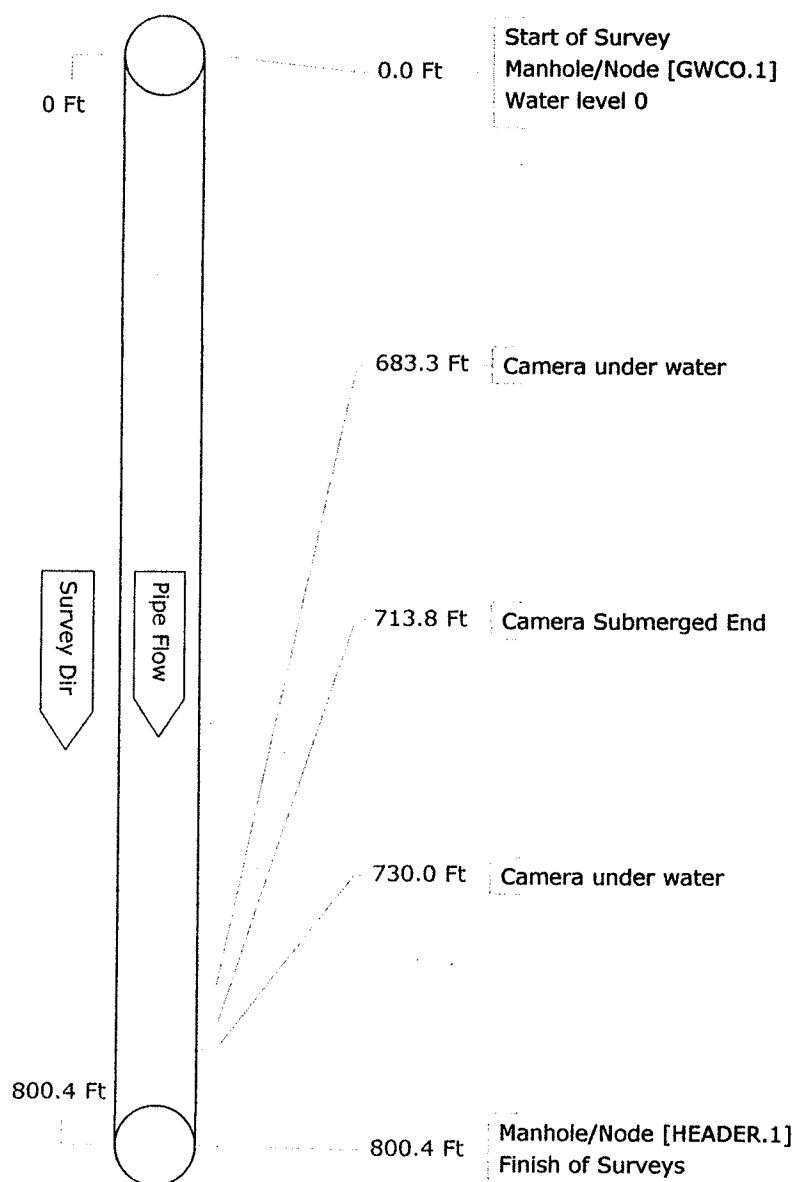
Total Scheduled Length  
Total Length Surveyed

9,886.9

9,774.0

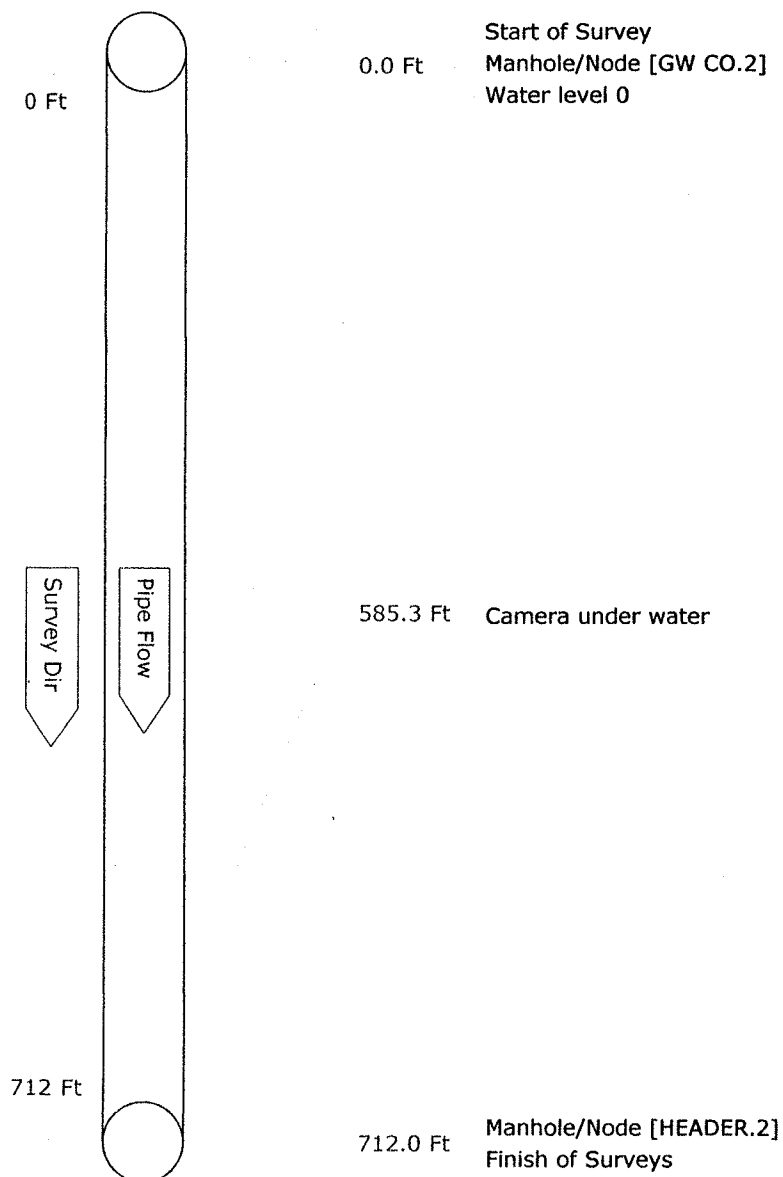
**Pipe Graphic Report of PLR GWCO.1 X for SCS**

<b>Work Order</b> 2012	<b>Contract</b>	<b>Video</b> DVD.1	<b>Setup</b> 1
<b>Facility</b>	<b>Operator</b> Supervisor	<b>Van Ref</b> 3	<b>Surveyed On</b>
<b>Street Name</b> GROUND WATER SYSTEM	<b>City</b>	HARDEE CO. LANDFILL	
<b>Location type</b> LANDFILL			
<b>Surface</b> Mown lawn			
<b>Survey purpose</b> Re-survey for any reason	<b>Weather</b> Dry		
<b>Pipe Use</b> LEACHATE	<b>Schedule length</b> 800.4 Ft	<b>From</b> GWCO.1	<b>Depth</b> Ft
<b>Shape</b> Circular	<b>Size</b> 8 <b>by</b> ins	<b>To</b> HEADER.1	<b>Depth</b> Ft
<b>Material</b> Polyethylene - High density	<b>Joint spacing</b> Ft	<b>Direction</b> Downstream	
<b>Lining</b>	<b>Year laid</b>	<b>Pre-clean</b> Y	<b>Last cleaned</b>
<b>General note</b> VIDEO INSPECTION OF GROUND WATER PIPEING SYSTEM			
<b>Location note</b> PHASE2 SECTION1 CLEANOUTS FOR GROUND WATER.			



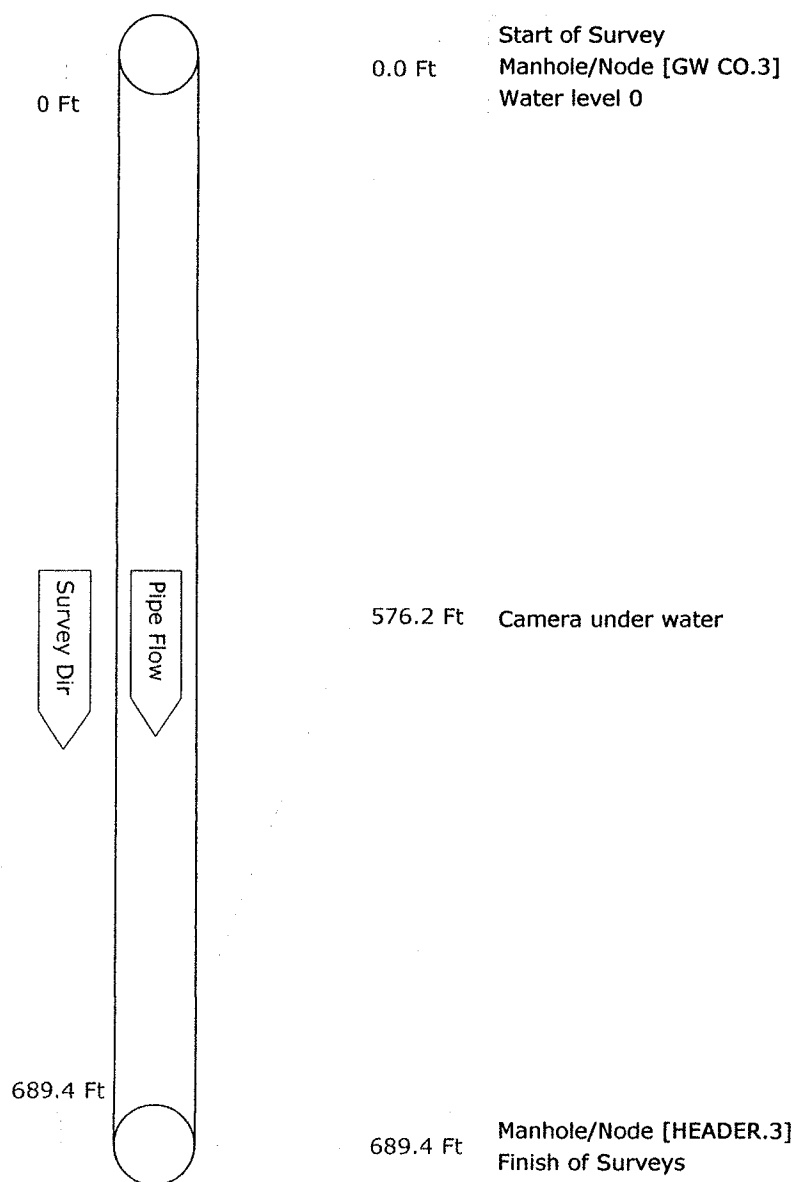
Pipe Graphic Report of PLR GW CO.2 X for SCS

<b>Work Order</b>	2012	<b>Contract</b>		<b>Video</b>	DVD.1	<b>Setup</b>	2
<b>Facility</b>		<b>Operator</b>	Supervisor	<b>Van Ref</b>	3	<b>Surveyed On</b>	12/17/2012
<b>Street Name</b>	GROUND WATER SYSTEM		<b>City</b>	HARDEE CO. LANDFILL			
<b>Location type</b>	LANDFILL						
<b>Surface</b>	Mown lawn						
<b>Survey purpose</b>	Re-survey for any reason				<b>Weather</b>	Dry	
<b>Pipe Use</b>	LEACHATE	<b>Schedule length</b>	712.0 Ft	<b>From</b>	GW CO.2	<b>Depth</b>	Ft
<b>Shape</b>	Circular	<b>Size</b>	8 by ins	<b>To</b>	HEADER.2	<b>Depth</b>	Ft
<b>Material</b>	Polyethylene - High density	<b>Joint spacing</b>	Ft	<b>Direction</b>	Downstream		
<b>Lining</b>		<b>Year laid</b>		<b>Pre-clean</b>	Y	<b>Last cleaned</b>	
<b>General note</b>	VIDEO INSPECTION OF GROUND WATER PIPEING SYSTEM						
<b>Location note</b>	PHASE2 SECTION1 CLEANOUTS FOR GROUND WATER.						



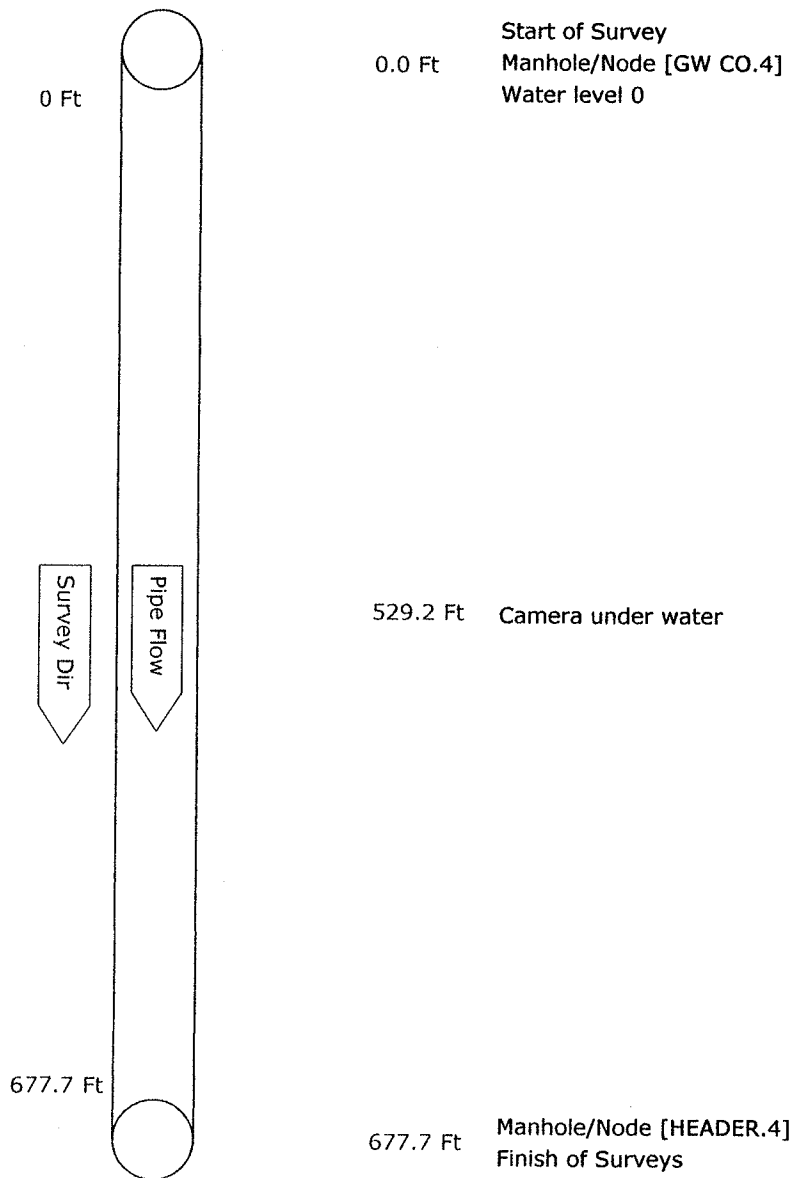
**Pipe Graphic Report of PLR GW CO.3 X for SCS**

<b>Work Order</b> 2012	<b>Contract</b>	<b>Video</b> DVD.1	<b>Setup</b> 3
<b>Facility</b>	<b>Operator</b> Supervisor	<b>Van Ref</b> 3	<b>Surveyed On</b> 12/17/2012
<b>Street Name</b> GROUND WATER SYSTEM	<b>City</b>	HARDEE CO. LANDFILL	
<b>Location type</b> LANDFILL			
<b>Surface</b> Mown lawn			
<b>Survey purpose</b> Re-survey for any reason	<b>Weather</b> Dry		
<b>Pipe Use</b> LEACHATE	<b>Schedule length</b> 689.4 Ft	<b>From</b> GW CO.3	<b>Depth</b> Ft
<b>Shape</b> Circular	<b>Size</b> 8 by ins	<b>To</b> HEADER.3	<b>Depth</b> Ft
<b>Material</b> Polyethylene - High density	<b>Joint spacing</b> Ft	<b>Direction</b> Downstream	
<b>Lining</b>	<b>Year laid</b>	<b>Pre-clean</b> Y	<b>Last cleaned</b>
<b>General note</b> VIDEO INSPECTION OF GROUND WATER PIPEING SYSTEM			
<b>Location note</b> PHASE2 SECTION1 CLEANOUTS FOR GROUND WATER.			



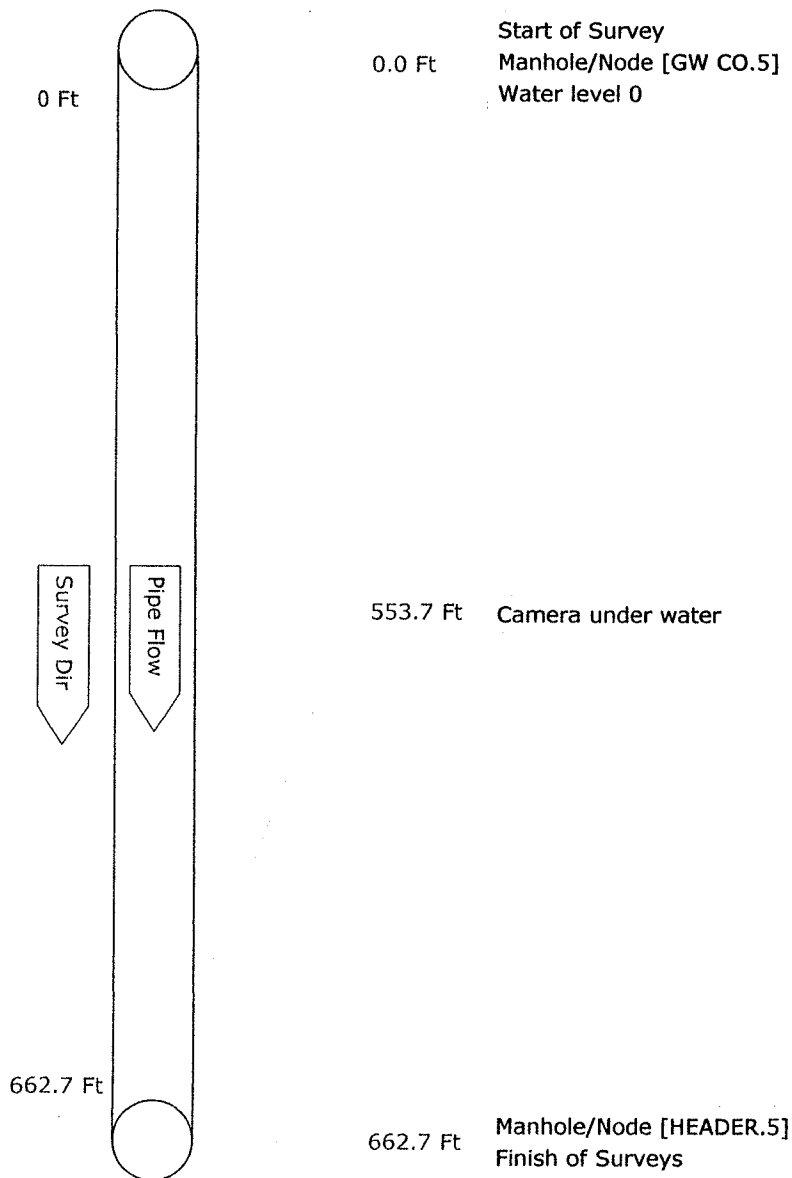
Pipe Graphic Report of PLR GW CO.4 X for SCS

Work Order	2012	Contract		Video	DVD.1	Setup	4
Facility		Operator	Supervisor	Van Ref	3	Surveyed On	12/17/2012
Street Name	GROUND WATER SYSTEM		City	HARDEE CO. LANDFILL			
Location type	LANDFILL						
Surface	Mown lawn						
Survey purpose	Re-survey for any reason			Weather Dry			
Pipe Use	LEACHATE	Schedule length	677.7 Ft	From	GW CO.4	Depth	Ft
Shape	Circular	Size 8 by	ins	To	HEADER.4	Depth	Ft
Material	Polyethylene - High density	Joint spacing	Ft	Direction	Downstream		
Lining		Year laid		Pre-clean	Y	Last cleaned	
General note	VIDEO INSPECTION OF GROUND WATER PIPEING SYSTEM						
Location note	PHASE2 SECTION1 CLEANOUTS FOR GROUND WATER.						



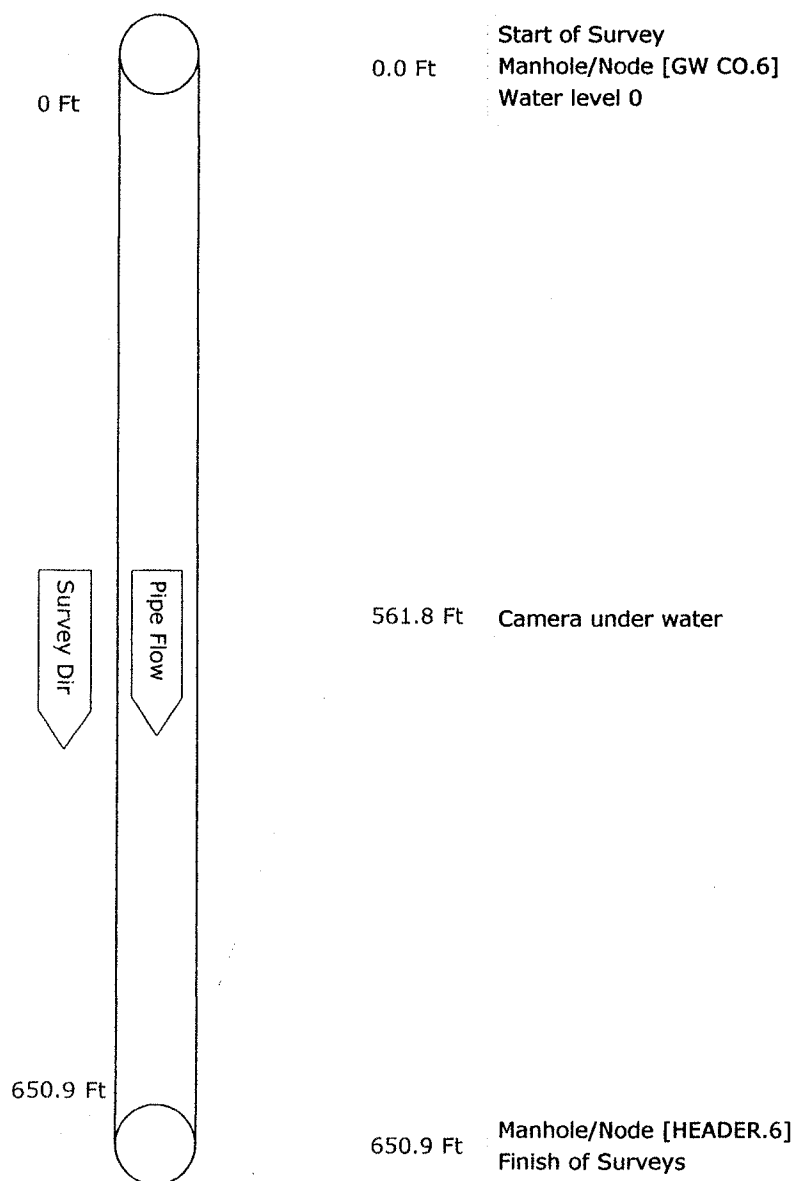
Pipe Graphic Report of PLR GW CO.5 X for SCS

Work Order	2012	Contract		Video	DVD.1	Setup	5
Facility		Operator	Supervisor	Van Ref	3	Surveyed On	12/17/2012
Street Name	GROUND WATER SYSTEM		City	HARDEE CO. LANDFILL			
Location type	LANDFILL						
Surface	Mown lawn						
Survey purpose	Re-survey for any reason			Weather Dry			
Pipe Use	LEACHATE	Schedule length	662.7 Ft	From	GW CO.5	Depth	Ft
Shape	Circular	Size 8 by	ins	To	HEADER.5	Depth	Ft
Material	Polyethylene - High density	Joint spacing	Ft	Direction	Downstream		
Lining		Year laid		Pre-clean	Y	Last cleaned	
General note	VIDEO INSPECTION OF GROUND WATER PIPEING SYSTEM						
Location note	PHASE2 SECTION1 CLEANOUTS FOR GROUND WATER.						



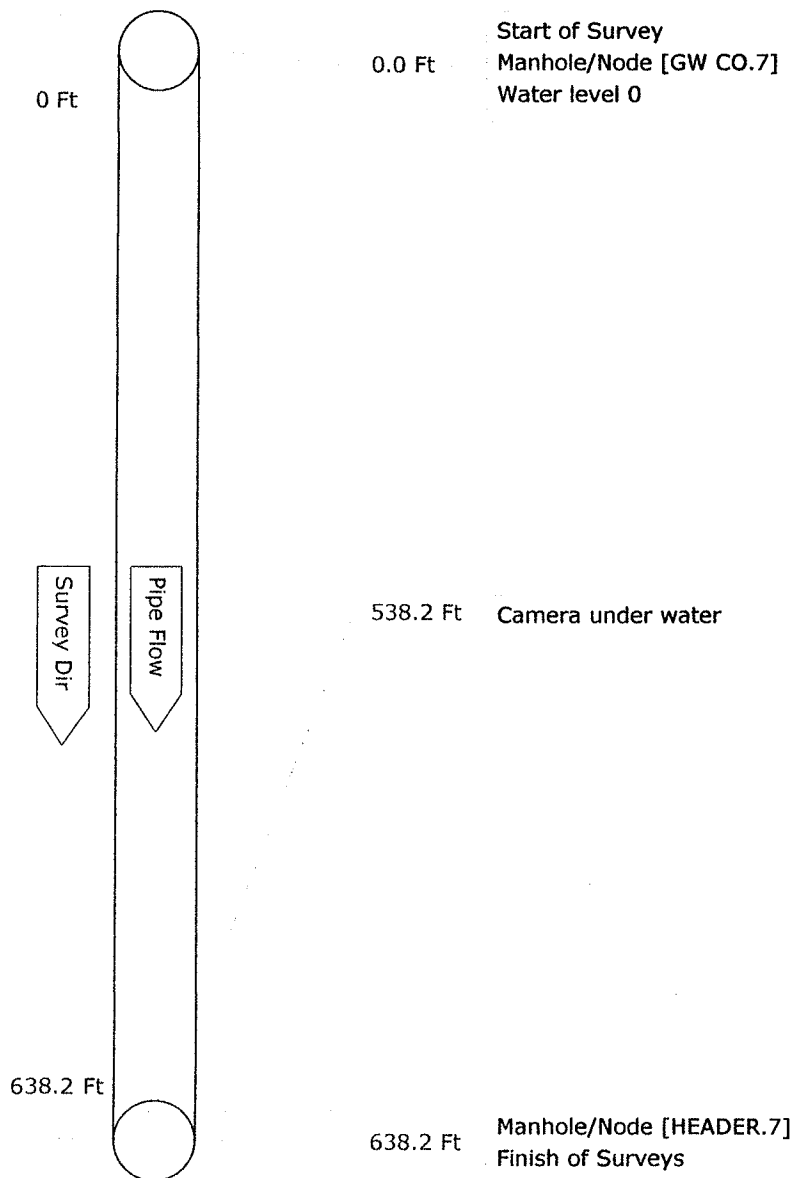
Pipe Graphic Report of PLR GW CO.6 X for SCS

<b>Work Order</b>	2012	<b>Contract</b>		<b>Video</b>	DVD.2	<b>Setup</b>	6
<b>Facility</b>		<b>Operator</b>	Supervisor	<b>Van Ref</b>	3	<b>Surveyed On</b>	12/17/2012
<b>Street Name</b>	GROUND WATER SYSTEM		<b>City</b>	HARDEE CO. LANDFILL			
<b>Location type</b>	LANDFILL						
<b>Surface</b>	Mown lawn						
<b>Survey purpose</b>	Re-survey for any reason			<b>Weather</b>	Dry		
<b>Pipe Use</b>	LEACHATE	<b>Schedule length</b>	650.9 Ft	<b>From</b>	GW CO.6	<b>Depth</b>	Ft
<b>Shape</b>	Circular	<b>Size</b>	8 by ins	<b>To</b>	HEADER.6	<b>Depth</b>	Ft
<b>Material</b>	Polyethylene - High density	<b>Joint spacing</b>	Ft	<b>Direction</b>	Downstream		
<b>Lining</b>		<b>Year laid</b>		<b>Pre-clean</b>	Y	<b>Last cleaned</b>	
<b>General note</b>	VIDEO INSPECTION OF GROUND WATER PIPEING SYSTEM						
<b>Location note</b>	PHASE2 SECTION1 CLEANOUTS FOR GROUND WATER.						



**Pipe Graphic Report of PLR GW CO.7 X for SCS**

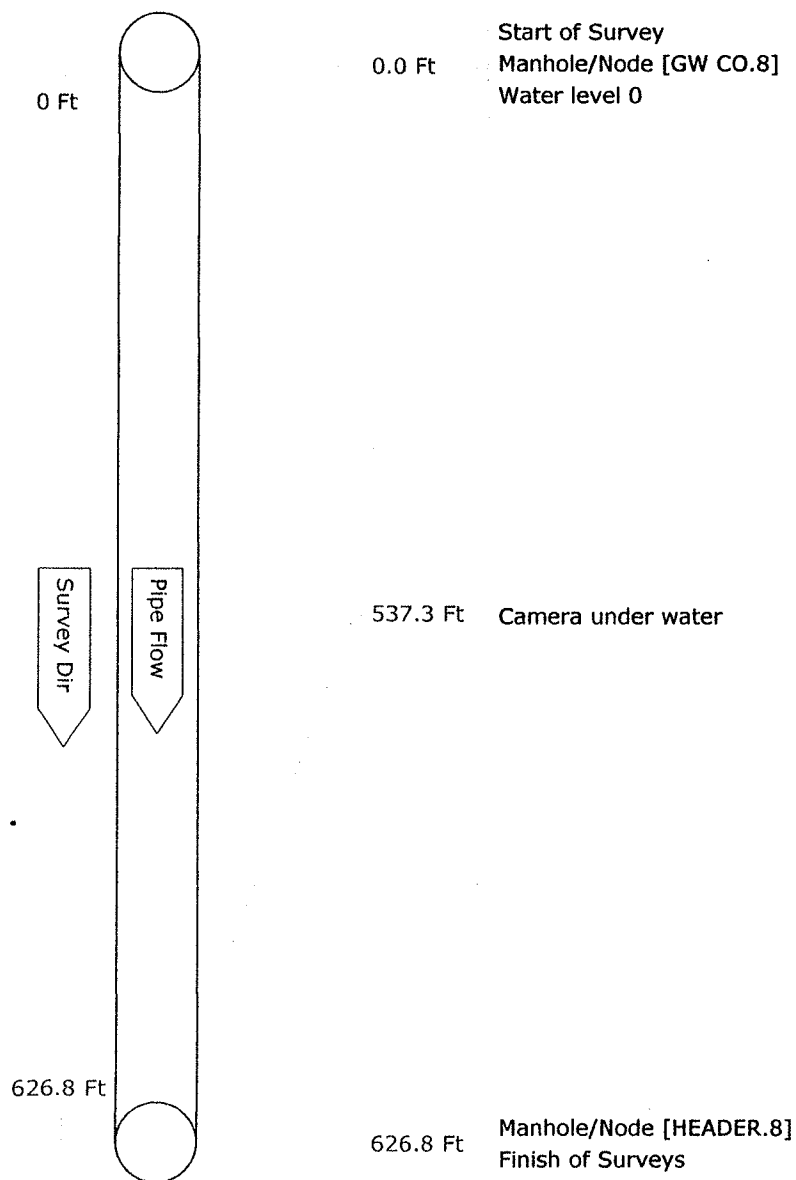
<b>Work Order</b>	2012	<b>Contract</b>		<b>Video</b>	DVD.2	<b>Setup</b>	7
<b>Facility</b>		<b>Operator</b>	Supervisor	<b>Van Ref</b>	3	<b>Surveyed On</b>	12/18/2012
<b>Street Name</b>	GROUND WATER SYSTEM		<b>City</b>	HARDEE CO. LANDFILL			
<b>Location type</b>	LANDFILL						
<b>Surface</b>	Mown lawn						
<b>Survey purpose</b>	Re-survey for any reason				<b>Weather</b>	Dry	
<b>Pipe Use</b>	LEACHATE		<b>Schedule length</b>	638.2	Ft	<b>From</b>	GW CO.7
<b>Shape</b>	Circular		<b>Size</b>	8	by	ins	<b>To</b>
<b>Material</b>	Polyethylene - High density		<b>Joint spacing</b>	Ft		<b>Direction</b>	Downstream
<b>Lining</b>			<b>Year laid</b>			<b>Pre-clean</b>	Y
						<b>Last cleaned</b>	
<b>General note</b>	VIDEO INSPECTION OF GROUND WATER PIPEING SYSTEM						
<b>Location note</b>	PHASE2 SECTION1 CLEANOUTS FOR GROUND WATER SYSTEM.						





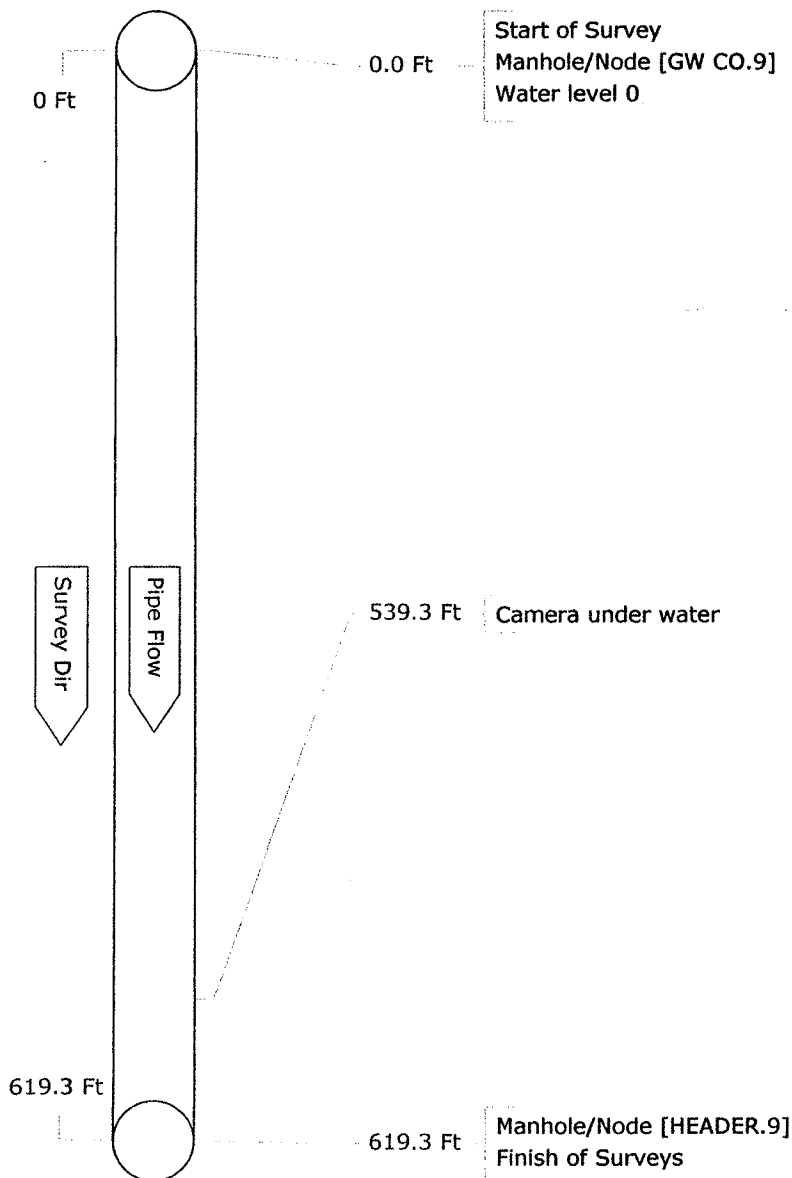
Pipe Graphic Report of PLR GW CO.8 X for SCS

<b>Work Order</b> 2012	<b>Contract</b>	<b>Video</b> DVD.2	<b>Setup</b> 8
<b>Facility</b>	<b>Operator</b> Supervisor	<b>Van Ref</b> 3	<b>Surveyed On</b> 12/18/2012
<b>Street Name</b> GROUND WATER SYSTEM	<b>City</b>	HARDEE CO. LANDFILL	
<b>Location type</b> LANDFILL			
<b>Surface</b> Mown lawn			
<b>Survey purpose</b> Re-survey for any reason	<b>Weather</b> Dry		
<b>Pipe Use</b> LEACHATE	<b>Schedule length</b> 626.8 Ft	<b>From</b> GW CO.8	<b>Depth</b> Ft
<b>Shape</b> Circular	<b>Size</b> 8 by ins	<b>To</b> HEADER.8	<b>Depth</b> Ft
<b>Material</b> Polyethylene - High density	<b>Joint spacing</b> Ft	<b>Direction</b> Downstream	
<b>Lining</b>	<b>Year laid</b>	<b>Pre-clean</b> Y	<b>Last cleaned</b>
<b>General note</b> VIDEO INSPECTION OF GROUND WATER PIPEING SYSTEM			
<b>Location note</b> PHASE2 SECTION1 CLEANOUTS FOR GROUND WATER.			



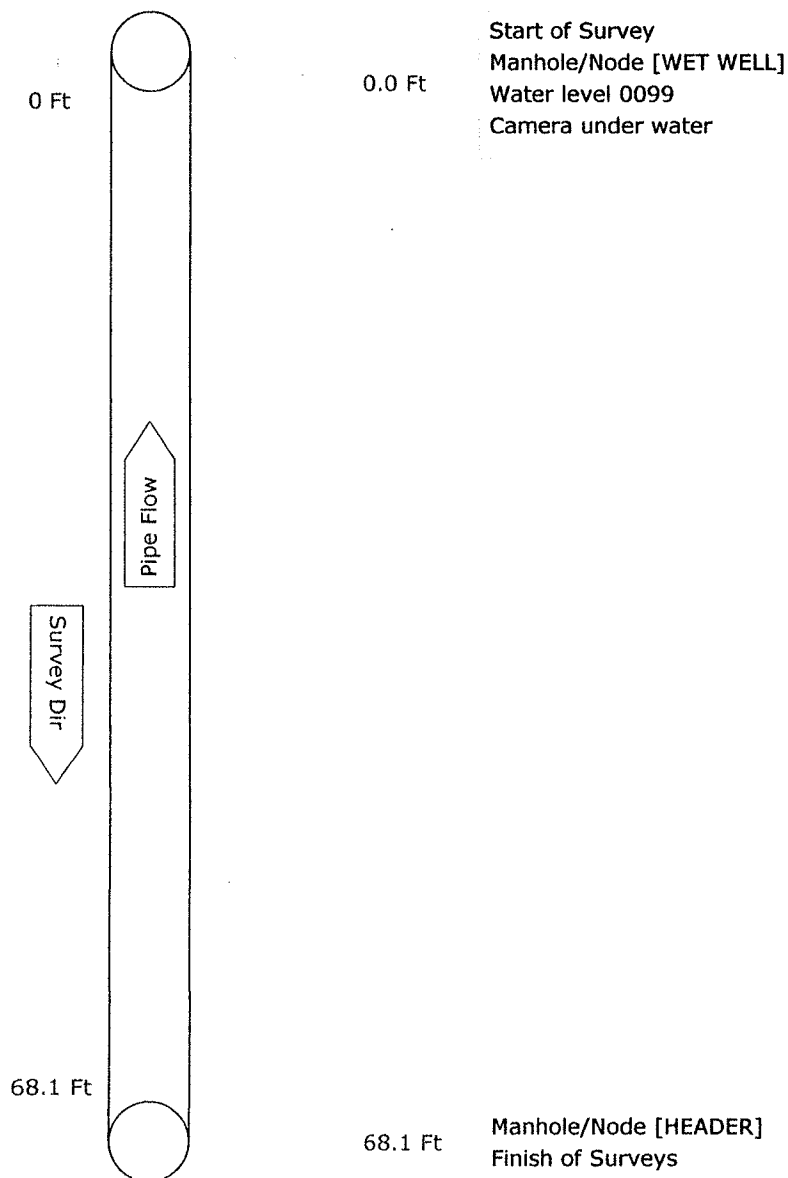
**Pipe Graphic Report of PLR GW CO.9 X for SCS**

<b>Work Order</b> 2012	<b>Contract</b>	<b>Video</b> DVD.2	<b>Setup</b> 9
<b>Facility</b>	<b>Operator</b> Supervisor	<b>Van Ref</b> 3	<b>Surveyed On</b> 12/18/2012
<b>Street Name</b> GROUND WATER SYSTEM	<b>City</b>	HARDEE CO. LANDFILL	
<b>Location type</b> LANDFILL			
<b>Surface</b> Mown lawn			
<b>Survey purpose</b> Re-survey for any reason	<b>Weather</b> Dry		
<b>Pipe Use</b> LEACHATE	<b>Schedule length</b> 619.3 Ft	<b>From</b> GW CO.9	<b>Depth</b> Ft
<b>Shape</b> Circular	<b>Size</b> 8 by ins	<b>To</b> HEADER.9	<b>Depth</b> Ft
<b>Material</b> Polyethylene - High density	<b>Joint spacing</b> Ft	<b>Direction</b> Downstream	
<b>Lining</b>	<b>Year laid</b>	<b>Pre-clean</b> Y	<b>Last cleaned</b>
<b>General note</b> VIDEO INSPECTION OF GROUND WATER PIPEING SYSTEM			
<b>Location note</b> PHASE2 SECTION1 CLEANOUTS FOR GROUND WATER.			



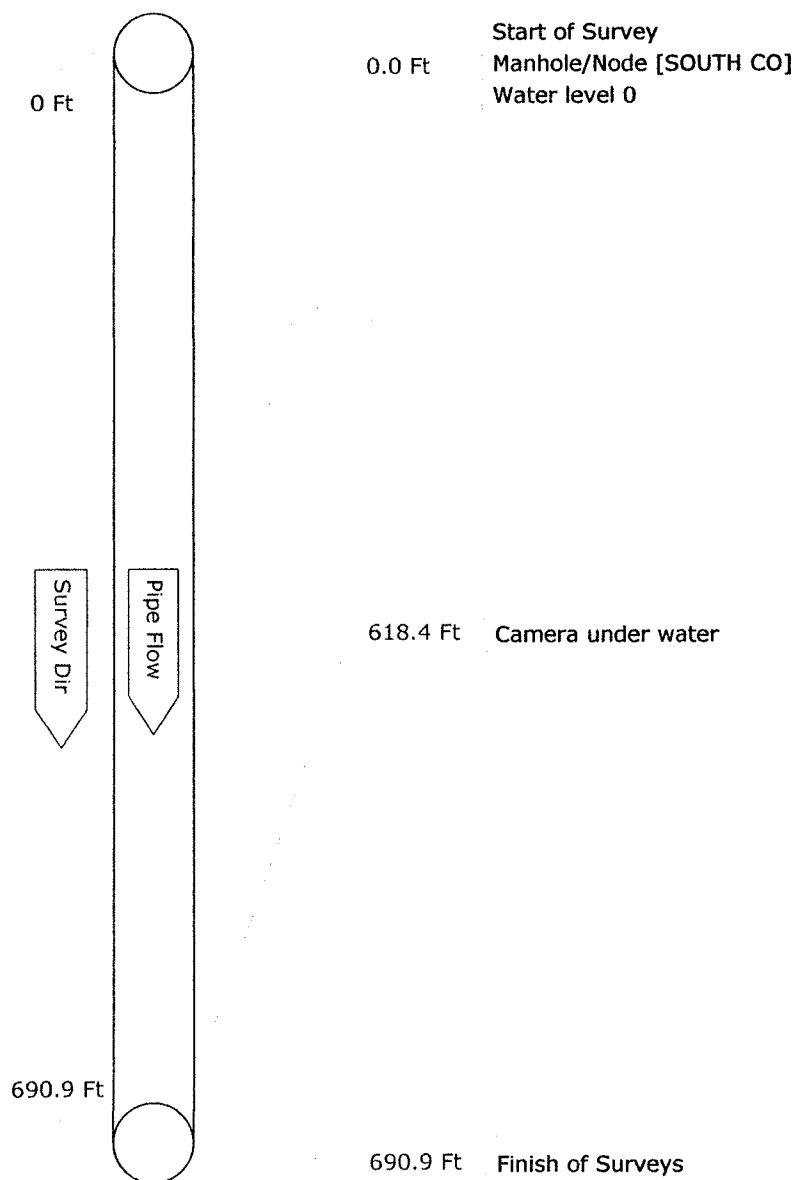
Pipe Graphic Report of PLR HEADER X for SCS

<b>Work Order</b> 2012	<b>Contract</b>	<b>Video</b> DVD.2	<b>Setup</b> 10
<b>Facility</b>	<b>Operator</b> Supervisor	<b>Van Ref</b> 3	<b>Surveyed On</b> 12/18/2012
<b>Street Name</b> GROUND WATER SYSTEM	<b>City</b>	HARDEE CO. LANDFILL	
<b>Location type</b> LANDFILL			
<b>Surface</b> Mown lawn			
<b>Survey purpose</b> Re-survey for any reason	<b>Weather</b> Dry		
<b>Pipe Use</b> LEACHATE	<b>Schedule length</b> 68.1 Ft	<b>From</b> WET WELL	<b>Depth</b> Ft
<b>Shape</b> Circular	<b>Size</b> 12 by ins	<b>To</b> HEADER	<b>Depth</b> Ft
<b>Material</b> Polyethylene - High density	<b>Joint spacing</b> Ft	<b>Direction</b> Upstream	
<b>Lining</b>	<b>Year laid</b>	<b>Pre-clean</b> Y	<b>Last cleaned</b>
<b>General note</b> VIDEO INSPECTION OF GROUND WATER PIPEING SYSTEM			
<b>Location note</b> PHASE2 SECTION1 CLEANOUTS FOR GROUND WATER.			



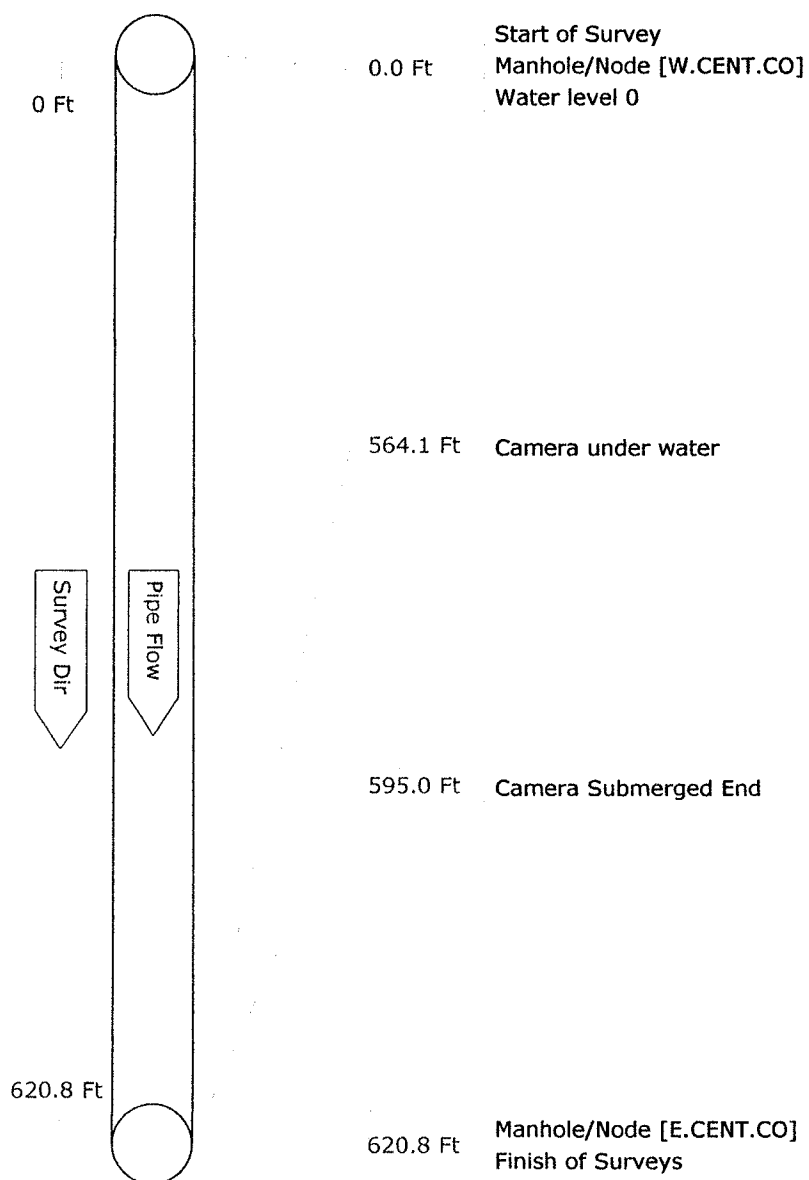
**Pipe Graphic Report of PLR SOUTH CO X for SCS**

<b>Work Order</b> 2012	<b>Contract</b>	<b>Video</b> DVD.3	<b>Setup</b> 11
<b>Facility</b>	<b>Operator</b> Supervisor	<b>Van Ref</b> 3	<b>Surveyed On</b> 12/18/2012
<b>Street Name</b> LEACHATE COLLECTION SYSTEM	<b>City</b> HARDEE CO. LANDFILL		
<b>Location type</b> LANDFILL			
<b>Surface</b> Mown lawn			
<b>Survey purpose</b> Re-survey for any reason	<b>Weather</b> Dry		
<b>Pipe Use</b> LEACHATE	<b>Schedule length</b> 690.9 Ft	<b>From</b> SOUTH CO	<b>Depth</b> Ft
<b>Shape</b> Circular	<b>Size</b> 8 by ins	<b>To</b> SUMP RISER	<b>Depth</b> Ft
<b>Material</b> Polyethylene - High density	<b>Joint spacing</b> Ft	<b>Direction</b> Downstream	
<b>Lining</b>	<b>Year laid</b>	<b>Pre-clean</b> Y	<b>Last cleaned</b>
<b>General note</b> VIDEO INSPECTION OF LEACHATE COLLECTION SYSTEM			
<b>Location note</b> PHASE2 SECTION1 CLEANOUTS FOR LEACHATE SYSTEM.			



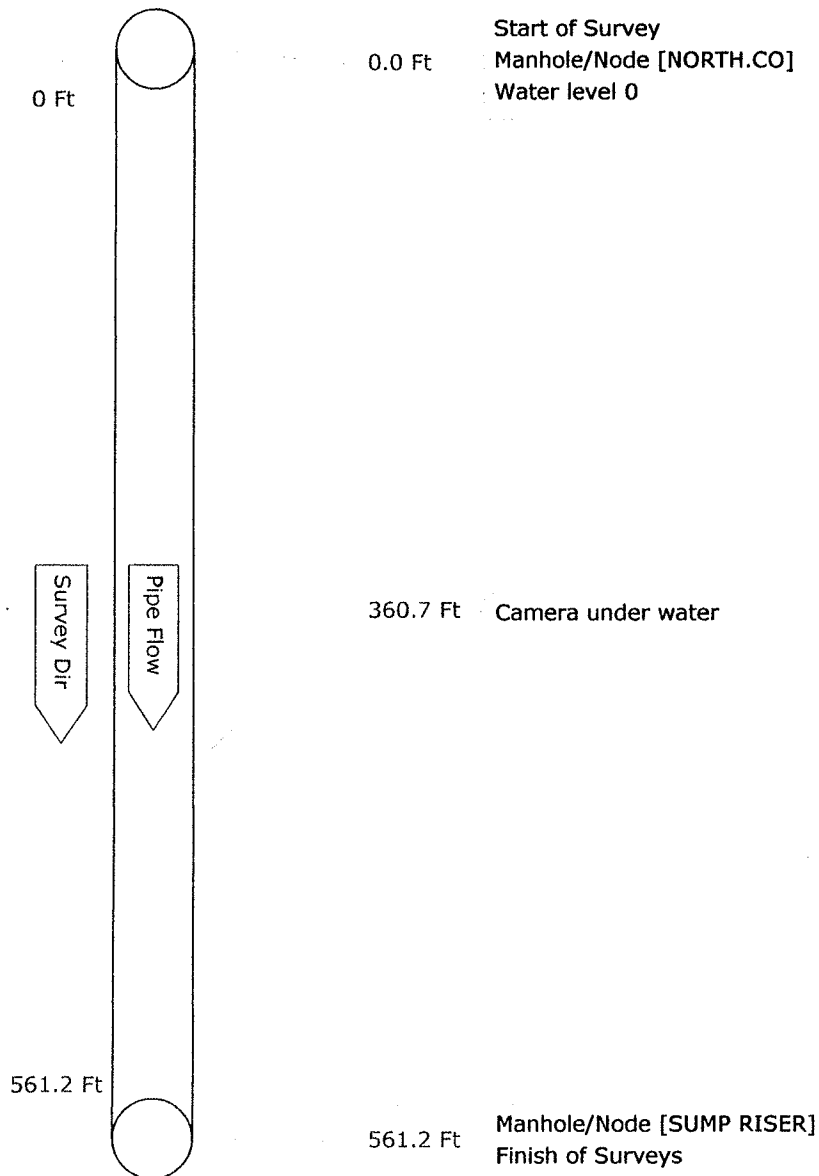
**Pipe Graphic Report of PLR W.CENT.CO X for SCS**

<b>Work Order</b> 2012	<b>Contract</b>	<b>Video</b> DVD.3	<b>Setup</b> 12
<b>Facility</b>	<b>Operator</b> Supervisor	<b>Van Ref</b> 3	<b>Surveyed On</b> 12/18/2012
<b>Street Name</b> LEACHATE COLLECTION SYSTEM	<b>City</b> HARDEE CO. LANDFILL		
<b>Location type</b> LANDFILL			
<b>Surface</b> Mown lawn			
<b>Survey purpose</b> Re-survey for any reason	<b>Weather</b> Dry		
<b>Pipe Use</b> LEACHATE	<b>Schedule length</b> 620.8 Ft	<b>From</b> W.CENT.CO	<b>Depth</b> Ft
<b>Shape</b> Circular	<b>Size</b> 8 <b>by</b> ins	<b>To</b> E.CENT.CO	<b>Depth</b> Ft
<b>Material</b> Polyethylene - High density	<b>Joint spacing</b> Ft	<b>Direction</b> Downstream	
<b>Lining</b>	<b>Year laid</b>	<b>Pre-clean</b> Y	<b>Last cleaned</b>
<b>General note</b> VIDEO INSPECTION OF LEACHATE COLLECTION SYSTEM			
<b>Location note</b> PHASE2 SECTION1 CLEANOUTS FOR LEACHATE SYSTEM.			



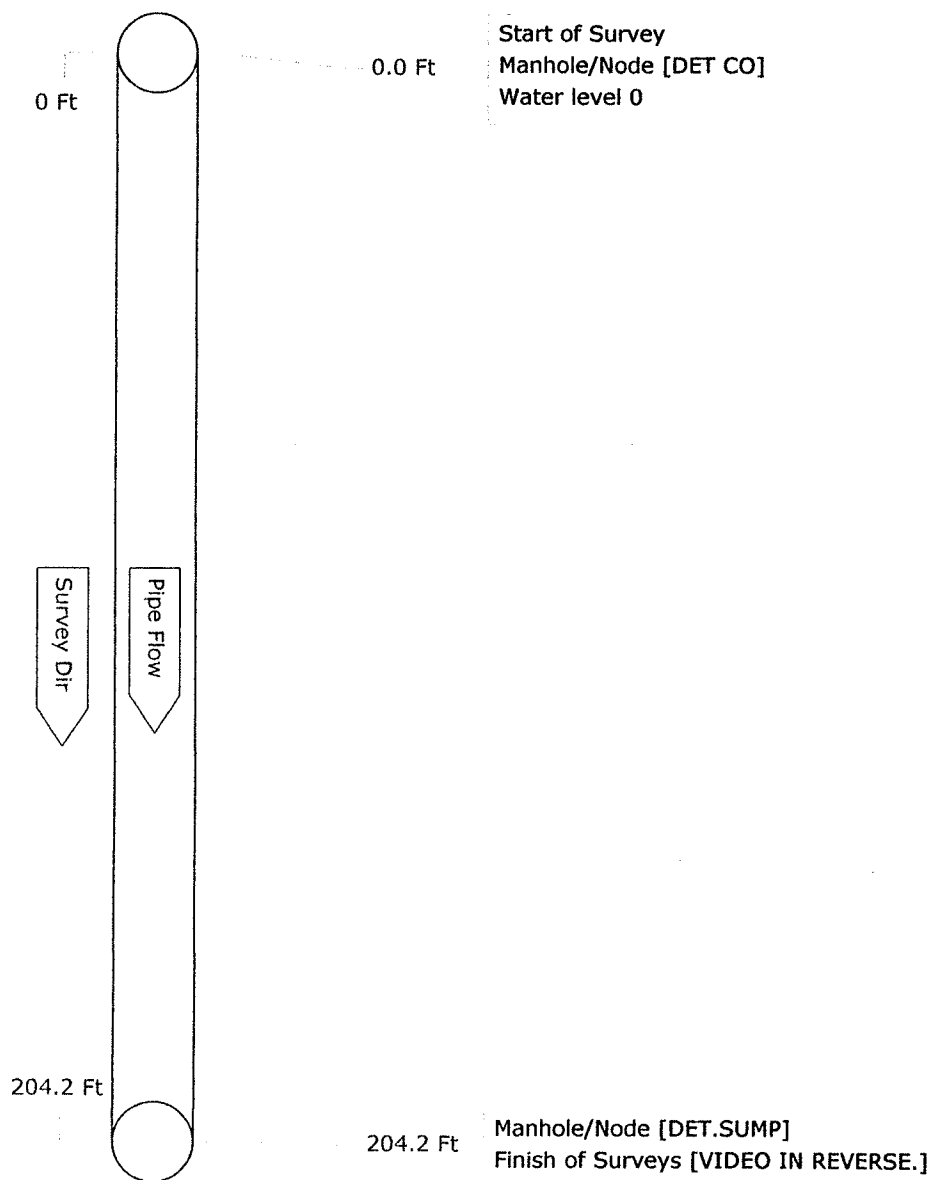
**Pipe Graphic Report of PLR NORTH.CO X for SCS**

<b>Work Order</b> 2012	<b>Contract</b>	<b>Video</b> DVD.3	<b>Setup</b> 13
<b>Facility</b>	<b>Operator</b> Supervisor	<b>Van Ref</b> 3	<b>Surveyed On</b> 12/18/2012
<b>Street Name</b>	LEACHATE COLLECTION SYSTEM	<b>City</b>	HARDEE CO. LANDFILL
<b>Location type</b>	LANDFILL		
<b>Surface</b>	Mown lawn		
<b>Survey purpose</b>	Re-survey for any reason		<b>Weather</b> Dry
<b>Pipe Use</b> LEACHATE	<b>Schedule length</b> 561.2 Ft	<b>From</b> NORTH.CO	<b>Depth</b> Ft
<b>Shape</b> Circular	<b>Size</b> 8 <b>by</b> ins	<b>To</b> SUMP RISER	<b>Depth</b> Ft
<b>Material</b> Polyethylene - High density	<b>Joint spacing</b> Ft	<b>Direction</b> Downstream	
<b>Lining</b>	<b>Year laid</b>	<b>Pre-clean</b> Y	<b>Last cleaned</b>
<b>General note</b> VIDEO INSPECTION OF LEACHATE COLLECTION SYSTEM			
<b>Location note</b> PHASE2 SECTION1 CLEANOUTS FOR LEACHATE SYSTEM.			



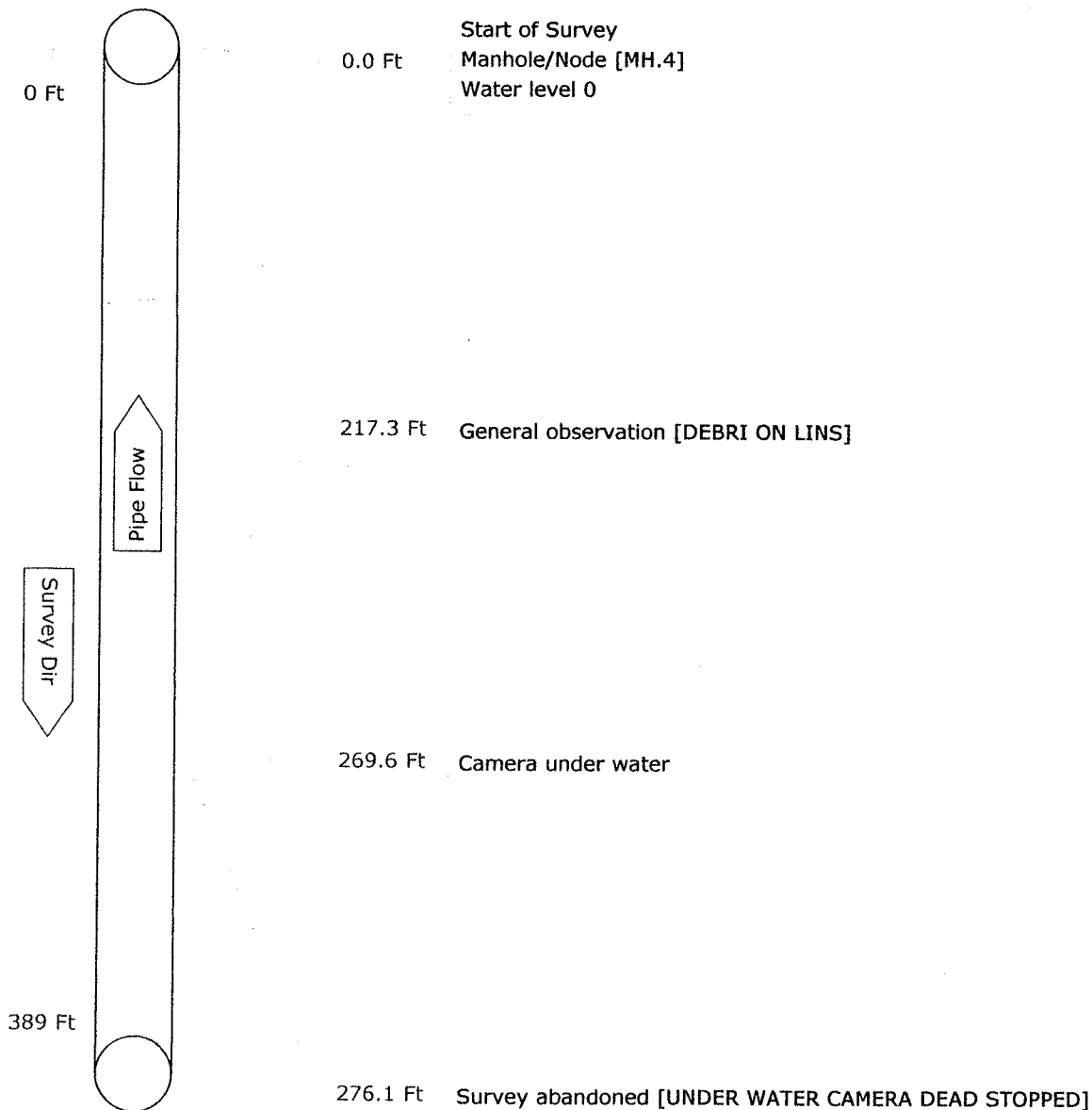
**Pipe Graphic Report of PLR DET CO X for SCS**

<b>Work Order</b> 2012	<b>Contract</b>	<b>Video</b> DVD.3	<b>Setup</b> 14
<b>Facility</b>	<b>Operator</b> Supervisor	<b>Van Ref</b> 3	<b>Surveyed On</b> 12/18/2012
<b>Street Name</b> LEACHATE COLLECTION SYSTEM	<b>City</b>	HARDEE CO. LANDFILL	
<b>Location type</b> LANDFILL			
<b>Surface</b> Mown lawn			
<b>Survey purpose</b> Re-survey for any reason	<b>Weather</b> Dry		
<b>Pipe Use</b> LEACHATE	<b>Schedule length</b> 204.2 Ft	<b>From</b> DET CO	<b>Depth</b> Ft
<b>Shape</b> Circular	<b>Size</b> 8 by ins	<b>To</b> DET.SUMP	<b>Depth</b> Ft
<b>Material</b> Polyethylene - High density	<b>Joint spacing</b> Ft	<b>Direction</b> Downstream	
<b>Lining</b>	<b>Year laid</b>	<b>Pre-clean</b> Y	<b>Last cleaned</b>
<b>General note</b> VIDEO INSPECTION OF LEACHATE COLLECTION SYSTEM			
<b>Location note</b> PHASE2 SECTION1 CLEANOUTS FOR LEACHATE SYSTEM.			



**Pipe Graphic Report of PLR MH.5 X for SCS**

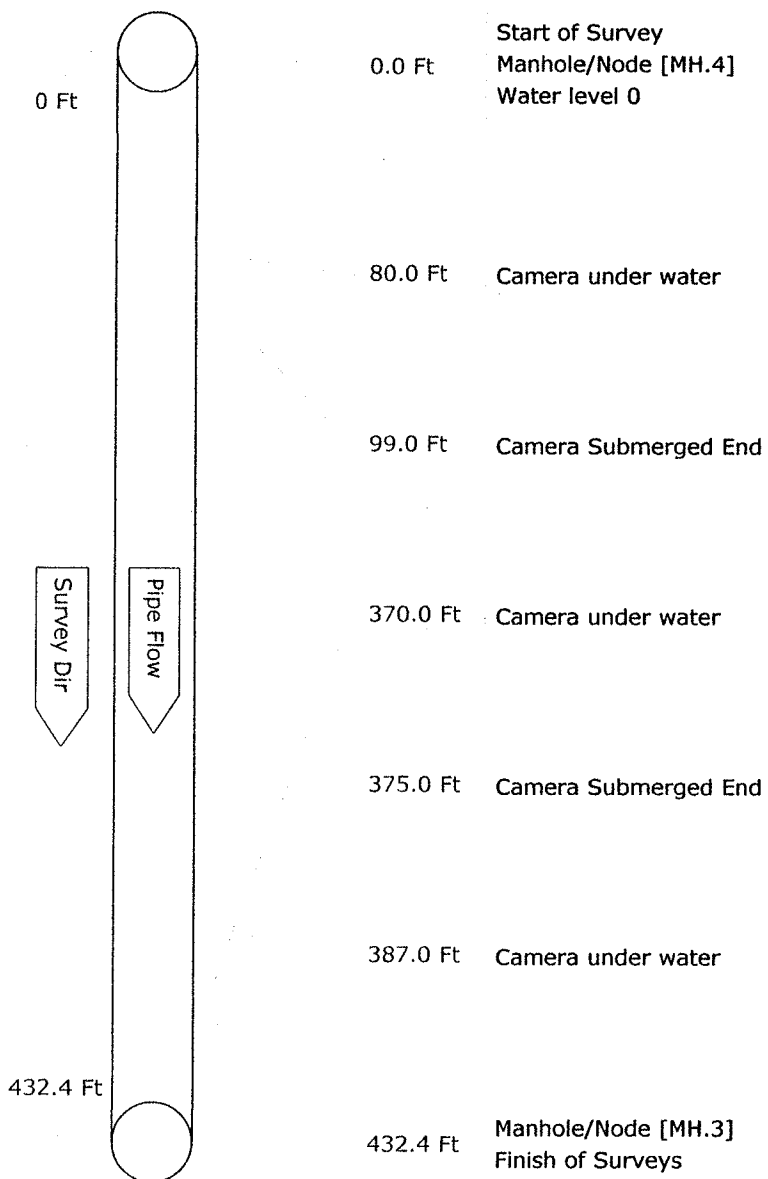
<b>Work Order</b>	2012	<b>Contract</b>		<b>Video</b>	DVD.3	<b>Setup</b>	15
<b>Facility</b>		<b>Operator</b>	Supervisor	<b>Van Ref</b>	3	<b>Surveyed On</b>	12/18/2012
<b>Street Name</b>	LEACHATE COLL PHASE.1		<b>City</b>	HARDEE CO. LANDFILL			
<b>Location type</b>	LANDFILL						
<b>Surface</b>	Mown lawn						
<b>Survey purpose</b>	Re-survey for any reason				<b>Weather</b>	Dry	
<b>Pipe Use</b>	LEACHATE	<b>Schedule length</b>	389.0 Ft	<b>From</b>	MH.4	<b>Depth</b>	Ft
<b>Shape</b>	Circular	<b>Size</b>	8 by ins	<b>To</b>	MH.5	<b>Depth</b>	Ft
<b>Material</b>	Polyethylene	<b>Joint spacing</b>	Ft	<b>Direction</b>	Upstream		
<b>Lining</b>		<b>Year laid</b>		<b>Pre-clean</b>	N	<b>Last cleaned</b>	
<b>General note</b>	VIDEO INSPECTION OF LEACHATE COLLECTION SYSTEM						
<b>Location note</b>	PHASE1 MANHOLES FOR LEACHATE SYSTEM.						





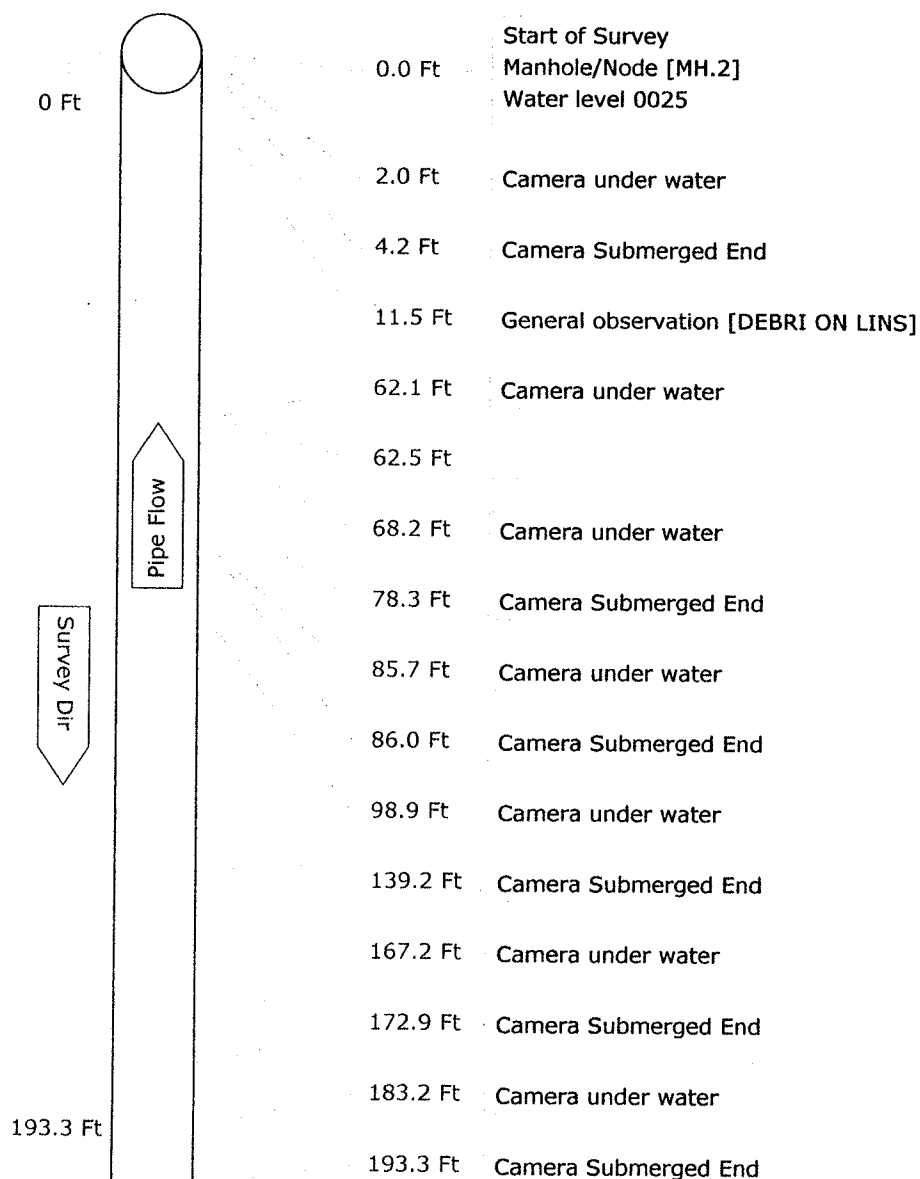
**Pipe Graphic Report of PLR MH.4      X      for SCS**

<b>Work Order</b>	2012	<b>Contract</b>		<b>Video</b>	DVD.3	<b>Setup</b>	16
<b>Facility</b>		<b>Operator</b>	Supervisor	<b>Van Ref</b>	3	<b>Surveyed On</b>	12/18/2012
<b>Street Name</b>	LEACHATE COLL PHASE.1		<b>City</b>	HARDEE CO. LANDFILL			
<b>Location type</b>	LANDFILL						
<b>Surface</b>	Mown lawn						
<b>Survey purpose</b>	Re-survey for any reason			<b>Weather</b>	Dry		
<b>Pipe Use</b>	LEACHATE	<b>Schedule length</b>	432.4 Ft	<b>From</b>	MH.4	<b>Depth</b>	Ft
<b>Shape</b>	Circular	<b>Size</b>	8 by ins	<b>To</b>	MH.3	<b>Depth</b>	Ft
<b>Material</b>	Polyethylene	<b>Joint spacing</b>	Ft	<b>Direction</b>	Downstream		
<b>Lining</b>		<b>Year laid</b>		<b>Pre-clean</b>	N	<b>Last cleaned</b>	
<b>General note</b>	VIDEO INSPECTION OF LEACHATE COLLECTION SYSTEM						
<b>Location note</b>	PHASE1 MANHOLES FOR LEACHATE SYSTEM.						



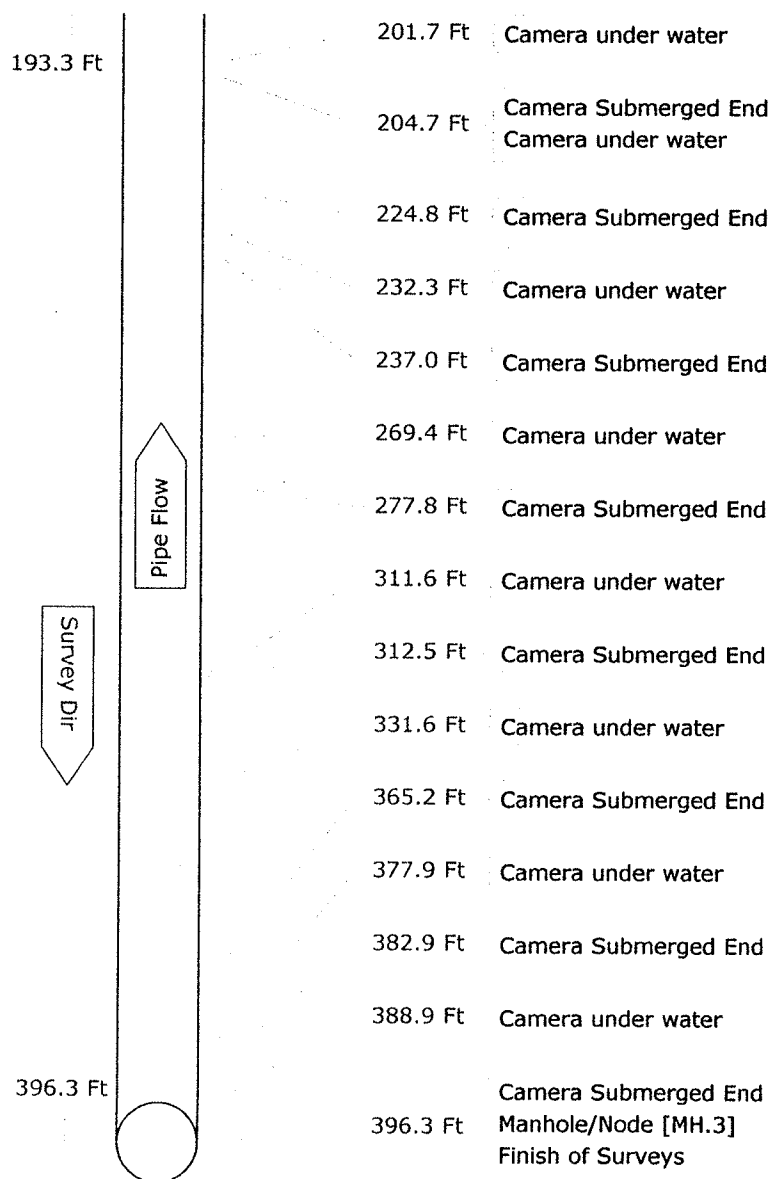
**Pipe Graphic Report of PLR MH.3      X      for SCS**

<b>Work Order</b>	2012	<b>Contract</b>		<b>Video</b>	DVD.3	<b>Setup</b>	17
<b>Facility</b>		<b>Operator</b>	Supervisor	<b>Van Ref</b>	3	<b>Surveyed On</b>	12/18/2012
<b>Street Name</b>	LEACHATE COLL PHASE.1		<b>City</b>	HARDEE CO. LANDFILL			
<b>Location type</b>	LANDFILL						
<b>Surface</b>	Mown lawn						
<b>Survey purpose</b>	Re-survey for any reason			<b>Weather</b> Dry			
<b>Pipe Use</b>	LEACHATE	<b>Schedule length</b>	396.3 Ft	<b>From</b>	MH.2	<b>Depth</b>	Ft
<b>Shape</b>	Circular	<b>Size</b>	8 by ins	<b>To</b>	MH.3	<b>Depth</b>	Ft
<b>Material</b>	Polyethylene	<b>Joint spacing</b>	Ft	<b>Direction</b>	Upstream		
<b>Lining</b>		<b>Year laid</b>		<b>Pre-clean</b>	N	<b>Last cleaned</b>	
<b>General note</b>	VIDEO INSPECTION OF LEACHATE COLLECTION SYSTEM						
<b>Location note</b>	PHASE1 MANHOLES FOR LEACHATE SYSTEM.						



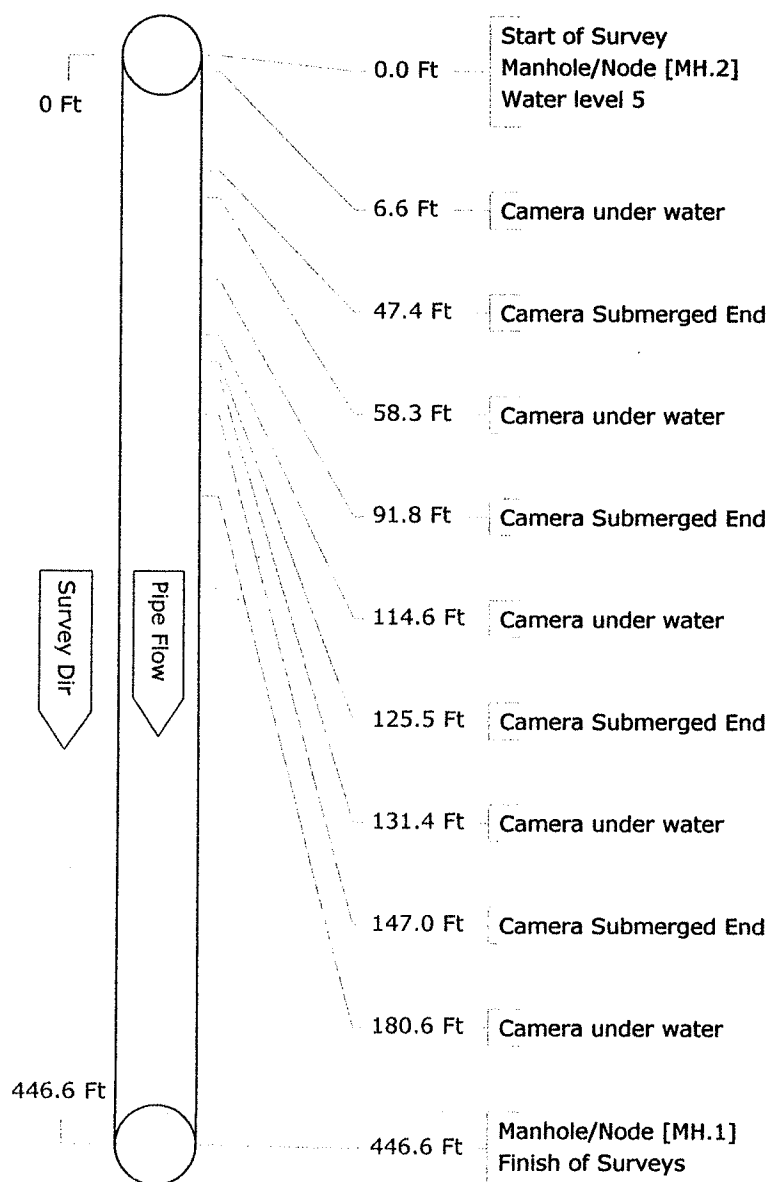
**Pipe Graphic Report of PLR MH.3 X for SCS**

<b>Work Order</b> 2012	<b>Contract</b>	<b>Video</b> DVD.3	<b>Setup</b> 17
<b>Facility</b>	<b>Operator</b> Supervisor	<b>Van Ref</b> 3	<b>Surveyed On</b> 12/18/2012
<b>Street Name</b> LEACHATE COLL PHASE.1	<b>City</b> HARDEE CO. LANDFILL		
<b>Location type</b> LANDFILL			
<b>Surface</b> Mown lawn			
<b>Survey purpose</b> Re-survey for any reason	<b>Weather</b> Dry		
<b>Pipe Use</b> LEACHATE	<b>Schedule length</b> 396.3 Ft	<b>From</b> MH.2	<b>Depth</b> Ft
<b>Shape</b> Circular	<b>Size</b> 8 by ins	<b>To</b> MH.3	<b>Depth</b> Ft
<b>Material</b> Polyethylene	<b>Joint spacing</b> Ft	<b>Direction</b> Upstream	
<b>Lining</b>	<b>Year laid</b>	<b>Pre-clean</b> N	<b>Last cleaned</b>
<b>General note</b> VIDEO INSPECTION OF LEACHATE COLLECTION SYSTEM			
<b>Location note</b> PHASE1 MANHOLES FOR LEACHATE SYSTEM.			



**Pipe Graphic Report of PLR MH.2 X for SCS**

<b>Work Order</b> 2012	<b>Contract</b>	<b>Video</b> DVD.3	<b>Setup</b> 18
<b>Facility</b>	<b>Operator</b> Supervisor	<b>Van Ref</b> 3	<b>Surveyed On</b> 12/18/2012
<b>Street Name</b> LEACHATE COLL PHASE.1	<b>City</b>	HARDEE CO. LANDFILL	
<b>Location type</b> LANDFILL			
<b>Surface</b> Mown lawn			
<b>Survey purpose</b> Re-survey for any reason	<b>Weather</b> Dry		
<b>Pipe Use</b> LEACHATE	<b>Schedule length</b> 446.6 Ft	<b>From</b> MH.2	<b>Depth</b> Ft
<b>Shape</b> Circular	<b>Size</b> 8 by ins	<b>To</b> MH.1	<b>Depth</b> Ft
<b>Material</b> Polyethylene	<b>Joint spacing</b> Ft	<b>Direction</b> Downstream	
<b>Lining</b>	<b>Year laid</b>	<b>Pre-clean</b> N	<b>Last cleaned</b>
<b>General note</b> VIDEO INSPECTION OF LEACHATE COLLECTION SYSTEM			
<b>Location note</b> PHASE1 MANHOLES FOR LEACHATE SYSTEM.			



Attachment I  
Jetclean Report May 2013

## **FLORIDA JETCLEAN**

HIGH PRESSURE WATER JETTING  
PIPELINE VIDEO INSPECTION (EX)  
ACUUM TRUCK SERVICES  
LASER PROFILING / NO DIG REPAIRS

7538 DUNBRIDGE DR., ODESSA, FL 33556  
TEL: 800-226-8013 / FAX: 813-926-4616  
WEB: WWW.FLORIDAJETCLEAN.COM  
EMAIL: FLORIDAJETCLEAN@YAHOO.COM

# **Hardee County Landfill Remobilization Phase 1 Manhole 1 & Manholes 4-9**

## **Work Performed May 2013**

Conducted By:  
**Florida Jetclean**  
**800-226-8013**

# FLORIDA JETCLEAN

HIGH PRESSURE WATER JETTING  
PIPELINE VIDEO INSPECTION (EX)  
/ACUUM TRUCK SERVICES  
LASER PROFILING / NO DIG REPAIRS

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TEL: 800-226-8013 / FAX: 813-926-4616  
WEB: WWW.FLORIDAJETCLEAN.COM  
EMAIL: FLORIDAJETCLEAN@YAHOO.COM

DATE : 6/3/2013  
TO : Teresa Carver - Hardee County, Shane Fischer – SCS Engineers  
FROM : Ralph Calistri (floridajetclean@yahoo.com)  
SUBJECT : REMOBILIZATION - Hardee County LF – Phase I LCS MH 1 & 4-9

Florida Jetclean was remobilized to the Hardee County Landfill to conduct additional high-pressure water-jetting and explosion-proof video-inspection services at the Phase 1 - Manholes 4-9 and Manhole 1. During the initial mobilization in December 2012, these manholes were holding liquid and could not be video-inspected in entirety. This report contains the applicable Jetting Logs, CCTV Survey List, Pipe Graphic Reports, and DVD inspection footage from this remobilization for complete reference.

## **PHASE I - LCS MANHOLES 1 & 4-9:**

The below Phase I leachate collection piping was jetcleaned utilizing high-pressure water-jetting nozzle. During and upon completion of jetcleaning activities, all debris, silt, and sludge was vacuum removed from these manholes and the lift station.

### **\*\*\* JETTING LOG \*\*\***

<u>LOCATION</u>	<u>ACHIEVED DISTANCE (ft) *</u>	<u>RESULT</u>
Manhole 9 to 8 (LS)	97'	Entire pipe cleaned
Manhole 9 to 1	120'	Entire pipe cleaned
Manhole 8 (LS) to 7	620'	Entire pipe cleaned
Manhole 4 to 5	393'	Entire pipe cleaned
Manhole 5 to 6	397'	Entire pipe cleaned

The explosion-proof video-inspections of the Phase I leachate collection pipes (see attached Pipe Graphic Reports and DVD inspection footage) show that with the exception of the following noted areas of concern, all pipes viewed with the inspection camera were clean and defect free. In any areas where video quality was obscured by high liquid levels, the fact that both the inspection camera and the high-pressure jetting nozzle were not restricted through those areas in any way would support the contention that those areas of the leachate collection system are also in good working order.

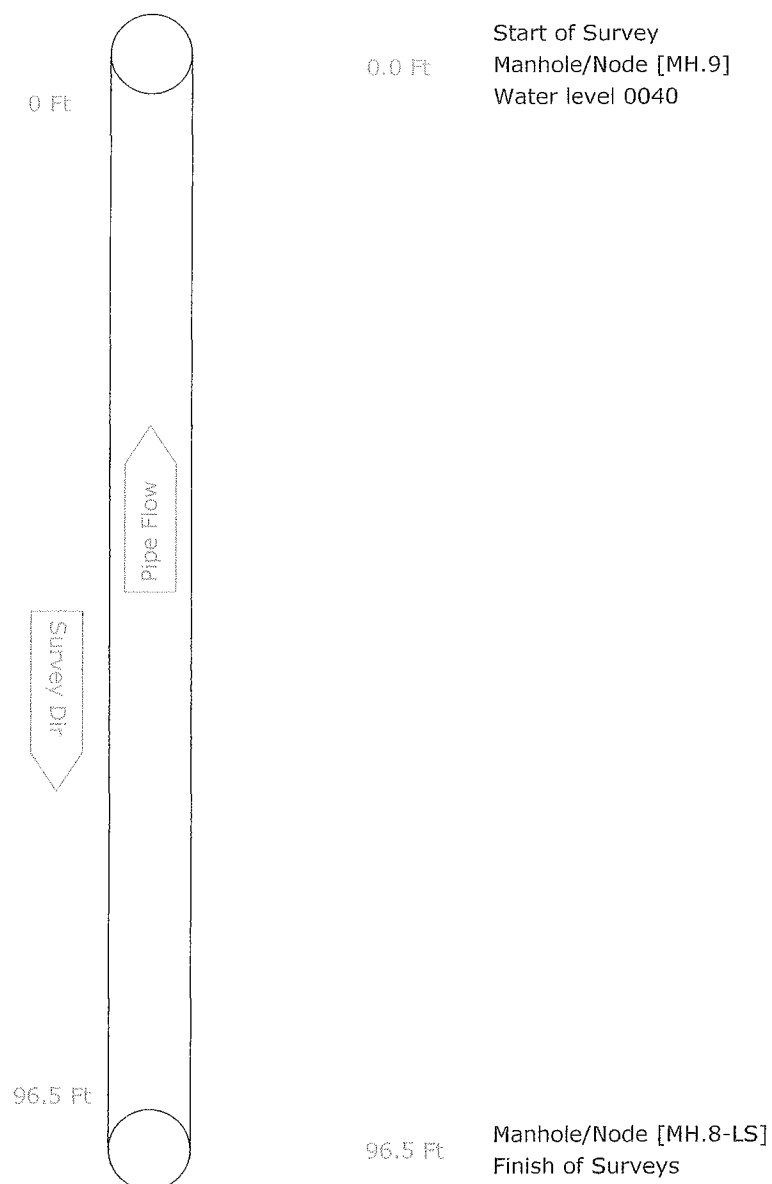
- Manhole 9 to 1 - Partially compressed pipe and offset joint at 69.2' from manhole 9. Video-inspection was also conducted from manhole 1 back toward manhole 9 for complete coverage of this pipe.

Please call with questions or concerns at 800-226-8013.

Regards,  
  
Ralph Calistri - Florida Jetclean

**Pipe Graphic Report of PLR MH.8-LS X for SCS**

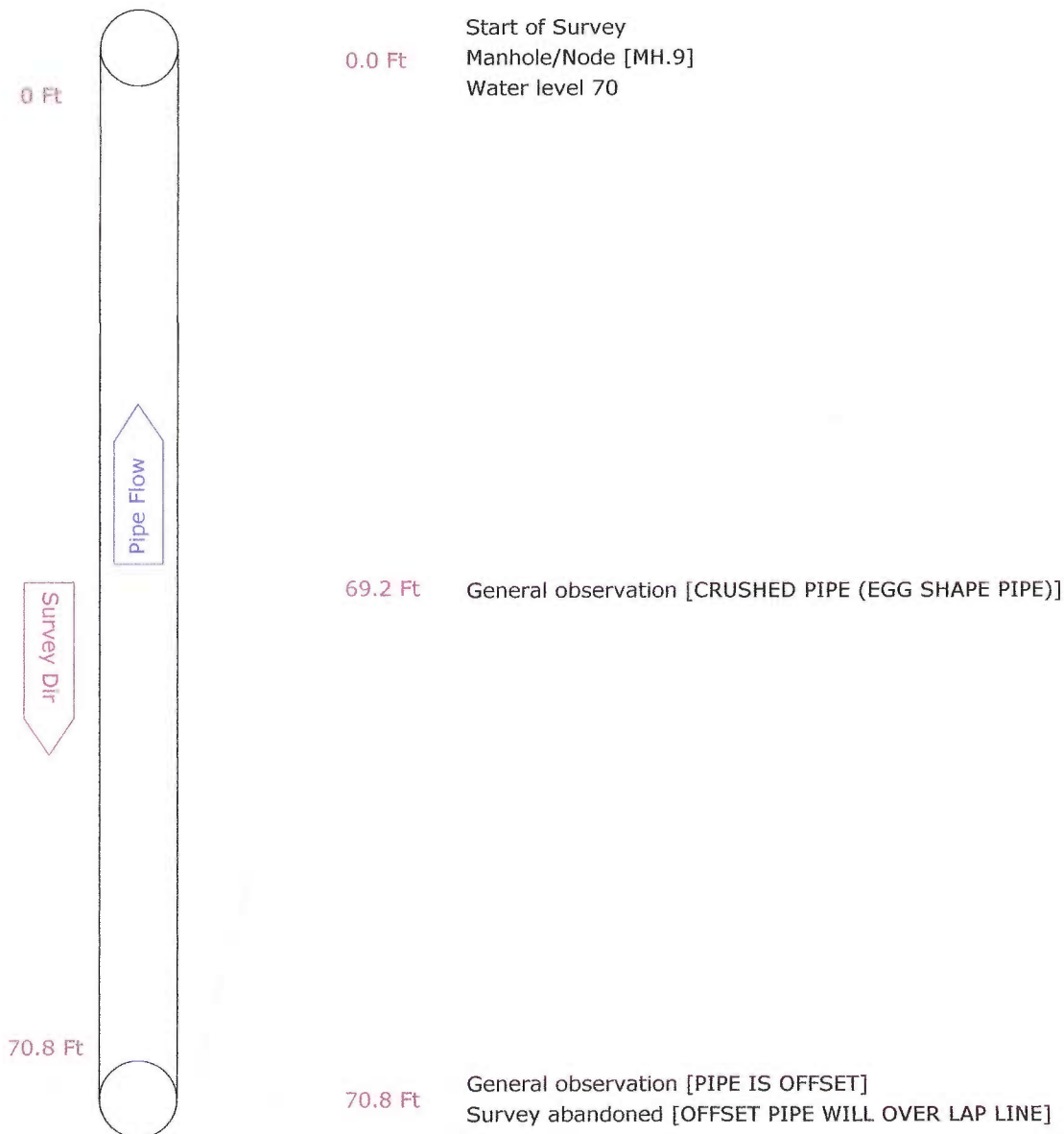
<b>Work Order</b>		<b>Contract</b>		<b>Video</b> DVD	
<b>Facility</b>		<b>Operator</b> Supervisor		<b>Van Ref</b> 3 <b>Surveyed On</b>	
<b>Street Name</b>	LEACHATE COLL PHASE.1		<b>City</b>	HARDEE CO LANDFILL	
<b>Location type</b>	LANDFILL				
<b>Surface</b>					
<b>Survey purpose</b>	Re-survey for any reason			<b>Weather</b>	Dry
<b>Pipe Use</b>	LEACHATE	<b>Schedule length</b>	96.5	Ft	
<b>Shape</b>	Circular	<b>Size</b> 8	by	ins	
<b>Material</b>	Polyethylene - High density	<b>Joint spacing</b>		Ft	
<b>Lining</b>		<b>Year laid</b>			
<b>From</b>	MH.9	<b>Depth</b>		Ft	
<b>To</b>	MH.8-LS	<b>Depth</b>		Ft	
<b>Direction</b>	Upstream				
<b>Pre-clean</b>		<b>Last cleaned</b>			
<b>General note</b>	VIDEO INSPECTION OF LEACHATE COLLECTION SYSTEM				
<b>Location note</b>	PHASE.1 COLLECTION MANHOLES				



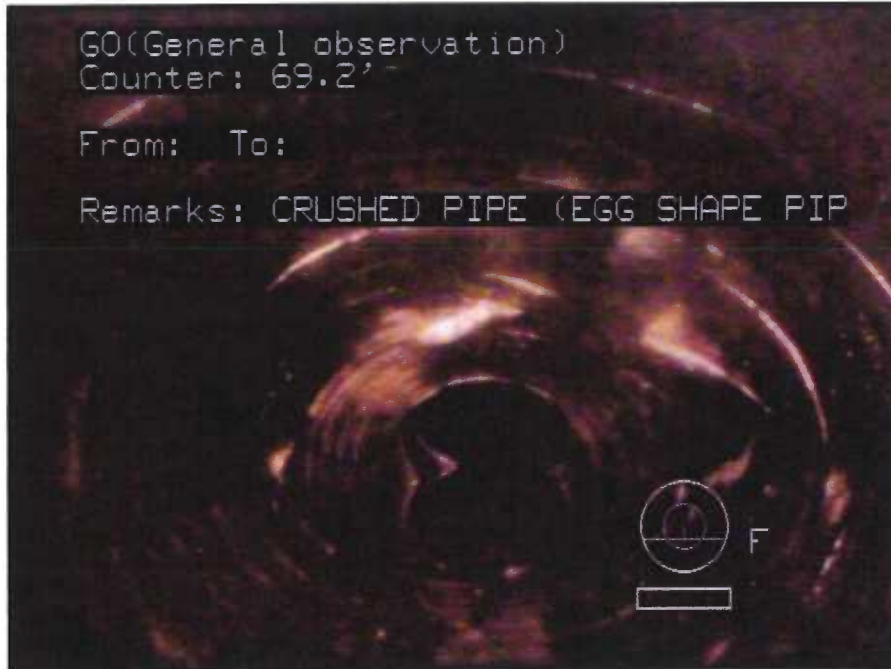


Pipe Graphic Report of PLR MH.1 X for SCS

<b>Work Order</b>		<b>Contract</b>		<b>Video</b>	<b>DVD</b>		
<b>Facility</b>		<b>Operator</b>		<b>Supervisor</b>	<b>Van Ref</b> 3	<b>Surveyed On</b> 05/20/2013	
<b>Street Name</b>		LEACHATE COLL PHASE.1		<b>City</b>		HARDEE CO LANDFILL	
<b>Location type</b>		LANDFILL					
<b>Surface</b>							
<b>Survey purpose</b> Re-survey for any reason				<b>Weather</b> Dry			
<b>Pipe Use</b>	LEACHATE	<b>Schedule length</b>	Ft	<b>From</b>	MH.9	<b>Depth</b>	Ft
<b>Shape</b>	Circular	<b>Size</b> 8	by ins	<b>To</b>	MH.1	<b>Depth</b>	Ft
<b>Material</b>	Polyethylene - High density	<b>Joint spacing</b>	Ft	<b>Direction</b>	Upstream		
<b>Lining</b>		<b>Year laid</b>		<b>Pre-clean</b>	<b>Last cleaned</b>		
<b>General note</b> VIDEO INSPECTION OF LEACHATE COLLECTION SYSTEM							
<b>Location note</b> PHASE.1 COLLECTION MANHOLES							



Work Order		Surveyed On 05/20/2013	
Street Name	LEACHATE COLL PHASE.1	Video DVD	
City Name	HARDEE CO LANDFILL	Weather Dry	
Location	LANDFILL		
From Manhole	MH.9	To Manhole	MH.1
		Direction Upstream	



Date: 05/20/2013

Distance: 69.2 Ft

Obs: General observation

Comments: CRUSHED PIPE (EGG SHAPE PIPE)



Date: 05/20/2013

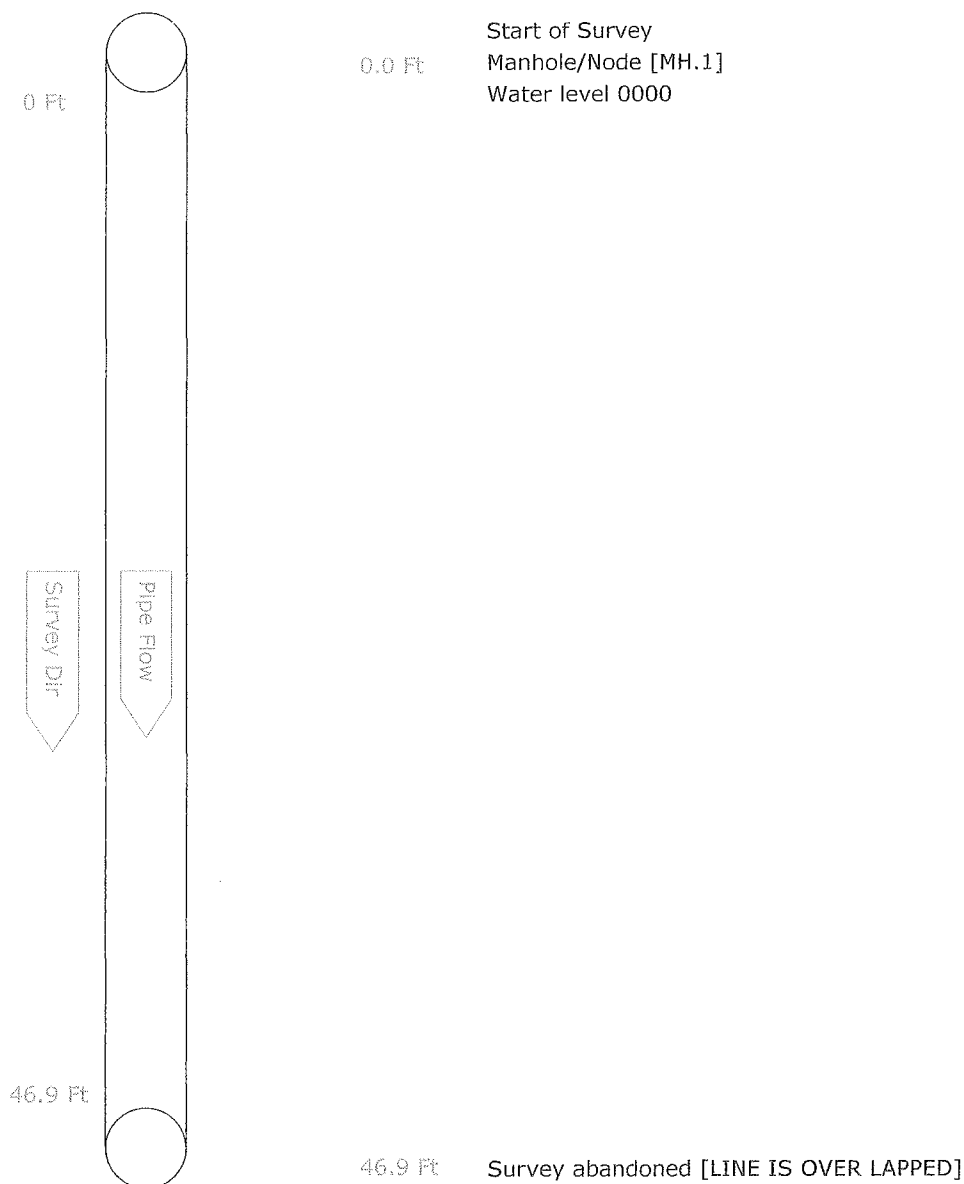
Distance: 69.2 Ft

Obs: General observation

Comments: CRUSHED PIPE (EGG SHAPE PIPE)

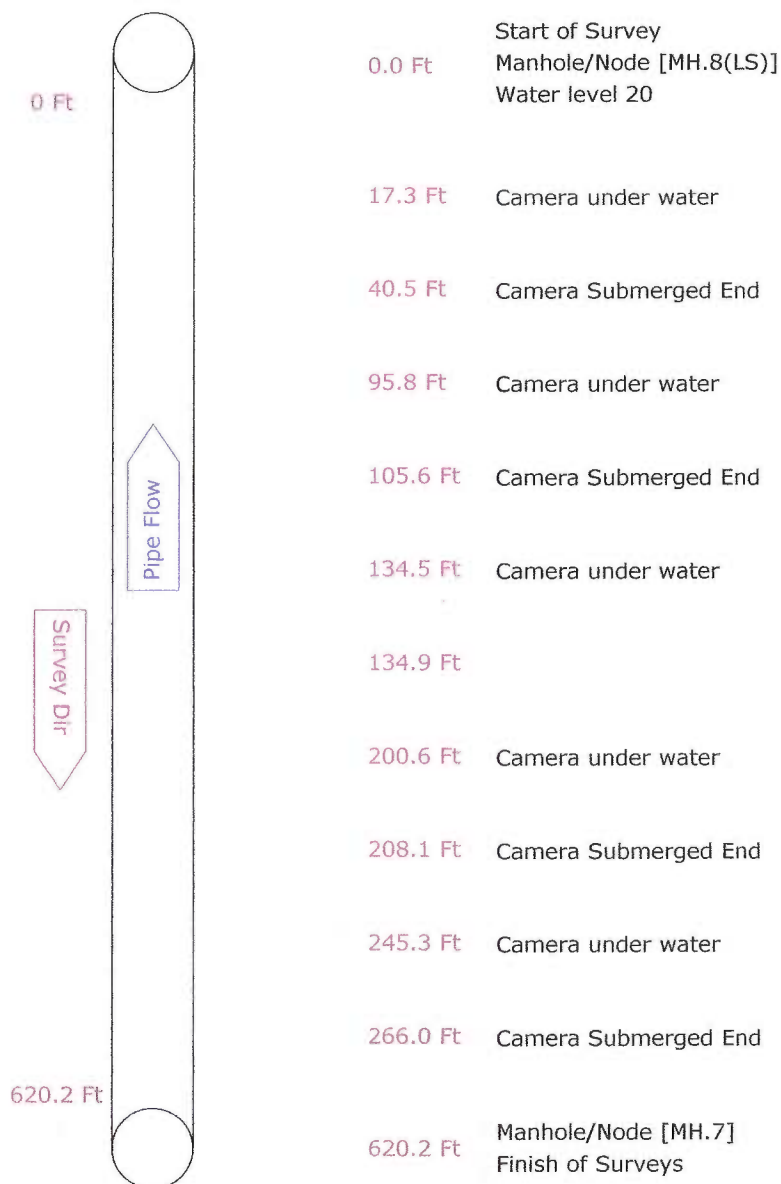
Pipe Graphic Report of PLR MH.1 W for SCS

<b>Work Order</b>		<b>Contract</b>		<b>Video</b>	DVD
<b>Facility</b>		<b>Operator</b>	Supervisor	<b>Van Ref</b> 3	<b>Surveyed On</b> 05/20/2013
<b>Street Name</b>	LEACHATE COLL PHASE.1		<b>City</b>	HARDEE CO LANDFILL	
<b>Location type</b>	LANDFILL				
<b>Surface</b>					
<b>Survey purpose</b> Re-survey for any reason				<b>Weather</b> Dry	
<b>Pipe Use</b>	LEACHATE	<b>Schedule length</b>	Ft	<b>From</b> MH.1	<b>Depth</b> Ft
<b>Shape</b>	Circular	<b>Size</b> 8 <b>by</b>	ins	<b>To</b> MH.9	<b>Depth</b> Ft
<b>Material</b>	Polyethylene - High density	<b>Joint spacing</b>	Ft	<b>Direction</b> Downstream	
<b>Lining</b>		<b>Year laid</b>		<b>Pre-clean</b>	<b>Last cleaned</b>
<b>General note</b> VIDEO INSPECTION TO OVER LAP THIS LINE					
<b>Location note</b> PHASE.1 COLLECTION MANHOLES					



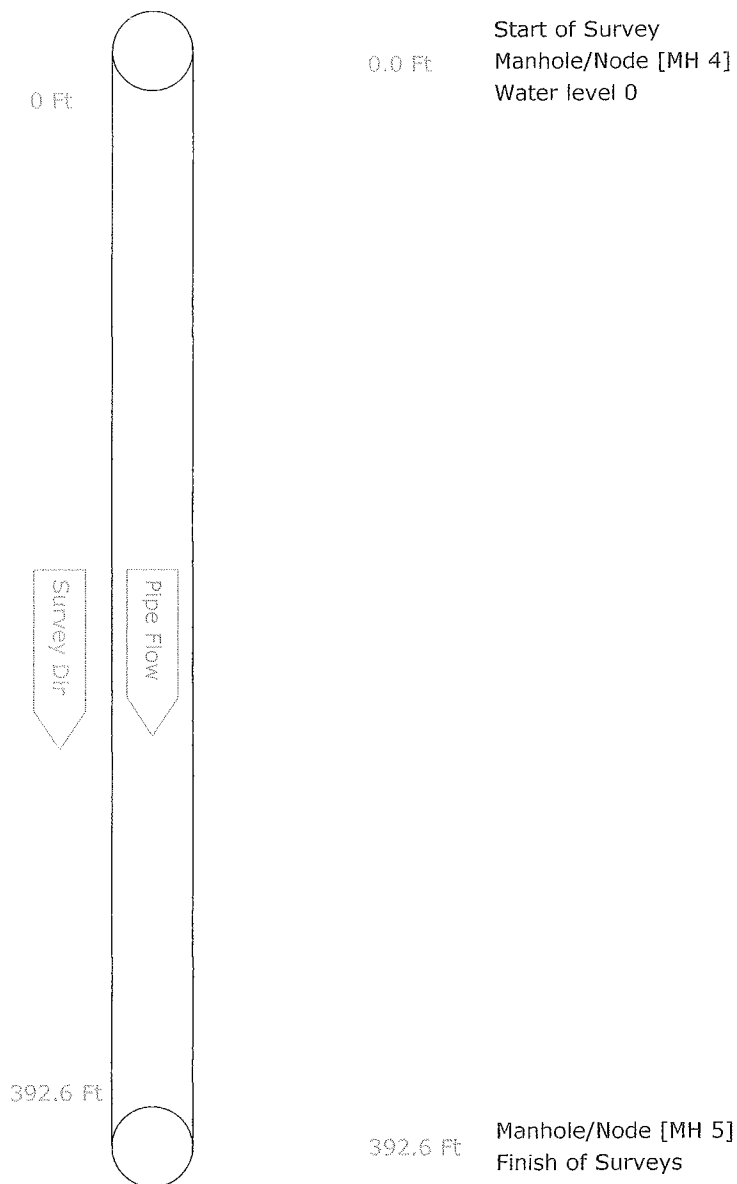
Pipe Graphic Report of PLR MH.7 U for SCS

<b>Work Order</b>		<b>Contract</b>		<b>Video</b> DVD
<b>Facility</b>	<b>Operator</b>	<b>Supervisor</b>	<b>Van Ref</b> 3	<b>Surveyed On</b> 05/28/2013
<b>Street Name</b>	LEACHATE COLL PHASE.1	<b>City</b>	HARDEE CO LANDFILL	
<b>Location type</b>	LANDFILL			
<b>Surface</b>				
<b>Survey purpose</b>	Re-survey for any reason		<b>Weather</b>	Dry
<b>Pipe Use</b>	LEACHATE	<b>Schedule length</b>	620.2 Ft	<b>From</b> MH.8(LS) <b>Depth</b> Ft
<b>Shape</b>	Circular	<b>Size</b> 8 <b>by</b> ins	<b>To</b> MH.7	<b>Depth</b> Ft
<b>Material</b>	Polyethylene - High density	<b>Joint spacing</b>	Ft	<b>Direction</b> Upstream
<b>Lining</b>		<b>Year laid</b>		<b>Pre-clean</b> <b>Last cleaned</b>
<b>General note</b>	VIDEO INSPECTION OF LEACHATE COLLECTION SYSTEM			
<b>Location note</b>	PHASE.1 COLLECTION MANHOLES			



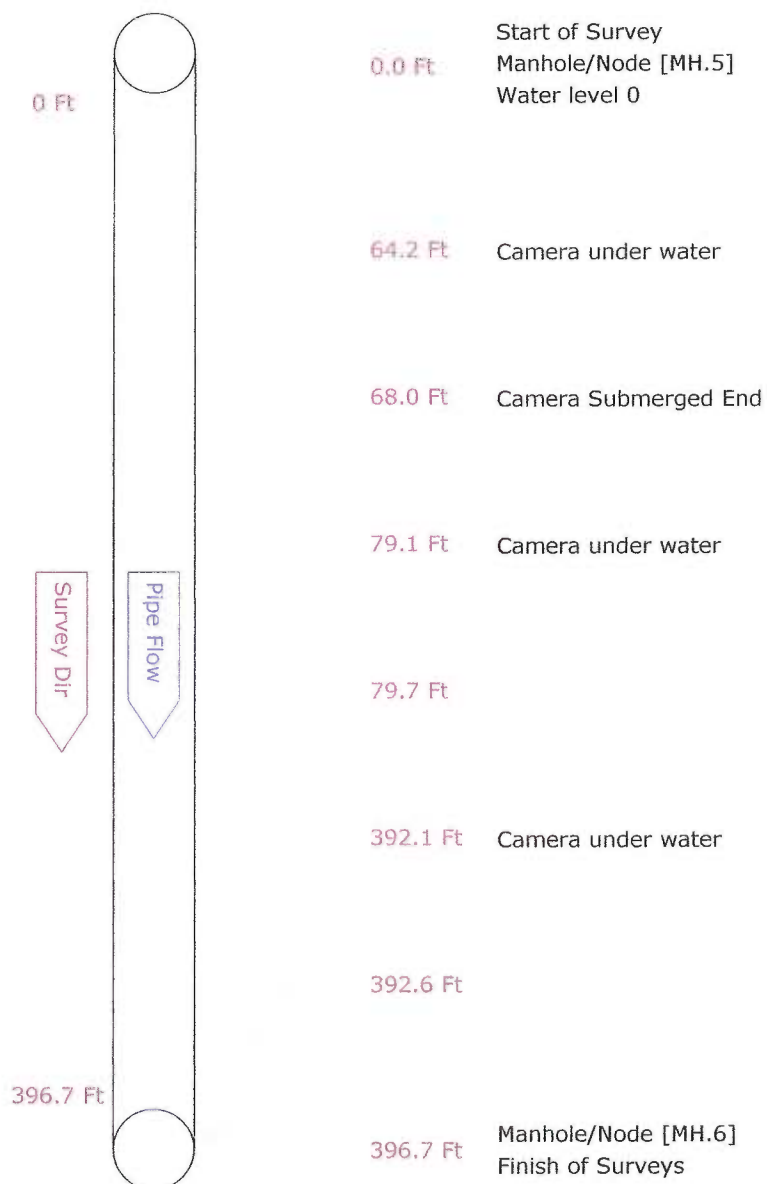
Pipe Graphic Report of PLR MH 4 U for SCS

<b>Work Order</b>	<b>Contract</b>	<b>Video</b>	<b>DVD</b>
<b>Facility</b>	<b>Operator</b> Supervisor	<b>Van Ref</b> 3	<b>Surveyed On</b> 05/30/2013
<b>Street Name</b>	LEACHATE COLL PHASE.1	<b>City</b>	HARDEE CO LANDFILL
<b>Location type</b>	LANDFILL		
<b>Surface</b>			
<b>Survey purpose</b>	Re-survey for any reason	<b>Weather</b>	Dry
<b>Pipe Use</b>	LEACHATE	<b>Schedule length</b>	392.6 Ft
<b>Shape</b>	Circular	<b>Size</b> 8 by ins	
<b>Material</b>	Polyethylene - High density	<b>Joint spacing</b>	Ft
<b>Lining</b>		<b>Year laid</b>	
<b>From</b>	MH 4	<b>Depth</b>	Ft
<b>To</b>	MH 5	<b>Depth</b>	Ft
<b>Direction</b>	Downstream		
<b>Pre-clean</b>		<b>Last cleaned</b>	
<b>General note</b>	VIDEO INSPECTION OF LEACHATE COLLECTION SYSTEM		
<b>Location note</b>	PHASE.1 COLLECTION MANHOLES		



Pipe Graphic Report of PLR MH.5 U for SCS

<b>Work Order</b>		<b>Contract</b>		<b>Video</b>	<b>DVD</b>
<b>Facility</b>		<b>Operator</b>	<b>Supervisor</b>	<b>Van Ref</b> 3	<b>Surveyed On</b> 05/31/2013
<b>Street Name</b>	LEACHATE COLL PHASE.1		<b>City</b>	HARDEE CO LANDFILL	
<b>Location type</b>	LANDFILL				
<b>Surface</b>					
<b>Survey purpose</b>	Re-survey for any reason			<b>Weather</b>	Dry
<b>Pipe Use</b>	LEACHATE	<b>Schedule length</b>	396.7 Ft	<b>From</b>	MH.5
<b>Shape</b>	Circular	<b>Size</b> 8 <b>by</b>	ins	<b>To</b>	MH.6
<b>Material</b>	Polyethylene - High density	<b>Joint spacing</b>	Ft	<b>Direction</b>	Downstream
<b>Lining</b>		<b>Year laid</b>		<b>Pre-clean</b>	<b>Last cleaned</b>
<b>General note</b>	VIDEO INSPECTION OF LEACHATE COLLECTION SYSTEM				
<b>Location note</b>	PHASE.1 COLLECTION MANHOLES				

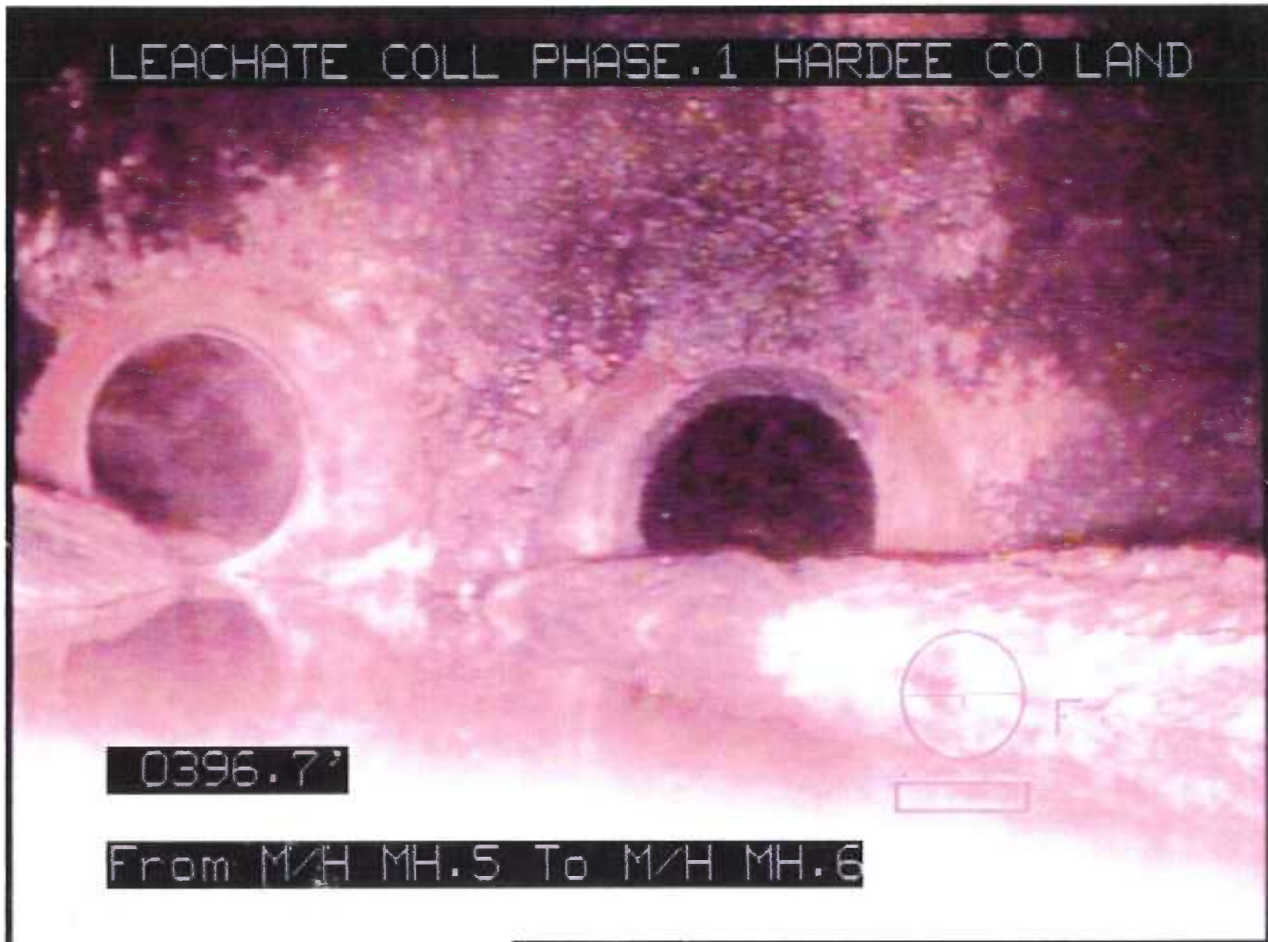




CCTV pictures of MH.5 U  
For SCS

<b>Work Order</b>		<b>Surveyed On</b> 05/31/2013	
<b>Street Name</b>	LEACHATE COLL PHASE.1	<b>Video</b>	DVD.
<b>City Name</b>	HARDEE CO LANDFILL	<b>Weather</b>	Dry
<b>Location</b>	LANDFILL		
<b>From Manhole</b>	MH.5	<b>To Manhole</b>	MH.6
		<b>Survey Direction</b>	Downstream

Counter 396.7 Ft



E:\Snaps\SCS ENGINEERS\39.jpg 05/31/2013

**Pipe Details:**

<b>Year Laid</b>	<b>Shape</b> Circular	<b>Size</b> 8	<b>By</b> ins
<b>Material</b> Polyethylene - High	<b>Lining</b>	<b>Use</b> LEACHATE	

**Observation:** Manhole/Node

**Comments:** MH.6

## Attachment J

### Revised Technical Report

- Revised Section 1 Replacement Page 1-1
  - Revised Section 2 Replacement Page 2-2
  - Revised Section 3 Replacement Pages 3-1, 3-2, 3-5, and 3-9
  - Revised Section 4 Replacement Pages 4-1, 4-2, and 4-3
-



Revised Section 1  
Replacement Page 1-1

# 1 INTRODUCTION AND BACKGROUND

SCS Engineers (SCS) prepared this Technical Report for the Hardee County Landfill (HCL). The HCL is located at 685 Airport Road Wauchula, Florida (Figure 1-1).

## INTRODUCTION

This report was prepared in accordance with Florida Department of Environmental Protection (FDEP) Operation Permit 38414-011-SO/01, and Chapter 62-701.510(98)(b), Florida Administrative Code (FAC). Locations of monitoring sites are shown on Figure 1-2. This technical report fulfills Specific Condition E.11.B of the permit and includes a summary and evaluation of the groundwater, surface water, and leachate analytical data from monitoring events performed at the HCL from July 2006 through January 2013 (the technical report period). The following lists the specific data and information included in this report.

1. Tabular and Graphical displays of the data, including hydrographs for all monitoring wells
2. Trend Analyses of any monitoring parameters consistently detected
3. Comparisons among shallow, middle and deep zone wells, if applicable
4. Comparison between upgradient and downgradient wells
5. Correlations between related parameters such as total dissolved solids and specific conductance
6. Discussion of erratic and/or poorly correlated data, and
7. A summary groundwater table contour map and an interpretation of the groundwater contour maps

Water quality sampling and physical readings and measurements were organized by Post Buckley Schuh and Jernigan (PBS&J) between June 2006 and June 2010 and by Atkins North America “Atkins” (formerly known as PBS&J) between June 2011 and January 2013. Water quality analyses were performed by Short Environmental Laboratories for the June 2006 sampling event, Environmental Conservation Laboratories (ENCO) between November 2006 and June 2008, and by Flowers Chemical Laboratories (FCL) between November 2008 and January 2013.

Revised Section 2  
Replacement Page 2-2

velocity onsite and is not representative of the groundwater velocity at all locations across the site.

## SEMI-ANNUAL GROUNDWATER FLOW ASSESSMENT

For this technical report, SCS utilized semi-annual groundwater flow assessments of the surficial aquifer for the period extending from June 2006 through January 2013 (technical report evaluation period). The activities included collecting and compiling groundwater depth measurements, calculating groundwater elevations, and plotting the data onto site figures depicting the estimated groundwater flow direction. Water table and potentiometric maps generated for each monitoring event and aquifer zone are presented in Appendix A. SCS generated the potentiometric maps for the June 2006, December 2007, June 2008, November 2008, and December 2012 monitoring events and PBS&J generated the June 2007, June 2009, December 2009, June 2010, November 2010, June 2011, December 2011, and June 2012 maps.

The maps generated by SCS were created using the Surfer<sup>®</sup> Version 10 (Surfer<sup>®</sup>) groundwater contouring computer program. The maps were reviewed by a professional geologist for additional interpretation and manual contouring to assist in the accuracy and representativeness of the contours.

Groundwater in the surficial aquifer under the HCL enters the site from the north and flows south. Additionally, some groundwater enters the site along the southern portion of the western property boundary. The groundwater in the surficial aquifer under the HCL exits the site to the south, with some groundwater exiting the site along the south portion of the eastern property boundary. The landfill liner affects the groundwater flow in the vicinity of the landfill. The north side of the landfill consists of a polyvinyl chloride (PVC) liner while the remaining southern portion of the landfill is a high-density polyethylene (HDPE) liner. By design, groundwater does not flow through the liner therefore flow is diverted along the outer wall.

A hydrograph depicting the groundwater elevations within each monitoring well since 2000 was generated and presented in [Attachment-Appendix CD](#), Figure [DC-12](#). These data are consistent with previous biennial reporting data and reflect rainfall conditions.

### Revised Section 3

Replacement Pages 3-1, 3-2, 3-5, and 3-9

### 3 GROUNDWATER MONITORING PROGRAM

The groundwater monitoring program at the HCL includes eight surficial aquifer groundwater monitoring wells, two leachate locations, and one surface water location. Groundwater levels are measured semi-annually at twelve piezometers. All monitoring points are shown on Figure 1-2.

#### GROUNDWATER MONITORING PROGRAM

The groundwater quality monitoring program at the HCL includes 8 groundwater monitoring wells (part of the EMP) set in the surficial aquifer. Semi-annual reporting of the groundwater sampling results is performed in accordance with the HCL permit. Monitoring well locations are shown on Figure 1-2. The background and detection ~~compliance~~ wells for the surficial aquifer are listed in Table 3-1.

A construction detail summary for all existing, current, and proposed monitoring wells and piezometers included in the monitoring system is presented in Table 3-2. The current permit requires semi-annual sampling of the background and detection ~~compliance~~ monitoring wells for the field and laboratory parameters listed below.

#### Field Parameters

- Static water level before purging
- Specific conductivity
- pH
- Dissolved oxygen
- Turbidity
- Temperature
- Color and sheens by observation

**Table 3-1. Existing Surficial Aquifer Monitoring Wells at the Hardee County Landfill**

Well Number	Aquifer Monitored	Permit Designation
MW-1	Surficial	Background
MW-2	Surficial	Detection
MW-4	Surficial	Background
MW-5	Surficial	Detection
MW-8	Surficial	Detection
MW-10 <sup>1</sup>	Surficial	Detection
MW-10R	Surficial	Detection
MW-11	Surficial	Detection
MW-12 <sup>1</sup>	Surficial	Detection
MW-12R	Surficial	Detection

Notes:

1. Abandoned

4. Negative values within the "Distance to Edge of Waste" column indicate permitted monitoring wells that apparently lie within the waste boundary.
5. Compliance wells are located predominantly at or within the zone of discharge. Wells that are outside the zone of discharge were located either due to site specific conditions that made such placement impractical or were located to provide additional monitoring points within the property boundary and unique to certain site features (e.g. karst).
6. "Abandoned" indicates that the well has been abandoned and is no longer being used for semi-annual monitoring

## SURFICIAL AQUIFER GROUNDWATER QUALITY

Water quality data for the groundwater parameters monitored during this reporting period were evaluated in accordance with Chapter 62-701.510(89)(b), FAC, along with data dating back to 2000. The longer data record was evaluated for water quality trends. Selected data tables and graphs are presented to support the groundwater monitoring plan evaluation.

Appendix B includes tables listing water quality detections and exceedances. In accordance with Chapter 62-701, FAC, groundwater results were compared to their respective primary drinking water standard (PDWS) and secondary drinking water standard (SDWS) listed in Chapter 62-550, FAC. Groundwater cleanup target levels (GCTLs) in Rule 62-777, FAC, were used for constituents that do not have a PDWS or SDWS as a screening tool for potential anomalies in the concentration data that may require further consideration or review.

Per Chapter 62-701.510(7)(c)2, FAC, GCTLs are only applicable to solid waste facilities outside of their ZOD. Per FDEP Memorandum dated December 3, 2012, addressing the subject "Monitoring and Evaluation of Ammonia in Groundwater at Solid Waste Management Facilities SMW-13.10," the ammonia GCTL is no longer being relied on or enforced where there is no threat to surface water. Consequently, ammonia is no longer used by FDEP for regulatory compliance at HCL because there is no threat to surface water at this site.

Graphs of water quality data and water quality trends for selected detected constituents are included in Appendix C. Graphs are provided for constituents that frequently exceeded their respective drinking water standard and/or exhibited significant trends in their concentrations over time. The following section discusses exceedances and includes related trends, where appropriate. Following the exceedances discussion, the relationship between TDS and specific conductance is presented.

Semi-annual monitoring was been suspended in monitoring wells MW-10 and MW-12 when they were abandoned due to high sediment loads in the wells. Monitoring wells MW-10 and MW-12 were replaced by MW-10R and MW-12R, respectively, on January 22, 2008. The analytical results for these wells are discussed below.

[Future sampling activities that will be conducted to allow for the collection of representative ground water samples will include redeveloping the wells between sampling events if needed. Also, the amount of water that must be purged from a well will be accurately measured based on the volume of water and/or field parameter stabilization.](#)



## Organic Parameters Exceedances and Trends

Organic parameters with concentrations and/or estimated concentrations in excess of applicable groundwater standards for at least one sampling event in the technical report evaluation period include:

- Benzene
- Chloromethane

These exceedances and estimated exceedances are discussed below.

### Benzene

Benzene was detected slightly above the PDWS of 1 µg/L in detection well MW-8 during the January 2013 monitoring event. This was a first time exceedance. Benzene in MW-8 will be further monitored in subsequent sampling events.

### Chloromethane

Chloromethane was detected slightly above the GCTL of 2.7 µg/L in detection well MW-12R during the during the June 2012 event. This was a first time exceedance. Chloromethane in MW-12R will be further monitored in subsequent sampling events.

Chloromethane was detected slightly above the GCTL of 2.7 µg/L in detection well MW-12R during the January 2013 monitoring event. ~~This was a first time exceedance.~~ Chloromethane in MW-12R will be further monitored in subsequent sampling events.

## Total Dissolved Solids/Specific Conductance Correlation

A simple ratio was calculated to evaluate the correlation between TDS and specific conductance (SCond) data. The ratio between TDS and SCond may be evaluated using standard water/wastewater analysis methods to assess the accuracy of the laboratory methods. A generally acceptable correlation is a TDS to SCond ratio of 0.55 to 0.70. Ratios outside this range may indicate that one or both measurements are suspect.

A summary of the TDS/SCond ratios for the reporting period is presented in Table 3-4. SCS suspects an error with conductivity units for the November 2011, June 2007, December 2007, November 2008, and July 2012 monitoring events. The unit error has resulted in incorrect TDS/SCond ratios for those monitoring events. With the exception of the November 2011, June 2007, December 2007, November 2008, and July 2012 monitoring events, the ratios determined are generally within the acceptable range or just slightly below or exceeding the criteria. Deviations may be due to analytical error or sampling procedures. Overall, there are relatively few large deviations. The deviations are most likely due to differences in field sampling techniques and do not affect the quality of the reported data.

Revised Section 4  
Replacement Pages 4-1, 4-2, and 4-3

## 4 ADEQUACY OF MONITORING PROGRAM

This section assesses the adequacy of the monitoring program to observe potential effects of the HCL operations on groundwater.

### SURFICIAL AQUIFER MONITORING ADEQUACY

Table 3-2 lists monitoring wells and piezometers at the HCL. Monitoring wells listed under the “Section 1” column as “Background” and “Detection” are included during the routine semi-annual monitoring events. Piezometers are used for water elevation data only and are not sampled during the routine semi-annual monitoring events. This section discusses the adequacy of well location for horizontal and vertical monitoring and the adequacy of the semi-annual sampling frequency.

#### Monitoring Well Geographic Location

Geographic location is guided by the direction of lateral groundwater flow in the aquifers beneath the HCL.

Currently, the groundwater-monitoring plan includes eight monitoring wells, six designated as detection wells and two designated as background. Monitoring wells MW-10 and MW-12 were abandoned in January 2008 and reinstalled (MW-10R and MW-12R) closer to the edge of liner due to turbidity issues. In addition, it includes twelve piezometers that are measured for water levels only. Each monitoring well and piezometer is designed to monitor the surficial aquifer. Table 3-3 lists the monitoring wells with their current permit designation. The table also includes their approximate distance from the edge of liner, their approximate distance to the zone of discharge, and their location relative to waste along the hydraulic gradient. Distances were determined in AutoCAD based on the site location map utilizing the latitude and longitude of each well.

The current permit indicates that MW-2, MW-5, MW-8, MW-10R, MW-11, and MW-12R are detection wells. Detection wells should be located down gradient from and within 50 feet of disposal units, unless site-specific conditions make such placement impossible. Due to the presence of perimeter ditches on the north and west side of the landfill, monitoring well MW-5 was placed greater than 50 feet from the edge of waste. At the time of installation of MW-8, a leachate containment ditch was located on the southern edge of the landfill. MW-8 was placed down gradient of the leachate containment ditch. Also a heavily traveled road is located on the east side of the landfill. MW-2 was placed east of the access road to avoid traffic. It is located approximately 62 feet west of the edge of waste.

According to [Chapter 62-791 Rule 62-701.510\(3\)\(c\)](#), FAC, background wells are required to be hydraulically up gradient from waste. MW-1 and MW-4 serve this purpose in the monitoring plan.

Up-gradient wells are generally spaced at 1,500 foot intervals and side-gradient and downgradient wells are spaced at approximately 500 foot intervals according to the regulations.

## Monitoring Frequency

Groundwater monitoring frequency for the HCL is semi-annual and appears to provide sufficient data to evaluate trends in concentrations and plan appropriate evaluation monitoring where necessary.

## Monitoring Parameters

Current routine monitoring parameters include various volatile organic, metals, and inorganic constituents. There have been no findings that indicate a need to modify the routine parameter list. Consequently, the HCL will maintain the current groundwater quality monitoring parameters.

## Adequacy of the Existing and Proposed Wells

Table 3.5 lists the construction characteristics of the monitoring wells currently located at the Hardee County landfill site and the two proposed monitoring wells to be installed with the construction of the Phase II Section II Expansion. Also provided within the Table are the historical maximum and minimum groundwater levels measured at each well. As indicated, the maximum water levels measured exceeded the screen interval for all monitoring wells with the exception of MW-10R, MW-11, and MW-12R. Based on a review of the ground water elevations measured and the existing and proposed wells construction characteristics, the existing and proposed wells meet the requirements of Rule 62-701.510(3)(d)4, FAC which indicates wells monitoring the unconfined water table shall be screened so that the water table can be sampled at all times.

Table 3-5. Hardee County Landfill Monitoring Well Construction Details

Well Number	Total Depth (ft bls)	Casing Length (ft bls)	Screen Length (ft)	Ground Surface Elevation (Ft NGVD)	Screen Top/Bottom (ft bls)	Screen Top/Bottom (Ft NGVD)	Maximum Water Level (Ft NGVD)	Minimum Water Level (Ft NGVD)
MW-1	11	7.8	5	86.46	6.0 11.0	80.46 75.46	85.44 (Feb 95)	78.27 (June 00)
MW-2	10.5	7.8	5	84.56	5.5 10.5	79.06 74.06	82.46 (Dec 02)	75.56 (June 00)
MW-3	unknown	unknown	unknown	86.46	unknown	unknown	unknown	unknown
MW-4	18.9	12.2	10	84.22	8.9 18.9	75.32 65.32	83.06 (Dec 02)	76.56 (June 00)
MW-5	18.1	11	10	86.28	8.1 18.1	78.18 68.18	82.91 (Dec 97)	76.46 (June 00)
MW-6	13.5	3.5	10	85.06	3.5 13.5	81.56 71.56	83.11 (Dec 02)	75.31 (June 01)
MW-7	13.5	3.5	10	84.98	3.5 13.5	81.48 71.48	83.11 (Dec 02)	75.31 (June 01)
MW-8	13.5	3.5	10	86.63	3.5 13.5	83.13 73.13	83.18 (Dec 02)	75.58 (June 01)

<u>MW-9</u>	<u>13.5</u>	<u>3.5</u>	<u>10</u>	<u>85.9</u>	<u>3.5</u> <u>13.5</u>	<u>82.40</u> <u>72.40</u>	<u>83.11</u> (Dec 02)	<u>75.31</u> (June 01)
<u>MW-10R</u>	<u>20</u>	<u>5</u>	<u>15</u>	<u>85.49</u>	<u>5</u> <u>20</u>	<u>80.49</u> <u>65.49</u>	<u>78.19</u> (Jan 08)	<u>78.19</u> (Jan 08)
<u>MW-11</u>	<u>12</u>	<u>2</u>	<u>10</u>	<u>85.17</u>	<u>2.0</u> <u>12.0</u>	<u>79.17</u> <u>69.17</u>	<u>77.76</u> (Jan 08)	<u>77.76</u> (Jan 08)
<u>MW-12R</u>	<u>17</u>	<u>2</u>	<u>15</u>	<u>85.71</u>	<u>5</u> <u>20</u>	<u>80.71</u> <u>65.71</u>	<u>77.81</u> (Jan 08)	<u>77.81</u> (Jan 08)
<u>MW-13*</u>	<u>17</u>	<u>2</u>	<u>15</u>	<u>85.9</u>	<u>2</u> <u>17</u>	<u>83.9</u> <u>68.9</u>	<u>83.0</u> (Jan 08)**	<u>74.4</u> (MW-7 Jun 00)
<u>MW-14*</u>	<u>17</u>	<u>2</u>	<u>15</u>	<u>86.0</u>	<u>2</u> <u>17</u>	<u>84.0</u> <u>69.0</u>	<u>82.0</u> (Jan 08)**	<u>76.6</u> (MW-5 Jun 00)

Notes:

\* = Approximate elevations based upon April 3, 2012 Aerial Topography Survey of the site by Pickett & Associates, Inc.

\*\* = Approximate based on potentiometric flow maps.

## PROPOSED ACTIONS

The HCL currently consists of the Phase I and Phase II Section I disposal areas. The County recently submitted to FDEP a construction permit application for an expansion to the HCL. The *Phase II Section II Expansion Application dated August 31, 2012* included construction of the second section of a lined expansion to the west of the existing Phase I and Phase II Section I disposal areas. The Phase II Section II Expansion will require additional groundwater monitoring wells MW-13 and MW-14 to be constructed and three existing groundwater monitoring wells (MW-3, MW-5, and MW-8) to be abandoned which are located within the Expansion area. The placement of the monitoring points were based on Chapter 62-701.510, FAC and the findings of the Hardee County Hydrogeological Investigation submitted concurrently with the Hardee County Construction Application for Expansion Plan.

Revised Appendix B  
Revised Tables of Exceedances and Detections

**Summary of Detected Parameters, MW-1 (Background Monitoring Well)**

Parameter	MCL	Units	Standard	Date Sampled													
				06-06	11-06	06-07	12-07	06-08	11-08	06-09	12-09	06-10	11-10	06-11	12-11	06-12	01-13
Volatile Organic Compounds																	
1,3-Dichlorobenzene	210	ug/L	GCTL	Dry	0.31 V	Dry	0.26 V	0.25 V	---	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	---	---	---
Acetone	6300	ug/L	GCTL	Dry	4.2 I	Dry	0.74 U	1.5 U	5 U	5 U	9.07	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	1	ug/L	PDWS	Dry	0.48 U	Dry	0.34 U	0.3 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon disulfide	700	ug/L	GCTL	Dry	0.97 U	Dry	0.5 U	0.22 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane	2.7	ug/L	GCTL	Dry	0.82 U	Dry	0.37 U	0.27 U	2.5 U	2 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	2.17	0.5 U
Toluene	40	ug/L	SDWS	Dry	0.25 U	Dry	0.38 U	0.26 U	0.5 U	0.5 U	28.3	0.83	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	1	ug/L	PDWS	Dry	0.52 U	Dry	0.91 U	0.22 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Metals																	
Antimony	6	ug/L	PDWS	Dry	3.41 IV	Dry	0.82 U	0.82 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	10	ug/L	PDWS	Dry	3.41 I	Dry	8.96 IV	2.64 IV	8.81	8.79	10.8	8.17	10.5	9.89	9.69	3.82	3.66
Barium	2000	ug/L	PDWS	Dry	11.7 U	Dry	13.3 I	5 U	34	81.3	33.7	16.3	16.1	20.5	17.4	11.8	10.6
Beryllium	4	ug/L	PDWS	Dry	0.5 U	Dry	0.73 U	0.73 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chromium	100	ug/L	PDWS	Dry	9.17 I	Dry	6.38 IV	9.37 IV	5.2	7.35	8.13	6.88	6.27	4.61	7.94	2.43	6.45
Cobalt	140	ug/L	GCTL	Dry	1.34 IV	Dry	0.721 I	0.777 I	1.99 I	2.88	1.99	1.72	1.11	1 U	1.3 I	1.23 I	1 U
Copper	1000	ug/L	SDWS	Dry	3.1 U	Dry	1.34 I	0.912 I	3.02	2.29	2.69	1 U	1 U	1.74	1 U	1.17 I	2.13
Iron	300	ug/L	SDWS	Dry	6730	Dry	10400	6530 V	12100	11600	11700	12000	13200	10100	9980	8090	6590
Lead	15	ug/L	PDWS	Dry	2.8 U	Dry	0.719 I	0.5 U	1 U	1 U	1 U	1 U	1 U	2.96	1 U	1 U	1 U
Mercury	2	ug/L	PDWS	Dry	0.11 U	Dry	0.009 U	0.015 U	0.017 U	---	---	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Nickel	100	ug/L	PDWS	Dry	11.5	Dry	10	11.4	12.5	13.2	12.7	11.7	8	6.46	7.21	3.63	2.06
Selenium	50	ug/L	PDWS	Dry	1.5 U	Dry	3.39 I	3.1 U	9.73	2.59	2 U	2 U	2 U	2.32	2.62 I	2 U	2 U
Sodium	160	mg/L	PDWS	Dry	12.8	Dry	15.8	13.4 V	20	57.5	29.5	16.5	14	13.4	13.7	11.9	11.4
Thallium	2	ug/L	PDWS	Dry	0.22 U	Dry	0.228 I	0.2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.34 I	1 U
Vanadium	49	ug/L	GCTL	Dry	22.6	Dry	34.2	18.8	42.7	32.1	34.5	60.2	43.3	31.5	38.6	15.3	19.1
Zinc	5000	ug/L	SDWS	Dry	100 U	Dry	25.7 I	26.8 IV	10 U	16.3	10 U	10 U	10 U	10 U	10 U	10 U	10 U
General Chemistry																	
Ammonia as N	2.8	mg/L	GCTL	Dry	0.19	Dry	0.061	0.096	0.01 U	0.07	0.119	0.145	0.01 U	0.419	0.176	0.01 U	0.134
Nitrate as N	10	mg/L	PDWS	Dry	0.16	Dry	0.3	0.15 I	0.0913	0.01 U	0.126	0.01 U	0.01 U	0.116	0.0566	0.01 U	0.0343
Chloride	250	mg/L	SDWS	Dry	22	Dry	34 V	34	70.6	135	92.9	49.3	31.2	20.3	25.4	35.6	16.8
Total Dissolved Solids	500	mg/L	SDWS	Dry	220	Dry	320	260	452	1020	644	438	318	298	248	252	264
Field Parameters																	
Conductivity	NS	umhos/cm	NS	Dry	0.164	Dry	0.221	218	0.224	702	391	239	217	169	2.15	0.186	160
Dissolved Oxygen	NS	mg/L	NS	Dry	3.45	Dry	2.16	0.64	0.6	1.28	0.64	5.9	1.15	0.26	1.47	3.63	1.8
Dissolved Oxygen	20%	% Sat.	MPIS	Dry	42.53	Dry	25.66	8.33	7.13	15.21	7.46	70.09	13.66	3.26	17.46	44.75	20.58
Field pH	6.5-8.5	SU	SDWS	Dry	4.63	Dry	4.47	4.69	5.85	4.28	4.74	4.7	5.17	4.66	5.31	4.28	4.35
Field Temperature	NS	Degrees C	NS	Dry	25.7	Dry	24.1	29.1	23.8	23.5	23	24.5	24.2	27.1	23.9	26.5	21.8
Turbidity	NS	NTU	20	Dry	23.3	Dry	33.5	7.64	11.21	1.73	2.9	7.4	19	6.7	17.8	6.07	26.1

Notes:

1. PDWS = Primary Drinking Water Standard (62-550 F.A.C.)
2. SDWS = Secondary Drinking Water Standard (62-550 F.A.C.)
3. GCTL = Groundwater Clean-Up Target Level (62-777 F.A.C.)
4. NS = No numeric standard has been set for this analyte.
5. --- = Parameter not analyzed.
6. mg/L = milligrams per liter
7. ug/L = micrograms per liter
8. SU = Standard Units
9. NTU = nephelometric turbidity units
10. umhos/cm = micromhos per centimeter
11. % Sat = percent saturation
12. Yellow shaded values indicate parameter concentrations exceed primary, secondary drinking water standards, or groundwater cleanup target levels.
13. Degrees C = degrees Celsius
14. U = Analyte concentration was below the laboratory detection limit (value shown).
15. I = Analyte concentration was between the laboratory detection limit and laboratory practical quantitation limit.
16. V = Analyte was detected in the sample and associated method blank.
17. Q = Sample held beyond the accepted holding time.
18. Y = Laboratory analysis was from an improperly preserved sample. The data may not be accurate.
19. Dry = Monitoring well purged dry and a sample was not collected.
20. Locked = Well could not be accessed

21. 20 NTU purging criterion for turbidity presented in the Department's Standard Operating Procedure #FS 2200.

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**Summary of Detected Parameters, MW-2**

Parameter	MCL	Units	Standard	Date Sampled													
				06-06	11-06	06-07	12-07	06-08	11-08	06-09	12-09	06-10	11-10	06-11	12-11	06-12	01-13
Volatile Organic Compounds																	
1,3-Dichlorobenzene	210	ug/L	GCTL	---	0.28 V	0.18 V	0.27 V	0.29 V	---	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	---	---	---
Acetone	6300	ug/L	GCTL	1.8 U	2.6 U	2.6 U	0.74 U	1.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	1	ug/L	PDWS	0.19 U	0.48 U	0.48 U	0.34 U	0.3 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon disulfide	700	ug/L	GCTL	---	0.97 U	0.97 U	0.5 U	0.22 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane	2.7	ug/L	GCTL	---	0.82 U	0.82 U	0.37 U	0.27 U	2.5 U	2 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	40	ug/L	SDWS	---	0.25 U	0.25 U	0.38 U	0.26 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	1	ug/L	PDWS	---	0.52 U	0.52 U	0.91 U	0.22 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Metals																	
Antimony	6	ug/L	PDWS	2 I	2.86 IV	0.76 U	0.82 U	0.82 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	10	ug/L	PDWS	5 U	2.92 I	1.92 I	3.48 IV	2.31 IV	1 U	1.97	1.4	2.21	1.49	3.57	1.68 I	1.69 I	1 U
Barium	2000	ug/L	PDWS	20	30 I	19.1 I	26.1 I	34.5 I	26.2	59.4	41.6	33.1	23.2	32.2	27.1	23.5	17.4
Beryllium	4	ug/L	PDWS	---	0.5 U	0.81 U	0.73 U	0.73 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chromium	100	ug/L	PDWS	1 U	6.2 U	1.2 U	1.72 IV	1.77 IV	1 U	1.85	2.69	1 U	1 U	1.12	1.43 I	1 U	2.08
Cobalt	140	ug/L	GCTL	1 U	0.925 IV	0.26 U	0.5 U	0.5 U	1 U	1.01	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Copper	1000	ug/L	SDWS	2 U	3.1 U	0.63 U	0.5 U	0.5 U	9.1	1 U	1 U	1 U	1 U	1 U	1 U	1.3 I	1 U
Iron	300	ug/L	SDWS	8330	9600	11000	9940	13400 V	2030	4210	4480	7250	5920	13100	2620	2720	1340
Lead	15	ug/L	PDWS	3 U	2.8 U	0.17 U	0.5 U	0.5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.14 I	1 U
Mercury	2	ug/L	PDWS	---	0.11 U	0.009 U	0.009 U	0.015 U	0.017 U	---	---	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Nickel	100	ug/L	PDWS	2 U	2.6 U	1.84 I	1.69 I	3.42 I	3.74	6.68	4.32	3.9	4.49	3.51	3.9	4.79	2.98
Selenium	50	ug/L	PDWS	---	1.5 U	1.7 U	3.1 U	3.1 U	4.14	3.34	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Sodium	160	mg/L	PDWS	17.2	27.3	26.2	22.8	31 V	31.8	76.4	43.5	24.8	24.6	19	14.8	14.9	15.2
Thallium	2	ug/L	PDWS	1 U	0.22 U	0.29 U	0.221 I	0.242 I	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vanadium	49	ug/L	GCTL	5 I	2.6 U	0.38 U	5.49 I	2.65 I	2.4	6.72	2.72	1 U	2.3	2.93	6.49	10.7	1 U
Zinc	5000	ug/L	SDWS	7 I	100 U	5.2 IV	6.6 U	15.1 IV	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
General Chemistry																	
Ammonia as N	2.8	mg/L	GCTL	0.19	0.21	0.14	0.077	1.6	0.01 U	0.01 U	0.0566	0.21	0.01 U	1.18	1.22	0.402	0.365
Nitrate as N	10	mg/L	PDWS	0.02 I	0.11	0.068	0.12	0.004 U	0.0543	0.01 U	0.0762	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.285
Nitrate-Nitrite (N)	10	mg/L	PDWS	0.02 I	---	---	---	---	---	---	---	---	---	---	---	---	---
Nitrite as N	1	mg/L	PDWS	0.01 U	---	---	---	---	---	---	---	---	---	---	---	---	---
Chloride	250	mg/L	SDWS	28	27	32	31 V	65	44.6	83	48.1	43	36.9	31.8	29.1	11.8	24.8
Total Dissolved Solids	500	mg/L	SDWS	340	400	410	330	470	416	722	402	400	332	372	300	312	312
Field Parameters																	
Conductivity	NS	umhos/cm	NS	546	0.546	0.489	0.495	752	0.49	970	667	584	550	466	514	0.412	476
Dissolved Oxygen	NS	mg/L	NS	6.27	0.88	0.31	2.17	0.84	0.79	1.18	1.81	1.58	1.01	0.3	0.87	2.55	0.8
Dissolved Oxygen	20%	% Sat.	MPIS	77.3	10.85	3.68	25.78	10.17	9.56	14.55	21.5	19.83	12.45	3.77	10.34	31.44	9.15
Field pH	6.5-8.5	SU	SDWS	6.67	6.67	6.43	6.59	6.43	7.23	6.55	7	6.5	6.84	6.62	6.87	6.35	6.77
Field Temperature	NS	Degrees C	NS	26.4	25.6	24	24.5	24.8	24.8	26.4	23.8	26.6	25.6	27.4	23.6	26.1	21.5
Turbidity	NS	NTU	20	9.91	30.4	36.3	34.8	5.12	8.8	1.62	1.6	4.5	3.7	2.9	15.9	2.2	4.18

**Notes:**

1. PDWS = Primary Drinking Water Standard (62-550 F.A.C.)
2. SDWS = Secondary Drinking Water Standard (62-550 F.A.C.)
3. GCTL = Groundwater Clean-Up Target Level (62-777 F.A.C.)
4. NS = No numeric standard has been set for this analyte.
5. --- = Parameter not analyzed.
6. mg/L = milligrams per liter
7. ug/L = micrograms per liter
8. SU = Standard Units
9. NTU = nephelometric turbidity units
10. umhos/cm = micromhos per centimeter
11. % Sat = percent saturation
12. Yellow shaded values indicate parameter concentrations exceed primary, secondary drinking water standards, or groundwater cleanup target levels.
13. Degrees C = degrees Celsius
14. U = Analyte concentration was below the laboratory detection limit (value shown).
15. I = Analyte concentration was between the laboratory detection limit and laboratory practical quantitation limit.
16. V = Analyte was detected in the sample and associated method blank.
17. Q = Sample held beyond the accepted holding time.
18. Y = Laboratory analysis was from an improperly preserved sample. The data may not be accurate.
19. Dry = Monitoring well purged dry and a sample was not collected.
20. Locked = Well could not be accessed
21. 20 NTU purging criterion for turbidity presented in the Department's Standard Operating Procedure #FS 2200.

Revised June 28, 2013



**Summary of Detected Parameters, MW-4**

Parameter	MCL	Units	Standard	Date Sampled													
				06-06	11-06	06-07	12-07	06-08	11-08	06-09	12-09	06-10	11-10	06-11	12-11	06-12	01-13
Volatile Organic Compounds																	
1,3-Dichlorobenzene	210	ug/L	GCTL	---	0.28 V	Locked	0.3 V	0.25 V	---	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	---	---	---
Acetone	6300	ug/L	GCTL	1.8 U	2.6 U	Locked	0.74 U	1.5 U	5 U	5 U	10.5	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	1	ug/L	PDWS	0.19 U	0.48 U	Locked	0.34 U	0.3 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon disulfide	700	ug/L	GCTL	---	0.97 U	Locked	0.5 U	0.22 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane	2.7	ug/L	GCTL	---	0.82 U	Locked	0.37 U	0.27 U	2.5 U	2 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	40	ug/L	SDWS	---	0.25 U	Locked	0.38 U	0.26 U	0.5 U	16.6	2.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	1	ug/L	PDWS	---	0.52 U	Locked	0.91 U	0.22 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Metals																	
Antimony	6	ug/L	PDWS	2 U	2.7 IV	Locked	0.82 U	0.82 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	10	ug/L	PDWS	10 I	13.8	Locked	9.24 I	10.8 V	14.4	9.63	10.7	9.57	10.4	10.9	11.1	9.68	7.53
Barium	2000	ug/L	PDWS	14	11.7 U	Locked	6.76 I	10.1 I	15.6	14.1	17.5	16.1	11.6	15.2	22.5	13.9	11.4
Beryllium	4	ug/L	PDWS	---	0.5 U	Locked	0.73 U	0.73 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chromium	100	ug/L	PDWS	6	6.2 U	Locked	5.45 IV	4.81 IV	3.84	4.32	5.39	4.42	4.35	5.65	4.72	2.29	4.9
Cobalt	140	ug/L	GCTL	1 U	0.771 IV	Locked	0.5 U	0.5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.39 I	1 U
Copper	1000	ug/L	SDWS	2 U	3.1 U	Locked	0.5 U	0.5 U	3.3	1 U	1 U	2.1	1 U	1 U	1.3 I	3.93	1 U
Iron	300	ug/L	SDWS	8620	6310	Locked	6410	10300 V	9170	8580	10900	10500	10200	9220	10700	2810	5020
Lead	15	ug/L	PDWS	3 U	2.8 U	Locked	0.5 U	0.5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Mercury	2	ug/L	PDWS	---	0.11 U	Locked	0.009 U	0.015 U	0.017 U	---	---	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Nickel	100	ug/L	PDWS	2 U	2.6 U	Locked	1.05 I	1.6 I	1.82 I	3.34	3.1	3.27	3.95	2.65	5.69	11.9	1 U
Selenium	50	ug/L	PDWS	---	1.5 U	Locked	3.1 U	3.1 U	6.66	2 U	2 U	2 U	2 U	2 U	2.87 I	2 U	2 U
Sodium	160	mg/L	PDWS	4.8	5.59	Locked	6.92	5.83 V	6.22	14	11.2	7.1	7.63	7	11.4	17.7	6.85
Thallium	2	ug/L	PDWS	1 U	0.22 U	Locked	0.2 U	0.2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vanadium	49	ug/L	GCTL	18	10.7	Locked	12.1	10.4	12.6	11.8	13.8	14.9	12.6	15.3	15	7.92	9.08
Zinc	5000	ug/L	SDWS	4 U	100 U	Locked	6.6 U	14.8 IV	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
General Chemistry																	
Ammonia as N	2.8	mg/L	GCTL	0.3	0.14	Locked	0.11	0.28	1.29	3.67	1.52	0.427	0.01 U	0.284	0.333	0.01 U	0.19
Nitrate as N	10	mg/L	PDWS	0.02 I	0.091	Locked	0.13	0.004 U	0.01 U	0.01 U	0.02	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Nitrate-Nitrite (N)	10	mg/L	PDWS	0.02 I	---	Locked	---	---	---	---	---	---	---	---	---	---	---
Nitrite as N	1	mg/L	PDWS	0.02 I	---	Locked	---	---	---	---	---	---	---	---	---	---	---
Chloride	250	mg/L	SDWS	7.7	5.1	Locked	13 V	12	15.9	20	20.3	16.2	15.3	10.6	22.1	35.7	14.5
Total Dissolved Solids	500	mg/L	SDWS	212	290	Locked	170	190	274	314	352	314	246	270	436	698	302
Field Parameters																	
Conductivity	NS	umhos/cm	NS	248	0.293	Locked	0.176	242	0.268	398	437	353	286	199	555	0.742	300
Dissolved Oxygen	NS	mg/L	NS	0.73	0.09	Locked	0.29	0.23	0.85	0.79	0.49	0.89	0.4	0.24	0.12	3.01	0.4
Dissolved Oxygen	20%	% Sat.	MPIs	8.51	1.07	Locked	3.38	2.68	10.1	9.38	5.71	10.37	4.75	2.8	1.37	35.76	4.66
Field pH	6.5-8.5	SU	SDWS	6.07	6.49	Locked	5.83	5.53	6.86	6.2	6.65	6.31	6.65	6.02	6.43	5.71	6.16
Field Temperature	NS	Degrees C	NS	23.2	23.7	Locked	23.2	22.7	23.8	23.8	22.7	23.1	23.6	23.3	22.2	24.5	23.3
Turbidity	NS	NTU	20	13.82	4.21	Locked	13.2	4.13	6.9	1.03	2.8	2.6	3.2	5.7	2.11	3.07	14.6

Notes:

1. PDWS = Primary Drinking Water Standard (62-550 F.A.C.)
2. SDWS = Secondary Drinking Water Standard (62-550 F.A.C.)
3. GCTL = Groundwater Clean-Up Target Level (62-777 F.A.C.)
4. NS = No numeric standard has been set for this analyte.
5. --- = Parameter not analyzed.
6. mg/L = milligrams per liter
7. ug/L = micrograms per liter
8. SU = Standard Units
9. NTU = nephelometric turbidity units
10. umhos/cm = micromhos per centimeter
11. % Sat = percent saturation
12. Yellow shaded values indicate parameter concentrations exceed primary, secondary drinking water standards, or groundwater cleanup target levels.
13. Degrees C = degrees Celsius
14. U = Analyte concentration was below the laboratory detection limit (value shown).
15. I = Analyte concentration was between the laboratory detection limit and laboratory practical quantitation limit.
16. V = Analyte was detected in the sample and associated method blank.
17. Q = Sample held beyond the accepted holding time.
18. Y = Laboratory analysis was from an improperly preserved sample. The data may not be accurate.
19. Dry = Monitoring well purged dry and a sample was not collected.
20. Locked = Well could not be accessed

21. 20 NTU purging criterion for turbidity presented in the Department's Standard Operating Procedure #FS 2200.

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**Summary of Detected Parameters, MW-5**

Parameter	MCL	Units	Standard	Date Sampled													
				06-06	11-06	06-07	12-07	06-08	11-08	06-09	12-09	06-10	11-10	06-11	12-11	06-12	01-13
Volatile Organic Compounds																	
1,3-Dichlorobenzene	210	ug/L	GCTL	---	0.28 V	0.18 V	0.29 V	0.28 V	---	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	---	---	---
Acetone	6300	ug/L	GCTL	1.8 U	2.6 U	2.6 U	0.74 U	1.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	1	ug/L	PDWS	0.19 U	0.48 U	0.48 U	0.34 U	0.3 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon disulfide	700	ug/L	GCTL	---	0.97 U	0.97 U	0.5 U	0.22 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane	2.7	ug/L	GCTL	---	0.82 U	0.82 U	0.37 U	0.27 U	2.5 U	2 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	40	ug/L	SDWS	---	0.25 U	0.25 U	0.38 U	0.26 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	1	ug/L	PDWS	---	0.52 U	0.52 U	0.91 U	0.22 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Metals																	
Antimony	6	ug/L	PDWS	2 U	2.92 IV	0.76 U	0.82 U	0.82 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	10	ug/L	PDWS	5 U	2.17 I	3.14 I	3.17 IV	1.41 IV	1 U	5.09	2.58	1.36	1.12	1.74	1 U	1.21 I	1 U
Barium	2000	ug/L	PDWS	2 U	11.7 U	1.3 U	5 U	5 U	4.3	3.4	3.3	3.34	2.1	5.58	4.46	2.35 I	2.67 I
Beryllium	4	ug/L	PDWS	---	0.5 U	0.81 U	0.73 U	0.73 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chromium	100	ug/L	PDWS	2 I	6.2 U	3.24 I	3 IV	2.37 IV	1.51 I	2.1	2.08	1.64	1.18	2.19	2.64	1.19 I	3.02
Cobalt	140	ug/L	GCTL	1 U	0.781 IV	0.26 U	0.5 U	0.5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Copper	1000	ug/L	SDWS	2 U	3.1 U	7.9 I	0.5 U	0.5 U	4.17	1 U	1 U	1 U	1 U	1 U	1 U	1.02 I	1 U
Iron	300	ug/L	SDWS	4010	2190	8210	3700	5060 V	4040	3580	1530	5900	4150	7390	5150	1050	3390
Lead	15	ug/L	PDWS	3 U	2.8 U	0.375 I	0.5 U	0.5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Mercury	2	ug/L	PDWS	---	0.11 U	0.045 I	0.009 U	0.015 U	0.017 U	---	---	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Nickel	100	ug/L	PDWS	2 U	2.6 U	0.47 U	0.5 U	0.5 U	1 U	2.23	1.12	1 U	1.16	1 U	1 U	2.14	1 U
Selenium	50	ug/L	PDWS	---	1.5 U	1.7 U	3.1 U	3.1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Sodium	160	mg/L	PDWS	2.5	21.1	2.94	3.63	6.74 V	3.06	17.8	10.1	4.48	5.68	6.18	4.03	6.67	4.18
Thallium	2	ug/L	PDWS	1 U	0.22 U	0.29 U	0.2 U	0.2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vanadium	49	ug/L	GCTL	3 I	2.6 U	2.42 I	0.504 I	1.47 I	1 U	3.46	5.31	1 U	2.28	3.21	1 U	11.8	1.25 I
Zinc	5000	ug/L	SDWS	4 U	100 U	30.8 IV	6.6 U	13.6 IV	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
General Chemistry																	
Ammonia as N	2.8	mg/L	GCTL	0.21	0.11	0.16	0.18	0.21	0.131	0.01 U	0.131	0.155	0.01 U	0.293	0.21	0.01 U	0.127
Nitrate as N	10	mg/L	PDWS	0.02 U	0.46	0.029 I	0.2	0.23 I	0.01 U	0.01 U	0.307	0.01 U	0.01 U	0.0202	0.01 U	0.32	0.0342
Nitrate-Nitrite (N)	10	mg/L	PDWS	0.02 U	---	---	---	---	---	---	---	---	---	---	---	---	---
Nitrite as N	1	mg/L	PDWS	0.01 U	---	---	---	---	---	---	---	---	---	---	---	---	---
Chloride	250	mg/L	SDWS	4.3	21	3.2	9.8 V	13	7.71	25	31.4	14.8	13.9	14.1	11.4	9.26	10.7
Total Dissolved Solids	500	mg/L	SDWS	66	190	68	84	120	60	208	160	64	70	132	70	140	94
Field Parameters																	
Conductivity	NS	umhos/cm	NS	66	0.257	0.045	0.071	184	0.065	327	243	107	120	125	97	0.201	135
Dissolved Oxygen	NS	mg/L	NS	0.49	0.63	0.18	0.09	0.48	0.26	0.85	0.1	0.17	0.21	0.14	0.1	4.32	0.9
Dissolved Oxygen	20%	% Sat.	MPIS	6.04	7.77	2.18	1.09	5.92	3.03	10.1	1.19	2.06	2.54	1.73	1.21	54.23	10.69
Field pH	6.5-8.5	SU	SDWS	5.13	5.06	4.42	4.43	5.42	5.46	---	5.88	5.12	4.99	4.99	5.39	4.72	5.28
Field Temperature	NS	Degrees C	NS	26.3	25.7	25.1	25.4	25.5	23.1	23.8	23.9	24.9	24.9	26.5	24.6	27.1	24.1
Turbidity	NS	NTU	20	6.5	10.1	19.8	5.59	6.65	11.4	1.4	2.94	2.8	3.68	1.6	0.9	3.49	13.8

**Notes:**

1. PDWS = Primary Drinking Water Standard (62-550 F.A.C.)
2. SDWS = Secondary Drinking Water Standard (62-550 F.A.C.)
3. GCTL = Groundwater Clean-Up Target Level (62-777 F.A.C.)
4. NS = No numeric standard has been set for this analyte.
5. --- = Parameter not analyzed.
6. mg/L = milligrams per liter
7. ug/L = micrograms per liter
8. SU = Standard Units
9. NTU = nephelometric turbidity units
10. umhos/cm = micromhos per centimeter
11. % Sat = percent saturation
12. Yellow shaded values indicate parameter concentrations exceed primary, secondary drinking water standards, or groundwater cleanup target levels.
13. Degrees C = degrees Celsius
14. U = Analyte concentration was below the laboratory detection limit (value shown).
15. I = Analyte concentration was between the laboratory detection limit and laboratory practical quantitation limit.
16. V = Analyte was detected in the sample and associated method blank.
17. Q = Sample held beyond the accepted holding time.
18. Y = Laboratory analysis was from an improperly preserved sample. The data may not be accurate.
19. Dry = Monitoring well purged dry and a sample was not collected.
20. Locked = Well could not be accessed

21. 20 NTU purging criterion for turbidity presented in the Department's Standard Operating Procedure #FS 2200.

Revised June 28, 2013

**Summary of Detected Parameters, MW-8**

Parameter	MCL	Units	Standard	Date Sampled													
				06-06	11-06	06-07	12-07	06-08	11-08	06-09	12-09	06-10	11-10	06-11	12-11	06-12	01-13
Volatile Organic Compounds																	
1,3-Dichlorobenzene	210	ug/L	GCTL	---	0.3 V	0.16 V	Dry	0.28 V	---	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	---	---	---
Acetone	6300	ug/L	GCTL	1.8 U	2.6 U	2.6 U	Dry	1.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	1	ug/L	PDWS	0.19 U	0.48 U	0.48 U	Dry	0.3 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.66	0.5 U	1.16
Carbon disulfide	700	ug/L	GCTL	---	0.97 U	0.97 U	Dry	0.22 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane	2.7	ug/L	GCTL	---	0.82 U	0.82 U	Dry	0.27 U	2.5 U	2 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	40	ug/L	SDWS	---	0.25 U	0.25 U	Dry	0.26 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	1	ug/L	PDWS	---	0.52 U	0.52 U	Dry	0.22 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.95
Metals																	
Antimony	6	ug/L	PDWS	2 I	2.62 IV	0.774 I	Dry	0.82 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	10	ug/L	PDWS	5 U	2 U	0.98 U	Dry	1.16 IV	1 U	1 U	1 U	1 U	1 U	1.01	1 U	1.12 I	1 U
Barium	2000	ug/L	PDWS	39	32.3 I	1.3 U	Dry	5 U	3.99 I	2.88	3.3	6.31	4.13	5.67	4.5	2 U	3.89 I
Beryllium	4	ug/L	PDWS	---	0.5 U	0.81 U	Dry	0.73 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chromium	100	ug/L	PDWS	16	14.4	2.49 I	Dry	1.55 IV	1 U	1 U	1.91	1 U	1.21	2.12	2.32	1 U	3.24
Cobalt	140	ug/L	GCTL	1 I	2.19 IV	0.26 U	Dry	0.557 I	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Copper	1000	ug/L	SDWS	18	35	0.63 U	Dry	1.48 I	1 U	1 U	1.4	2.18	1.51	1 U	1 U	1.91	1 U
Iron	300	ug/L	SDWS	2260	12900	3260	Dry	2050 V	1110	1020	35.1 V	36.5	284	1150	1210	658	12200
Lead	15	ug/L	PDWS	4 I	3.98 I	1.2 I	Dry	0.5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Mercury	2	ug/L	PDWS	---	0.11 U	0.009 U	Dry	0.015 U	0.017 U	---	---	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Nickel	100	ug/L	PDWS	7 I	12.6	1.15 I	Dry	2.12 I	2.6	2.04	1.87	1.96	4.16	3.46	3.71	4.56	3.5
Selenium	50	ug/L	PDWS	---	1.5 U	1.7 U	Dry	3.1 U	5.12	2 U	2 U	2 U	2.21	3.94 I	2 U	2 U	2 U
Sodium	160	mg/L	PDWS	8.4	7.17	6.94	Dry	6.18 V	7.43	10.8	6.06	5.81	12.9	10.3	7.95	5.94	8.98
Thallium	2	ug/L	PDWS	1 U	0.22 U	0.29 U	Dry	0.226 I	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vanadium	49	ug/L	GCTL	15	21.9	2.12 I	Dry	8.48 I	1.93 I	2.58	19.6	19.6	10.9	5.63	1 U	5.34	2.74
Zinc	5000	ug/L	SDWS	279	491	72.1 V	Dry	133 V	129	35.6	96	318	133	80	10 U	68.6	31.8
General Chemistry																	
Ammonia as N	2.8	mg/L	GCTL	0.95	0.1	0.051	Dry	0.094	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.144	0.238	0.01 U	1.01
Nitrate as N	10	mg/L	PDWS	1.3	0.08	0.008 U	Dry	0.27 I	0.01 U	0.01 U	12.6	8.02	0.137	0.129	0.01 U	0.01 U	0.0136 I
Nitrate-Nitrite (N)	10	mg/L	PDWS	1.38	---	---	Dry	---	---	---	---	---	---	---	---	---	---
Nitrite as N	1	mg/L	PDWS	0.08	---	---	Dry	---	---	---	---	---	---	---	---	---	---
Chloride	250	mg/L	SDWS	9.1	4.4	5.5	Dry	6.3	15.6	8.83	16	11.7	24.8	16.1	10.5	7.05	13
Total Dissolved Solids	500	mg/L	SDWS	134	72	110	Dry	98	172	130	230	180	186	254	218	288	330
Field Parameters																	
Conductivity	NS	umhos/cm	NS	172	0.96	0.122	Dry	162	0.184	180	285	298	317	312	365	0.377	562
Dissolved Oxygen	NS	mg/L	NS	11.08	1.46	0.87	Dry	1.67	0.29	0.32	1.44	1.74	0.42	0.16	0.7	4.12	0.6
Dissolved Oxygen	20%	% Sat.	MPIS	151.76	18.33	10.92	Dry	21.34	4.86	3.87	17.11	21.84	5.08	1.97	8.47	52.65	7.67
Field pH	6.5-8.5	SU	SDWS	5.72	5.36	5.56	Dry	5.53	5.4	5.51	6.16	6.02	5.92	5.69	6.28	5.73	5.95
Field Temperature	NS	Degrees C	NS	31.9	27.1	26.9	Dry	28.4	44.9	25.3	24.5	26.7	24.8	26.3	25	27.8	27.7
Turbidity	NS	NTU	20	391.8	10.3	38.8	Dry	16.49	NTU	2.7	5.02	4.98	12.9	1.03	1.6	4.15	2.21

**Notes:**

1. PDWS = Primary Drinking Water Standard (62-550 F.A.C.)
2. SDWS = Secondary Drinking Water Standard (62-550 F.A.C.)
3. GCTL = Groundwater Clean-Up Target Level (62-777 F.A.C.)
4. NS = No numeric standard has been set for this analyte.
5. --- = Parameter not analyzed.
6. mg/L = milligrams per liter
7. ug/L = micrograms per liter
8. SU = Standard Units
9. NTU = nephelometric turbidity units
10. umhos/cm = micromhos per centimeter
11. % Sat = percent saturation
12. Yellow shaded values indicate parameter concentrations exceed primary, secondary drinking water standards, or groundwater cleanup target levels.
13. Degrees C = degrees Celsius
14. U = Analyte concentration was below the laboratory detection limit (value shown).
15. I = Analyte concentration was between the laboratory detection limit and laboratory practical quantitation limit.
16. V = Analyte was detected in the sample and associated method blank.
17. Q = Sample held beyond the accepted holding time.
18. Y = Laboratory analysis was from an improperly preserved sample. The data may not be accurate.
19. Dry = Monitoring well purged dry and a sample was not collected.
20. Locked = Well could not be accessed

21. 20 NTU purging criterion for turbidity presented in the Department's Standard Operating Procedure #FS 2200.

Revised June 28, 2013

**Summary of Detected Parameters, MW-10**

Parameter	MCL	Units	Standard	Date Sampled		
				06-07	09-07	12-07
Volatile Organic Compounds						
1,3-Dichlorobenzene	210	ug/L	GCTL	0.17 V	---	0.28 V
Acetone	6300	ug/L	GCTL	---	---	0.74 U
Benzene	1	ug/L	PDWS	---	---	0.34 U
Carbon disulfide	700	ug/L	GCTL	---	---	0.5 U
Chloromethane	2.7	ug/L	GCTL	---	---	0.37 U
Toluene	40	ug/L	SDWS	---	---	0.38 U
Vinyl chloride	1	ug/L	PDWS	---	---	0.91 U
Metals						
Antimony	6	ug/L	PDWS	0.76 U	---	1.23 I
Arsenic	10	ug/L	PDWS	8.59 I	---	13.3
Barium	2000	ug/L	PDWS	689	---	1160
Beryllium	4	ug/L	PDWS	2.02	---	3.61
Chromium	100	ug/L	PDWS	48.4	---	76.2 V
Cobalt	140	ug/L	GCTL	3.31 IV	---	0.5 U
Copper	1000	ug/L	SDWS	6.53 I	---	7.58 I
Iron	300	ug/L	SDWS	16500	---	14100
Lead	15	ug/L	PDWS	25.9 V	---	44.8
Mercury	2	ug/L	PDWS	0.085 IV	---	0.171 I
Nickel	100	ug/L	PDWS	5.13 I	---	4.7 I
Selenium	50	ug/L	PDWS	2.59 I	---	6.88 I
Sodium	160	mg/L	PDWS	8.63	---	8.64
Thallium	2	ug/L	PDWS	0.29 U	---	0.266 I
Vanadium	49	ug/L	GCTL	41.8	---	59
Zinc	5000	ug/L	SDWS	17 IV	---	14.2 I
General Chemistry						
Ammonia as N	2.8	mg/L	GCTL	0.036	---	0.0077 U
Nitrate as N	10	mg/L	PDWS	0.048 I	---	0.18
Chloride	250	mg/L	SDWS	7.4 V	---	5.4 V
Total Dissolved Solids	500	mg/L	SDWS	160	---	440
Field Parameters						
Conductivity	NS	umhos/cm	NS	---	247	0.215
Dissolved Oxygen	NS	mg/L	NS	---	1.73	0.314
Dissolved Oxygen	20%	% Sat.	MPIS	---	22.11	3.8
Field pH	6.5-8.5	SU	SDWS	---	5.70	5.87
Field Temperature	NS	Degrees C	NS	---	28.20	24.9
Turbidity	NS	NTU	20	---	15.30	1000

**Notes:**

1. PDWS = Primary Drinking Water Standard (62-550 F.A.C.)
2. SDWS = Secondary Drinking Water Standard (62-550 F.A.C.)
3. GCTL = Groundwater Clean-Up Target Level (62-777 F.A.C.)
4. NS = No numeric standard has been set for this analyte.
5. --- = Parameter not analyzed.
6. mg/L = milligrams per liter
7. ug/L = micrograms per liter
8. SU = Standard Units
9. NTU = nephelometric turbidity units
10. umhos/cm = micromhos per centimeter
11. % Sat = percent saturation
12. Yellow shaded values indicate parameter concentrations exceed primary, secondary drinking water standards, or groundwater cleanup target levels.
13. Degrees C = degrees Celsius
14. U = Analyte concentration was below the laboratory detection limit (value shown).
15. I = Analyte concentration was between the laboratory detection limit and laboratory practical quantitation limit.
16. V = Analyte was detected in the sample and associated method blank.
17. Q = Sample held beyond the accepted holding time.
18. Y = Laboratory analysis was from an improperly preserved sample. The data may not be accurate.
19. Dry = Monitoring well purged dry and a sample was not collected.
20. Locked = Well could not be accessed
21. 20 NTU purging criterion for turbidity presented in the Department's Standard Operating Procedure #FS 2200.

Revised June 28, 2013

**Summary of Detected Parameters, MW-10R**

Parameter	MCL	Units	Standard	Date Sampled									
				06-08	11-08	06-09	12-09	06-10	11-10	06-11	12-11	06-12	01-13
Volatile Organic Compounds													
1,3-Dichlorobenzene	210	ug/L	GCTL	0.28 V	---	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	---	---	---
Acetone	6300	ug/L	GCTL	1.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	1	ug/L	PDWS	0.3 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon disulfide	700	ug/L	GCTL	0.22 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane	2.7	ug/L	GCTL	0.27 U	2.5 U	2 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	40	ug/L	SDWS	0.26 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	1	ug/L	PDWS	0.22 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Metals													
Antimony	6	ug/L	PDWS	0.82 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	10	ug/L	PDWS	3.31 IV	2.83	2.01	1.9	2.1	2.39	2.39	3.02	2.65	2.43
Barium	2000	ug/L	PDWS	5 U	11	7.27	4.13	4.43	4.33	10.2	17.7	11.3	19.5
Beryllium	4	ug/L	PDWS	0.73 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chromium	100	ug/L	PDWS	1.73 IV	1.8 I	1.46	2.94	1.39	1.36	2.09	2.01	1 U	2.6
Cobalt	140	ug/L	GCTL	0.5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Copper	1000	ug/L	SDWS	0.5 U	1.34 I	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Iron	300	ug/L	SDWS	6900 V	7250	6940	4940	6230	8290	12500	21300	17100	25700
Lead	15	ug/L	PDWS	0.5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Mercury	2	ug/L	PDWS	0.015 U	0.017 U	---	---	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Nickel	100	ug/L	PDWS	0.5 U	1.36 I	1 U	1.34	1 U	1 U	1.03	1.29 I	2.53	1 U
Selenium	50	ug/L	PDWS	3.1 U	3.76 I	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Sodium	160	mg/L	PDWS	9.93 V	9.8	12.7	9.73	8.35	9.53	10.5	10.3	12	11.2
Thallium	2	ug/L	PDWS	0.2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vanadium	49	ug/L	GCTL	1.44 I	3.41	2.49	1.19	1.27	2.57	2.94	1 U	2.94	1.53 I
Zinc	5000	ug/L	SDWS	13.1 IV	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
General Chemistry													
Ammonia as N	2.8	mg/L	GCTL	0.062	0.307	0.01 U	0.0219	0.035	0.0871	0.204	0.497	0.239	0.305
Nitrate as N	10	mg/L	PDWS	0.004 U	0.283	0.01 U	0.0215	0.01 U	0.01 U	0.0294	0.0206	0.144	0.01 U
Chloride	250	mg/L	SDWS	9	12.9	8.3	24.1	8.73	9.82	10.8	17.4	16.2	16.8
Total Dissolved Solids	500	mg/L	SDWS	66	110	90	108	62	70	112	162	242	166
Field Parameters													
Conductivity	NS	umhos/cm	NS	114	0.11	134	127	123	121	133	271	0.389	335
Dissolved Oxygen	NS	mg/L	NS	0.37	0.23	0.86	0.59	0.85	0.28	0.15	0.14	4.28	0.7
Dissolved Oxygen	20%	% Sat.	MPIS	4.48	2.73	6.74	7.27	10.48	3.51	1.85	1.69	51.8	8.47
Field pH	6.5-8.5	SU	SDWS	5.1	5.72	5.44	5.19	4.97	5.53	5.31	6.09	5.54	5.57
Field Temperature	NS	Degrees C	NS	25	24.4	25.2	25.9	26	26.7	26.4	24.6	25.1	24.7
Turbidity	NS	NTU	20	0.81	18.7	0.55	1.2	2.3	1.7	2.5	1.9	8.88	19.8

Notes:

1. PDWS = Primary Drinking Water Standard (62-550 F.A.C.)
2. SDWS = Secondary Drinking Water Standard (62-550 F.A.C.)
3. GCTL = Groundwater Clean-Up Target Level (62-777 F.A.C.)
4. NS = No numeric standard has been set for this analyte.
5. --- = Parameter not analyzed.
6. mg/L = milligrams per liter
7. ug/L = micrograms per liter
8. SU = Standard Units
9. NTU = nephelometric turbidity units
10. umhos/cm = micromhos per centimeter
11. % Sat = percent saturation
12. Yellow shaded values indicate parameter concentrations exceed primary, secondary drinking water standards, or groundwater cleanup target levels.
13. Degrees C = degrees Celsius
14. U = Analyte concentration was below the laboratory detection limit (value shown).
15. I = Analyte concentration was between the laboratory detection limit and laboratory practical quantitation limit.
16. V = Analyte was detected in the sample and associated method blank.
17. Q = Sample held beyond the accepted holding time.
18. Y = Laboratory analysis was from an improperly preserved sample. The data may not be accurate.
19. Dry = Monitoring well purged dry and a sample was not collected.
20. Locked = Well could not be accessed

21. 20 NTU purging criterion for turbidity presented in the Department's Standard Operating Procedure #FS 2200.

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**Summary of Detected Parameters, MW-11**

Parameter	MCL	Units	Standard	Date Sampled											
				09-07	12-07	06-08	11-08	06-09	12-09	06-10	11-10	06-11	12-11	06-12	01-13
Volatile Organic Compounds															
1,3-Dichlorobenzene	210	ug/L	GCTL	---	0.29 V	0.33 V	---	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	---	---	---
Acetone	6300	ug/L	GCTL	---	0.74 U	1.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	1	ug/L	PDWS	---	0.34 U	0.3 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon disulfide	700	ug/L	GCTL	---	1.3 I	0.22 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane	2.7	ug/L	GCTL	---	0.37 U	0.27 U	2.5 U	2 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	40	ug/L	SDWS	---	0.38 U	0.26 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	1	ug/L	PDWS	---	0.91 U	0.22 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Metals															
Antimony	6	ug/L	PDWS	---	0.82 U	0.82 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	10	ug/L	PDWS	---	1.61 IV	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Barium	2000	ug/L	PDWS	---	14.3 I	15.9 I	14.5	13.3	14.1	10.5	8.8	10.7	10.7	14	7.08
Beryllium	4	ug/L	PDWS	---	0.73 U	0.73 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chromium	100	ug/L	PDWS	---	1.74 IV	1.67 IV	1.19 I	1.26	5.31	1.37	1.61	2.61	2.29	1.09 I	2.72
Cobalt	140	ug/L	GCTL	---	1.34 I	1.7 I	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Copper	1000	ug/L	SDWS	---	0.5 U	0.5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Iron	300	ug/L	SDWS	---	2320	1870 V	244	105	143 V	129	224	349	178	130	225
Lead	15	ug/L	PDWS	---	0.5 U	0.5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Mercury	2	ug/L	PDWS	---	0.009 U	0.015 U	0.017 U	---	---	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Nickel	100	ug/L	PDWS	---	0.5 U	0.5 U	1 U	1 U	2.29	1 U	1 U	1 U	1 U	1 U	1 U
Selenium	50	ug/L	PDWS	---	3.1 U	3.1 U	3.58 I	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Sodium	160	mg/L	PDWS	---	11.8	11 V	7.21	11.4	9.78	5.38	6.53	6.01	3.72	8.64	3.25
Thallium	2	ug/L	PDWS	---	0.2 U	0.2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vanadium	49	ug/L	GCTL	---	0.5 U	0.524 I	1 U	3.61	3.73	2.09	3.64	5.21	5.61	4.54	3.84
Zinc	5000	ug/L	SDWS	---	14.3 I	15.6 IV	10 U	10 U	10 U	14.3	11.7	10 U	18.1 I	53.4	11.6 I
General Chemistry															
Ammonia as N	2.8	mg/L	GCTL	---	0.063	0.073	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0207	0.01 U	0.01 U
Nitrate as N	10	mg/L	PDWS	---	0.12	0.004 U	0.01 U	0.01 U	2.68	0.01 U	0.01 U	0.01 U	0.01 U	1.01	0.01 U
Chloride	250	mg/L	SDWS	---	17 V	18	12.4	12.2	10.8	9.11	11.7	5.22	5.46	17.9	4 U
Total Dissolved Solids	500	mg/L	SDWS	---	680	50	62	58	106	30	54	74	38	56	2.5 U
Field Parameters															
Conductivity	NS	umhos/cm	NS	106	0.094	99	0.046	77.3	95	68	73	56	46.8	0.116	41
Dissolved Oxygen	NS	mg/L	NS	0.43	0.5	0.47	0.37	0.38	0.7	0.24	0.22	0.14	0.23	7.68	1.2
Dissolved Oxygen	20%	% Sat.	MPIS	5.5	6.16	5.79	4.4	4.6	8.32	2.9	2.66	1.73	2.73	92.95	14.26
Field pH	6.5-8.5	SU	SDWS	4.66	3.58	4.53	4.83	4.39	5.17	5.17	4.7	4.85	5.16	3.8	3.39
Field Temperature	NS	Degrees C	NS	27.50	26	25.8	23.5	24.7	24.4	25	24.9	25.8	24.3	25.2	24.3
Turbidity	NS	NTU	20	2.03	4.85	10.33	17	---	68.3	12.7	13	10.3	18.5	8.88	35

Notes:

1. PDWS = Primary Drinking Water Standard (62-550 F.A.C.)
2. SDWS = Secondary Drinking Water Standard (62-550 F.A.C.)
3. GCTL = Groundwater Clean-Up Target Level (62-777 F.A.C.)
4. NS = No numeric standard has been set for this analyte.
5. --- = Parameter not analyzed.
6. mg/L = milligrams per liter
7. ug/L = micrograms per liter
8. SU = Standard Units
9. NTU = nephelometric turbidity units
10. umhos/cm = micromhos per centimeter
11. % Sat = percent saturation
12. Yellow shaded values indicate parameter concentrations exceed primary, secondary drinking water standards, or groundwater cleanup target levels.
13. Degrees C = degrees Celsius
14. U = Analyte concentration was below the laboratory detection limit (value shown).
15. I = Analyte concentration was between the laboratory detection limit and laboratory practical quantitation limit.
16. V = Analyte was detected in the sample and associated method blank.
17. Q = Sample held beyond the accepted holding time.
18. Y = Laboratory analysis was from an improperly preserved sample. The data may not be accurate.
19. Dry = Monitoring well purged dry and a sample was not collected.
20. Locked = Well could not be accessed
21. 20 NTU purging criterion for turbidity presented in the Department's Standard Operating Procedure #FS 2200.

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**Summary of Detected Parameters, MW-12**

Parameter	MCL	Units	Standard	Date Sampled	
				09-07	12-07
Volatile Organic Compounds					
1,3-Dichlorobenzene	210	ug/L	GCTL	---	0.28 V
Acetone	6300	ug/L	GCTL	---	0.74 U
Benzene	1	ug/L	PDWS	---	0.34 U
Carbon disulfide	700	ug/L	GCTL	---	0.5 U
Chloromethane	2.7	ug/L	GCTL	---	0.37 U
Toluene	40	ug/L	SDWS	---	1.1
Vinyl chloride	1	ug/L	PDWS	---	0.91 U
Metals					
Antimony	6	ug/L	PDWS	---	0.82 U
Arsenic	10	ug/L	PDWS	---	2.58 IV
Barium	2000	ug/L	PDWS	---	35 I
Beryllium	4	ug/L	PDWS	---	0.73 U
Chromium	100	ug/L	PDWS	---	5.26 IV
Cobalt	140	ug/L	GCTL	---	0.5 U
Copper	1000	ug/L	SDWS	---	50.8
Iron	300	ug/L	SDWS	---	457
Lead	15	ug/L	PDWS	---	6.16
Mercury	2	ug/L	PDWS	---	0.087 I
Nickel	100	ug/L	PDWS	---	0.5 U
Selenium	50	ug/L	PDWS	---	3.17 I
Sodium	160	mg/L	PDWS	---	7.12
Thallium	2	ug/L	PDWS	---	0.2 U
Vanadium	49	ug/L	GCTL	---	8.11 I
Zinc	5000	ug/L	SDWS	---	33.8 I
General Chemistry					
Ammonia as N	2.8	mg/L	GCTL	---	0.28
Nitrate as N	10	mg/L	PDWS	---	0.18
Chloride	250	mg/L	SDWS	---	4.9 V
Total Dissolved Solids	500	mg/L	SDWS	---	150
Field Parameters					
Conductivity	NS	umhos/cm	NS	117	0.104
Dissolved Oxygen	NS	mg/L	NS	3.63	0.4
Dissolved Oxygen	20%	% Sat.	MPIS	47.22	5.02
Field pH	6.5-8.5	SU	SDWS	5.48	5
Field Temperature	NS	Degrees C	NS	28.80	26.7
Turbidity	NS	NTU	20	51.50	125

Notes:

1. PDWS = Primary Drinking Water Standard (62-550 F.A.C.)
2. SDWS = Secondary Drinking Water Standard (62-550 F.A.C.)
3. GCTL = Groundwater Clean-Up Target Level (62-777 F.A.C.)
4. NS = No numeric standard has been set for this analyte.
5. --- = Parameter not analyzed.
6. mg/L = milligrams per liter
7. ug/L = micrograms per liter
8. SU = Standard Units
9. NTU = nephelometric turbidity units
10. umhos/cm = micromhos per centimeter
11. % Sat = percent saturation
12. Yellow shaded values indicate parameter concentrations exceed primary, secondary drinking water standards, or drinking water standards, or groundwater cleanup target levels
13. Degrees C = degrees Celsius
14. U = Analyte concentration was below the laboratory detection limit (value shown).
15. I = Analyte concentration was between the laboratory detection limit and laboratory practical quantitation limit.
16. V = Analyte was detected in the sample and associated method blank.
17. Q = Sample held beyond the accepted holding time.
18. Y = Laboratory analysis was from an improperly preserved sample. The data may not be accurate.
19. Dry = Monitoring well purged dry and a sample was not collected.
20. Locked = Well could not be accessed

21. 20 NTU purging criterion for turbidity presented in the Department's Standard Operating Procedure #FS 2200.

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## Summary of Detected Parameters, MW-12R

Parameter	MCL	Units	Standard	Date Sampled											
				09-07	12-07	06-08	11-08	06-09	12-09	06-10	11-10	06-11	12-11	06-12	01-13
Volatile Organic Compounds															
1,3-Dichlorobenzene	210	ug/L	GCTL	---	0.28 V	0.25 V	---	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	---	---	---
Acetone	6300	ug/L	GCTL	---	0.74 U	1.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	1	ug/L	PDWS	---	0.34 U	0.3 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon disulfide	700	ug/L	GCTL	---	0.5 U	0.22 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane	2.7	ug/L	GCTL	---	0.37 U	0.27 U	2.5 U	2 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U	3.09	0.5 U
Toluene	40	ug/L	SDWS	---	1.1	0.26 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	1	ug/L	PDWS	---	0.91 U	0.22 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Metals															
Antimony	6	ug/L	PDWS	---	0.82 U	0.82 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Arsenic	10	ug/L	PDWS	---	2.58 IV	9.73 IV	2.88	1.2	1 U	1 U	1.44	4.91	2.3	1 U	1.75 I
Barium	2000	ug/L	PDWS	---	35 I	5 U	22.6	21	10.5	8.9	7.29	6.21	11.2	2.24 I	3.99 I
Beryllium	4	ug/L	PDWS	---	0.73 U	0.73 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chromium	100	ug/L	PDWS	---	5.26 IV	1.16 IV	3.9	3.2	3.24	2	1.86	3.13	3	1 U	2.76
Cobalt	140	ug/L	GCTL	---	0.5 U	0.5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Copper	1000	ug/L	SDWS	---	50.8	0.5 U	2.3	3.24	2.13	1.94	1.97	1 U	1.52 I	1.76 I	1.52 I
Iron	300	ug/L	SDWS	---	457	556 V	469	160	104 V	80.8	82.6	6600	111	37.3	62.5
Lead	15	ug/L	PDWS	---	6.16	0.5 U	2.01	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Mercury	2	ug/L	PDWS	---	0.087 I	0.015 U	0.017 U	---	---	0.02 U	0.02 U	0.027	0.02 U	0.02 U	0.02 U
Nickel	100	ug/L	PDWS	---	0.5 U	0.5 U	1.91 I	2.39	1.88	1.2	2.99	2.58	2.29	3.58	1.64 I
Selenium	50	ug/L	PDWS	---	3.17 I	3.1 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Sodium	160	mg/L	PDWS	---	7.12	6.33 V	4.53	12.1	6.91	4.44	19.1	3.31	3.54	4.85	4.75
Thallium	2	ug/L	PDWS	---	0.2 U	0.2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vanadium	49	ug/L	GCTL	---	8.11 I	1.49 I	3.06	7.69	4.49	5.16	7.35	3.4	5.7	6.93	4.22
Zinc	5000	ug/L	SDWS	---	33.8 I	14.4 IV	10 U	10 U	124	45.1	27.5	18.7	51.7	61	73.6
General Chemistry															
Ammonia as N	2.8	mg/L	GCTL	---	0.28	0.067	0.0355	0.01 U	0.0145	0.01 U	0.01 U	0.251	0.104	0.01 U	0.0615
Nitrate as N	10	mg/L	PDWS	---	0.18	0.004 U	0.0326	0.01 U	5.32	0.06	6.6	0.01 U	0.0354	1.07	0.0384
Chloride	250	mg/L	SDWS	---	4.9 V	5.9	9.63	18.7	15.4	6.96	24.7	17.5	5.58	4.15	5.87
Total Dissolved Solids	500	mg/L	SDWS	---	150	96	174	218	206	144	428	220	160	268	266
Field Parameters															
Conductivity	NS	umhos/cm	NS	117	0.104	103	0.105	236	203	156	284	228	218	0.288	384
Dissolved Oxygen	NS	mg/L	NS	3.63	0.4	1.34	0.25	1.06	0.88	0.73	0.8	0.78	0.65	4.94	1.3
Dissolved Oxygen	20%	% Sat.	MPIS	47.22	5.02	16.52	2.97	12.59	10.45	8.84	9.68	9.62	7.72	60.9	15.73
Field pH	6.5-8.5	SU	SDWS	5.48	5	5.16	5.9	5.76	6.08	5.95	5.97	5.88	6.21	5.81	6.13
Field Temperature	NS	Degrees C	NS	28.80	26.7	25.7	23.8	24.3	23.9	25.3	24.6	25.8	24.3	26.5	24.9
Turbidity	NS	NTU	20	51.50	125	1.84	17.2	31	17.9	21.1	12	4.4	9.22	2.66	8.03

## Notes:

1. PDWS = Primary Drinking Water Standard (62-550 F.A.C.)
2. SDWS = Secondary Drinking Water Standard (62-550 F.A.C.)
3. GCTL = Groundwater Clean-Up Target Level (62-777 F.A.C.)
4. NS = No numeric standard has been set for this analyte.
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Revised June 28, 2013