

SCS ENGINEERS

September 30, 2010
File No. 09208040.03

Mr. Steven G. Morgan
FDEP – Southwest District
Solid Waste Section
13051 North Telecom Parkway
Temple Terrace, Florida 33637

Dept. Of Environmental Protection
SEP 30 2010
Southwest District

Subject: Response to Request for Additional Information No. 3 (RAI No. 3)
Citrus County Central Class I Landfill Operation Permit Renewal
Pending Permit No.: 21375-018-S0/01, Citrus County
WACS No: SWD/09/39859

Dear Mr. Morgan:

On behalf of the Citrus County Solid Waste Division, SCS Engineers (SCS) submits the following responses to your request for additional information (RAI) No. 3. RAI No. 3 is dated August 10, 2010 and directed to Mr. Casey Stephens, Director Citrus County Solid Waste Department regarding the previously submitted Citrus County Central Class I Landfill Operation Permit Renewal Application RAI No. 2 dated May 21, 2010. For ease of review, each Florida Department of Environmental Protection (FDEP) comments in RAI No. 3 are reiterated below in **bold** type, followed by our response in normal print.

SCS has provided revised submittals, or replacement pages to the submittals, using a strikethrough (~~strikethrough~~), underline (underline) or shaded (**shaded**) format to facilitate the review process. SCS has included the revision date as part of the footer for all revised submittals, or replacement pages to the submittals, and has provided four copies of all the revised and additional materials.

A list of the submitted documents in response to RAI No. 2 has been provided at the end of this letter. Please note that only the attachments which have changed are included in this submittal however; if the numbering system has changed, the leader pages are included without the attachments.

GENERAL

1. **The requested information and comments below do not 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 4 copies of all requested information. Please submit all revised plans and reports as a complete package. If possible, please provide revised pages, which may be inserted into the original submittal (holes punched for a three-ring binder). For revisions to the narrative reports, deletions may be struckthrough (~~struckthrough~~) and additions may be shaded (~~shaded~~) or similar notation method. This format will expedite the review process. Please include revision date on all revised pages.**

Response: Comment noted. SCS has provided 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 review process. SCS has included the revision date as part of the footer for all revised submittals, or replacement pages to the submittals, and has provided four copies of all the revised and additional materials. A list of the submitted documents in response to RAI No. 3 has been provided at the end of this letter.

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: Comment noted.

4. **Please be advised that although some comments may 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. Please be reminded that all calculations must be signed and sealed by the registered professional engineer (or geologist as appropriate) who prepared them.**

Response: Comment noted. All of the revised calculations, narrative, technical specifications, QA documentation, Drawings, clarification to items and/or other information as appropriate which have been submitted by SCS in response to RAI No. 3 have been signed and sealed by the registered professional engineer (or professional geologist) who prepared them.

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

SECTION K - LANDFILL OPERATIONS REQUIREMENTS (Rule 62-701.500, F.A.C.)

Attachment K-1 - Operations Plan:

Please provide the following additional information and revisions to the facility Operations

Plan. Please 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.

1. Section 8:

- a. **Upon completion of the pipe re-rounding rehabilitation of the collapsed leachate riser pipes in Phase 1/1A, please provide a rehabilitation completion report that includes, a narrative description of the work conducted, a video inspection of the repair, detail drawings of the rehabilitated leachate riser pipes and leachate pump system, and information demonstrating that the rehabilitated side slope riser system will adequately function to remove leachate from the Phase 1/1A leachate collection system.**

Response: An interim report prepared by CH2M Hill documenting the progress to date regarding the Phase 1/1A leachate collection system riser pipe rehabilitation was submitted to FDEP on September 3, 2010. A video inspection of the repair, detail drawings of the rehabilitation leachate riser pipes and leachate pump system, and information demonstrating that the rehabilitated side slope riser system will adequately function to remove leachate from the Phase 1/1A leachate collection system will be submitted upon the completion of the pipe re-rounding rehabilitation.

- b. **Please revise Section 8 of the Operation Plan to describe the operation of the revised Phase 1/1A leachate collection system, based on the rehabilitation of the side slope riser system, as appropriate.**

Response: The County is still evaluating pumps. Once a determination is made Section 8 of the Operations Plan will be revised to include this information. At the present time, the County is evaluating a Grundfos 1 HP 3 wire submersible pump with a pumping rate of 16 gpm. There will be approximately 220 ft of 1 ¼" PVC pipe discharge pipe, and 220 ft of ½" PVC pipe for transducer wiring. As indicated in the letter to FDEP submitted on September 3, 2010, the rehabilitation work includes installing a 6-inch Schedule 80 SST permanent pipe used as liner in the leachate risers. This information will be submitted once the re-rounding rehabilitation is complete.

- 2. Rule 62-701.320(5) (b), F.A.C. Please address the comments in John Morris' August 10, 2010 memorandum (attached) regarding this application. You may call Mr. Morris at (813) 632-6100, extension 336, to discuss the items in his memorandum.**

**PART M - WATER QUALITY AND LEACHATE MONITORING REQUIREMENTS
(Rule 62-701.510, F.A.C)**

1. **L.1.h.(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 [Rule 62-701.510(9)(b), F.A.C.].
Please submit additional revisions to the BWQMR document to address the following:

Section 1 - Introduction

b. The response letter dated April 21, 2010 itemized the information required by the Department's SOP FS 2212, Sections 3.5.2 and 3.5.3 to determine if elevated dissolved oxygen and turbidity values reported during well purging represent naturally occurring conditions. The response letter dated July 12, 2010 provided additional discussion regarding these elevated dissolved oxygen and turbidity values. Please submit revisions to the appropriate section of the BWQMR document to address the following:

3) The response letter referred to the Sampling Logs provided for the ground water sampling events conducted at the facility which indicated the sampling personnel were aware of the need to utilize the SOP procedures to minimize sample dissolved oxygen and collect samples using low flow rates. The response letter also indicated that high recharge in the Brooksville Ridge caused elevated dissolved oxygen levels in the hydraulically upgradient wells [MW-1R, MW-2, MW-3] and in the deeper monitor well [MW-19] that is unaffected by the landfill. Please submit a response that addressed the last two sentences of this review comment in the memorandum dated May 21, 2010:

Please discuss the variability in dissolved oxygen measurements recorded at monitor wells around the facility since the July 2009 sampling event and the causes for the increased dissolved oxygen measurements that no longer meet the purging criterion [see attached table]. Please explain why these conditions would be considered to be naturally occurring.

Response: The cause of the variability in dissolved oxygen measurements recorded at monitoring wells around the facility since July 2009 sampling event (MW-12, MW-13, MW-15, and MW-17) is unknown. However, data from the most recent monitoring event June 2010 indicates that these levels have decreased.

4) The response letter referred to the response provided to comment #1.b.(3) and to the "Other Parameter Issues - Dissolved Oxygen" sub-section in Section 3 of the BWQMR document regarding elevated dissolved oxygen levels reported during sampling events conducted at the facility. It does not appear that the information requested by this review comment presented in the memorandum dated May 21, 2010 was provided. Please submit a response that provides the results using a down hole dissolved oxygen probe:

Please indicate when the information described in item #5 was submitted to the Department [A description of conditions at the site that cause the dissolved oxygen to be high and/or dissolved oxygen measurements made within the screened or open borehole portion of the well with a downhole dissolved oxygen probe.]. In the event that dissolved oxygen measurements made within the screened portion the monitor wells using a downhole probe have not been provided, please submit revisions to the appropriate sections of the BWQMR to present this information.

Response: Due to short time, the downhole measurements were not able to be collected during the June 2010 monitoring. The County and its consultant (CDM) performing the groundwater monitoring have incorporated this requirement into the January 2011 monitoring event and will be reported in the semi-annual monitoring report. Two DO measurements will be made from each monitoring well, one measurement will be made prior to purging and sampling and one measurement will be made after a sample has been collected. An evaluation of the measurements will be provided with the 1st 2011 Semi-Annual Monitoring Report. We request that the BWQMR not be revised.

Section 4 - Adequacy of Monitoring Program

n. The response letter referred to the WQLMP document and revised Section L of the Engineering Report. Please submit additional revisions to address the following:

- Please submit revisions to Section L of the Engineering Report that addresses the following:

Section L.1 - Water Quality and Leachate Monitoring Plan

1) Please revise this paragraph to delete the reference to the November 2008 Jones Edmunds & Associates, Inc., document and replace it by referencing the WQLMP document.

Response: Section L.1 was revised to replace it by referencing the WQLMP document.

Section L.1.c.2 - Downgradient Compliance Well

2) The third sentence of this section referred to the well locations on “Figure 2 of the Monitoring Plan.” Please submit revisions to refer to Attachment 1 of the WQLMP document.

Response: Section L.1.c.2 has been revised to refer to Attachment 1 of the WQLMP document.

Section L.1.c.3 - Background Wells

3) This section indicated existing background wells MW-1R and MW-2 would be re-designated as piezometers for water level measurements, and that the well

network would include background wells MW-3 and MW-7. Please revise the second sentence of ¶2 of this section to indicate “there are no other changes to this subsection.”

Response: Section L.1.c.3 has been revised to include “there are no other changes to this subsection”.

Section L.1.c.4 - Monitoring Well Location Information

4) The third sentence in ¶1 of this section referred to the well locations on “Figure 2 of the Monitoring Plan.” Please submit revisions to refer to Attachment 1 of the WQLMP document.

Response: Section L.1.c.4 was revised to refer to Attachment 1 of the WQLMP document.

Section L.1.c.6 - Well Screen Locations

5) Please submit revisions to the second sentence of this section to refer to the table of construction characteristics for proposed wells MW -20 and MW -21 that are provided in Attachment 2 of the WQLMP document.

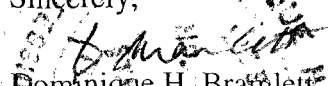
Response: Section L.1.c.6 was revised to refer to the table of construction characteristics for proposed wells MW-20 and MW-21 that are provided in Attachment 2 of the WQLMP document.

ADDITIONAL REQUESTS

Due to construction activities Citrus County requested that Piezometer MW-4R be abandoned. In email correspondence from Steven Morgan dated September 2, 2010 FDEP approved the request to abandon piezometer MW-4R. The Water Quality and Leachate Monitoring Plan have been modified to reflect this change. Piezometer MW-4R will be abandoned in accordance with Specific Condition E.6 of the permit. Required documentation of the abandonment will be submitted to the FDEP.

As requested, enclosed are four copies of this submittal. If you have any questions please do not hesitate to contact either of the undersigned at (813) 621-0080.


Sincerely,


Dominique H. Brathlett, P.E.
Senior Project Engineer
SCS ENGINEERS

DHB/CEH:dhb

cc: Casey Stephens, Citrus County

Attachments


C. Ed Hilton, Jr., P.E.
Project Director
SCS ENGINEERS

List of Attachments

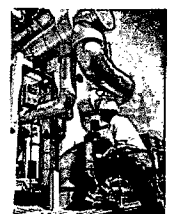
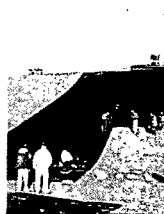
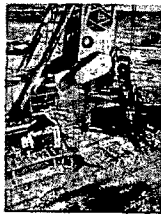
Attachment A Revised Water Quality and Leachate Monitoring Plan

Attachment B Revised Section L of the Engineering Report

Attachment A

Revised Water Quality and Leachate Monitoring Plan

SCS ENGINEERS



Water Quality and Leachate Monitoring Plan

Central Landfill Citrus County, Florida

Presented to:

Citrus County



230 W. Gulf to Lake Highway
Lecanto, Florida 34461
(352) 527-7670

Presented by:

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

~~July 12, 2010~~ September 22, 2010
File No. 09208040.03

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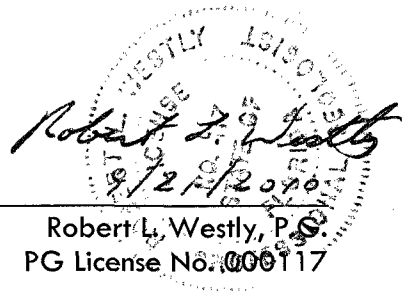
Water Quality and Leachate Monitoring Plan
Central Landfill, Citrus County, Florida

Presented To:

Citrus County
230 W. Gulf to Lake Highway
Lecanto, Florida 34461

Presented From:

SCS ENGINEERS
4041 Park Oaks Blvd., Suite 100
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~~July 12, 2010~~ September 22, 2010
File No. 09208040.03

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- Attachment 1 Site Map
- Attachment 2 Well Construction Information Table
- Attachment 3 Groundwater Elevation Summary Central Citrus Landfill, Central County Prepared by FDEP

The following provides the Water Quality Monitoring and Leachate Monitoring Plan (WQLMP) for the Citrus County Central Landfill. This WQLMP is intended to be consistent with requirements of the current operations permit.

1 INTRODUCTION

The original WQLMP was been prepared by others and modified by SCS Engineers (SCS), which now includes a title page and table of contents, to update the monitoring program for the Citrus Central Landfill in response to the construction of the Phase 3 Expansion. This monitoring plan follows the format of Part M—Water Quality and Leachate Monitoring Requirements—of the State of Florida Application for a Permit to Construct, Operate, Modify, or Close a Solid Waste Management Facility.

2 PROPOSED MODIFICATIONS TO THE EXISTING WATER QUALITY AND LEACHATE MONITORING PLAN

Proposed modifications to the previous monitoring plan—as outlined in Permit # 21375-008-SO/01—are:

- The background well MW-1R will be re-designated as a piezometer. Water levels will be collected semiannually in conjunction with the compliance monitoring events.
- A new compliance well—MW-20—will be installed to monitor the northern compliance line boundary of the Phase 3 Expansion.

Additionally, the WQLMP has been modified by SCS to include:

- A new compliance well – MW-21 – proposed to be installed to monitor the northern compliance line boundary north of the 7-acre lined cell.
- Convert current background groundwater monitoring well MW-2 to a piezometer.
- Abandon piezometer MW-4R.

A site map that shows the groundwater and leachate monitoring network with the proposed changes is provided as Attachment 1.

3 WATER QUALITY AND LEACHATE MONITORING PLAN

a. Sign and Seal

The WQLMP has been signed, dated, and sealed in accordance with Chapter 62-701.510(2)(a), FAC, by an SCS professional geologist who has reviewed and approved the WQLMP with its modifications.

b. Sampling and Analysis

All sampling and analysis are performed in accordance with Chapter 62-160, FAC; 62-701.510(2)(b), FAC; the FDEP Standard Operating Procedures for Field Activities (FDEP-SOP-001/01); the FDEP Standard Operating Procedures for Laboratory Activities (FDEP-SOP-002/01); and the current Permit No. 21375-008-SO/01.

c. Groundwater Monitoring Requirements

- (1) There are no detection wells in this WQLMP.
- (2) There are seven compliance wells—MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, and MW-17—in the existing monitoring network. Two additional compliance wells—MW-20 and MW-21—are proposed. MW-20 will be installed along the northern zone of discharge boundary for the Phase 3 Expansion and MW-21 will be installed along the northern border of the zone of discharge north of the 7-acre lined cell, as shown on Attachment 1. Its proposed well construction characteristics are listed in the table in Attachment 2. The proposed monitoring network will have nine compliance wells. Table 1.c compares the current monitoring network outlined in Permit # 21375-008-SO/01 and the proposed monitoring network.
- (3) Four background wells—MW-1R, MW-2, MW-3, and MW-7—are included in the existing monitoring network. MW-1R is downgradient from the Phase 3 Expansion area and is proposed to be used as a piezometer in the new monitoring network. MW-2 is a background well proposed to be converted to a piezometer because of its relatively deep screen setting. The proposed network will have two background wells—MW-3, and MW-7, which fulfill the spacing requirement for background monitoring.
- (4) One intermediate well—MW-6—is included in the existing monitoring network. MW-6 is downgradient from the leachate treatment facility.
- (5) Two assessment wells—MW-18 and MW-19—are included in the existing monitoring network. MW-18 is downgradient from monitoring well MW-

10 area and is used as a horizontal assessment well in the monitoring network. MW-19 is downgradient from monitoring well MW-10 area and is used as a vertical assessment well in the monitoring network.

- (6) A site map showing the locations of each groundwater monitoring well in the proposed monitoring network is presented as Attachment 1. Attachment 2 is a table that includes well construction information for all wells—existing and proposed.
- (7) Well spacing is less than 500 feet across the downgradient direction of groundwater flow and meets the 1,500-foot spacing requirement across the upgradient direction of groundwater flow in the uppermost aquifer—the Floridan aquifer—within the zone of discharge.
- (8) The screened intervals of the monitoring wells were positioned to encounter the water table of the unconfined Floridan aquifer throughout normal seasonal fluctuation, with the exception of MW-1R, MW-2, and MW-19 (see Attachment 3, which provides a water level data summary prepared by FDEP) MW-1R and MW-2 are proposed to be redesignated as piezometers. MW-19 is a vertical zone of discharge compliance well near MW-10.
- (9) Unused wells and piezometers will be abandoned properly, as specified in Rule 62-532.440, FAC, and the rules of the Southwest Florida Water Management District.
- (10) There are no detection monitoring wells at the Citrus Central Landfill.

Table 1.c. Existing and Proposed Monitoring Networks.

Existing Network	Proposed Network
Background wells	
MW-2	MW-3
MW-3	MW-7
MW-7	
Compliance Wells	
MW-10	MW-10
MW-11	MW-11
MW-12	MW-12
MW-13	MW-13
MW-14	MW-14
MW-15	MW-15
MW-17	MW-17
	MW-20
	MW-21
Assessment Wells	
MW-18	MW-18
MW-19	MW-19
Intermediate Well	
MW-6	MW-6
Piezometers	
MW-4R	MW-4R
MW-5	MW-5
MW-8R	MW-8R
MW-9	MW-9
MW-16	MW-16
MW-AA	MW-AA
MW-B	MW-B
MW-E	MW-E
PZ-1	PZ-1
PZ-2	PZ-2
	MW-1R
	MW-2

d. Surface Water Monitoring Requirements

Surface water is only required to be sampled if there is a discharge off of the Citrus County Central Landfill Property as required by Specific Condition Part E.8 of the Current Permit. The sample will be collected from the body of water from which the discharge occurred.

e. Leachate Sampling Locations

Samples for leachate influent are collected from the master lift station for Phase 1/1A and from the primary pump sampling port for the Phase 2. Leachate influent samples for the Phase 3 Expansion will be collected from the sampling port at the top of the side slope riser pipes.

Samples for leachate effluent are collected from the discharge from the chlorine contact tank.

The leachate sampling locations are shown on the figure in Attachment 1.

f. Sampling Frequency and Requirements

- (1) Newly installed monitoring wells and replacement monitoring wells will be sampled for the parameters listed in Rules 62-701.510(8)(a) and (8)(d), FAC, within 1 week of well completion and development.
- (2) Leachate Influent, Effluent, and Treatment Plant Sludge sampling parameters and frequency:
 - (a) Leachate influent samples will be collected annually for the parameters listed in Table f(2)(a). A composite sample may be collected combining each of phases, except that individual samples must be collected from each location for the analysis of volatile organic compounds.

Table f(2)(a) Leachate Influent Sampling Parameters

Field Parameters	Laboratory Parameters
Specific Conductivity	Total Ammonia -N
pH	Total Alkalinity (as mg/L CaCO ₃)
Dissolved Oxygen	Chlorides
Colors and Sheens (by observation)	Iron
Temperature	Mercury
	Nitrate
	Sodium
	Total Dissolved Solids (TDS)
	Biochemical oxygen demand (BOD ₅)
	Chemical oxygen demand (COD)
	Those parameters listed in 40 CFR Part 258, Appendix II

- (b) Leachate effluent samples are collected as outlined in Table f(2)(b) below with results reported quarterly. Leachate effluent is analyzed annually for the parameters listed in 40 CFR Part 258, Appendix I, except during the annual sampling event before a permit renewal, at which time the effluent needs to be analyzed for the parameters listed in 40 CFR Part 258, Appendix II.

Table f(2)(b) Leachate Effluent Sampling Parameters and Frequency

Parameter	Sampling Frequency
Flow	Daily
pH	Daily
CBOD ₅	Monthly
TSS	Monthly
Nitrate -N	Monthly
Chloride	Quarterly
Sodium	Quarterly
TDS	Quarterly
Total Ammonia-N	Quarterly
Benzene	Quarterly
Toluene	Quarterly
Ethylbenzene	Quarterly
Total Xylenes	Quarterly
Vinyl Chloride	Quarterly
Ethylene dibromide (EDB)	Quarterly
Total Trihalomethanes	Semi-annually
Arsenic	Annually
Barium	Annually
Cadmium	Annually
Chromium	Annually
Iron	Annually
Mercury	Annually
Lead	Annually
Selenium	Annually
Silver	Annually

- (c) Waste Sludge from the leachate treatment plant is sampled annually for the parameters listed below:
- Toxicity Characteristics Leaching Potential Test (TCLP) for the organics
 - Metals and Pesticides listed in 40 CFR Part 261.24, Table 1
 - pH (standard units)
 - Solids (percent)

- (3) Background, Compliance, Intermediate, and Assessment well analytical parameters and sampling frequency:

- (a) All background wells—MW-3 and MW-7—will be sampled semiannually for the parameters listed in Table f(3)(a).

Table f(3)(a) Background Well Sampling Parameters

Field Parameters	Laboratory Parameters
Static Water Levels	Total Ammonia -N
Specific Conductivity	Chlorides
pH	Iron
Dissolved Oxygen	Mercury
Turbidity	Nitrate
Temperature	Sodium
Colors and Sheens (by observation)	Total Dissolved Solids (TDS)
	Those parameters listed in 40 CFR Part 258, Appendix I

- (b) All compliance wells—MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, MW-17, and proposed wells MW-20 and MW-21 will be sampled semiannually for the parameters listed in Table f(3)(b).
Note: These are the same parameters required for the background wells.

Table f(3)(b) Compliance Well Sampling Parameters

Field Parameters	Laboratory Parameters
Static Water Levels	Total Ammonia -N
Specific Conductivity	Chlorides
pH	Iron
Dissolved Oxygen	Mercury
Turbidity	Nitrate
Temperature	Sodium
Colors and Sheens (by observation)	Total Dissolved Solids (TDS)
	Those parameters listed in 40 CFR Part 258, Appendix I

- (c) The intermediate well—MW-6—will be sampled semiannually for the parameters listed in Table f(3)(c).

Table f(3)(c) Intermediate Well Sampling Parameters

Field Parameters	Laboratory Parameters
Static Water Levels	Total Ammonia -N
Specific Conductivity	Chlorides

Field Parameters	Laboratory Parameters
pH	Iron
Dissolved Oxygen	Mercury
Turbidity	Nitrate
Temperature	Sodium
Colors and Sheens (by observation)	Total Dissolved Solids (TDS)
	Fecal Coliform
	Total Trihalomethanes
	Those parameters listed in 40 CFR Part 258, Appendix I

- (d) Assessment wells—MW-18 and MW-19—will be sampled semiannually for the parameters listed in Table f(3)(d).

Table f(3)(d) Assessment Well Sampling Parameters

Field Parameters	Laboratory Parameters
Static Water Levels	Benzene
Specific Conductivity	Methylene Chloride
pH	Vinyl Chloride
Dissolved Oxygen	
Turbidity	
Temperature	
Colors and Sheens (by observation)	

- (4) Surface water is only required to be sampled if there is a discharge off of the Citrus County Central Landfill Property as required by Specific Condition Part E.8 of the Current Permit. If discharge off of the property occurs, samples will be collected for the parameters listed in Table f(4).

Table f(4) Surface Water Sampling Parameters

Field Parameters	Laboratory Parameters
Specific Conductivity	Unionized Ammonia
pH	Total Hardness
Dissolved Oxygen	Total phosphorus
Turbidity	Chlorophyll A
Temperature	
Colors and Sheens (by observation)	Iron
	Mercury
	Nitrate
	Total Organic Carbon (TOC)
	Total Nitrogen
	Chemical Oxygen Demand (COD)
	Fecal Coliform
	Biochemical Oxygen Demand (BOD5)
	Total Dissolved Solids (TDS)

Field Parameters	Laboratory Parameters
	Total Suspended Solids (TSS)
	Those parameters listed in 40 CFR Part 258, Appendix I

g. Evaluation Monitoring, Prevention Measures, and Corrective Action

(1) Groundwater Corrective Actions

If at any time analyses from the groundwater detect parameters which are significantly above the background water quality or which are at levels above the Department's water quality standards or criteria specified in Chapter 62-520, FAC at the edge of the Zone of Discharge, the well will be resampled within 30 days after the sampling data are received to confirm the data. If the data are confirmed, the FDEP will be notified in writing within 14 days of this finding. Upon notification by the FDEP, evaluation monitoring will be initiated in accordance with Rule 62-701.510(7) FAC.

(2) Leachate Influent Corrective Actions

If the annual leachate influent sampling analysis reports a contaminant that exceeds the regulatory level listed in 40 CFR Part 261.24, monthly sampling will be initiated. The Department will be notified within 24 hours of confirmation of the contamination and written correspondence detailing the exceedence and proposed remediation will follow within 7 days. Monthly sampling will continue until 3 consecutive months indicate no regulatory exceedences.

(3) Leachate Effluent Corrective Actions

If in any 2 consecutive months of leachate effluent sampling, the same listed parameter exceeds the regulatory level, discharge to the percolation ponds will cease and off-site disposal will be initiated. Off-site disposal will continue until acceptable leachate treatment is again demonstrated and approved by the Department.

(4) Surface Water Corrective Actions

Surface Water is only sampled on a per discharge event. The Department will be notified within 24 hours of discovery of a discharge event.

h. Water Quality Monitoring Report Requirements

Groundwater monitoring is required and has been completed in accordance with Rule 62-701.510(9), FAC.

- (1) Groundwater compliance monitoring reports are submitted to FDEP semi-annually in accordance with the current permit (FDEP Permit No. 21375-008-SO/01). Additionally, these reports are submitted in accordance with the requirements of Chapter 62-701.510(9) (a), FAC. Compliance monitoring reporting due dates are outlined in Table h.

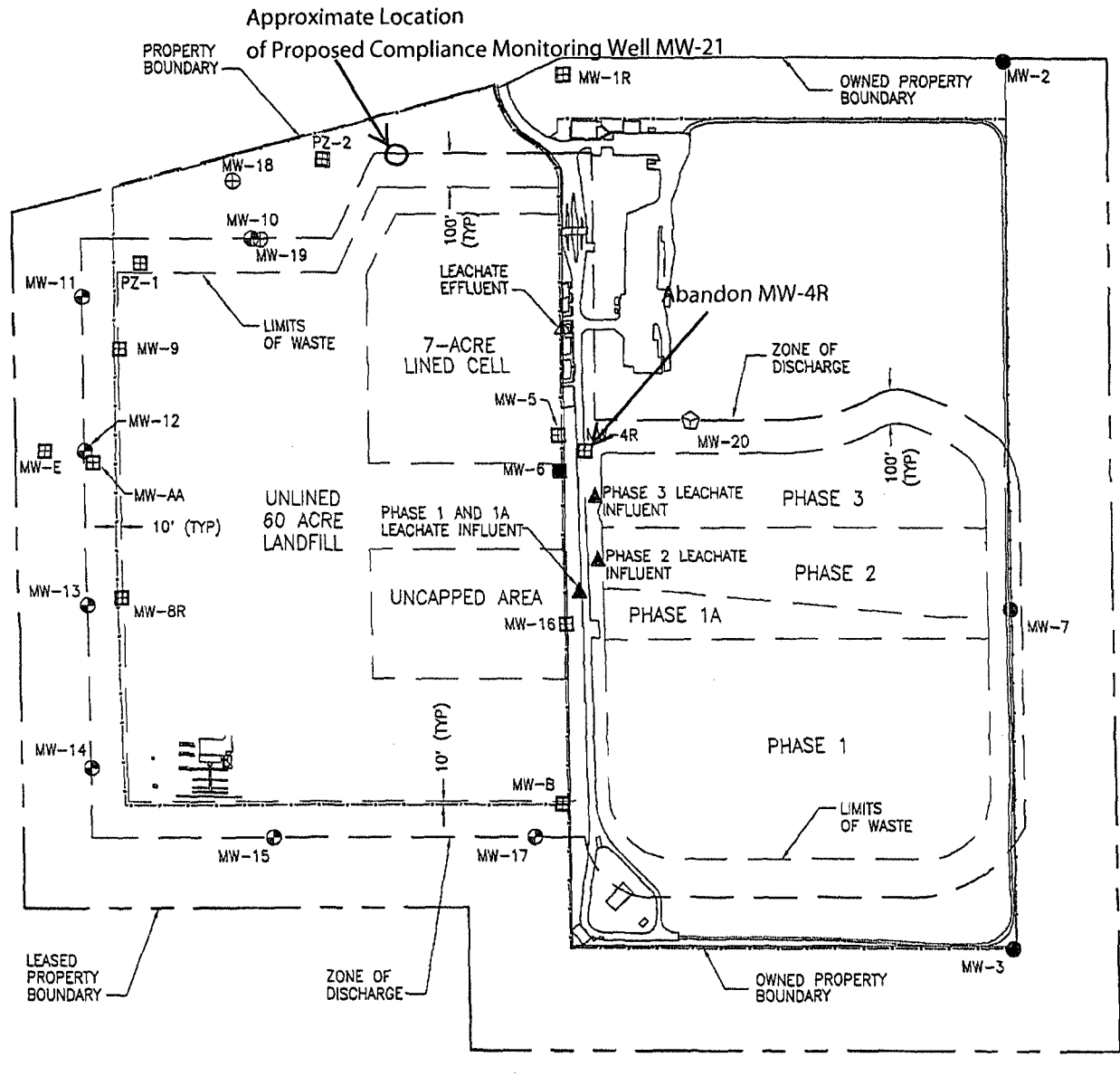
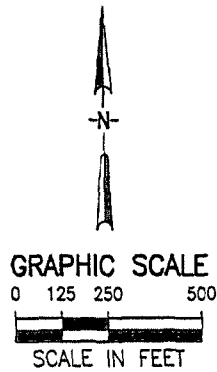
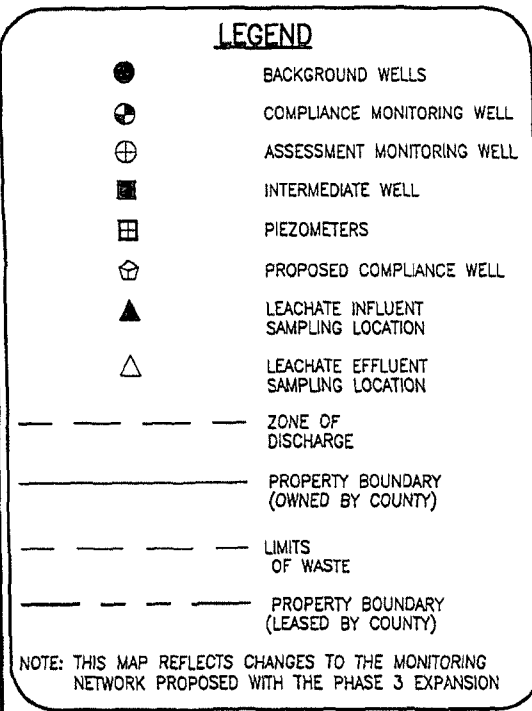
FDEP Reporting Deadlines

Groundwater Sampling	
July-December Semiannual Event	January 15th
January-June Semiannual Event	July 15th
Leachate	
Annual Influent	January 15th
Annual Treated Effluent	January 15th
Annual Treatment Plant Sludge	January 15th
Surface Water	
Discharge Event	within 30 days of receipt of results

- (2) Groundwater technical reports are submitted to FDEP in accordance with the current permit (FDEP Permit No. 21375-008-SO/01). Additionally, these reports are submitted in accordance with the requirements of Chapter 62-701.510(9) (b), FAC.

A technical report signed, sealed, and dated by a P.G. or P.E. will be submitted to the FDEP every 2.5 years. The most recent report summarized data from the first Semiannual 2007 through the second Semiannual 2009 sampling events. The report will summarize and interpret the water quality, water level measurements, and leachate quality collected during the past 2.5 years.

ATTACHMENT 1
SITE MAP



ATTACHMENT 1 SITE PLAN
CITRUS COUNTY CENTRAL LANDFILL

Modified by SCS Engineers to add proposed compliance monitoring well location and proposed piezometer abandonment-
September 22, 2010

ATTACHMENT 2
WELL CONSTRUCTION INFORMATION TABLE

ATTACHMENT 2
CITRUS COUNTY CENTRAL LANDFILL
WELL CONSTRUCTION DETAILS

Well Name	Well Designation	Date Installed	Top of Casing Elevation (Ft. NGVD)	Ground Elevation (Ft. NGVD)	Total Depth (Ft. BLS)	Total Depth (Ft. BTOC)	Screen Details				Filter Pack (Silica Sand)	Well Location		
							Length (Ft.)	Depth (Ft. BLS)		Elevation (Ft. NGVD)		Northing (Ft.)	Easting (Ft.)	
								Top	Bottom	Top				Bottom
MW-AA ¹	Piezometer	NR	106.11	104.7	116	NR	10	106	116	0.1	-9.9	NR	NR	NR
MW-B ¹	Piezometer	NR	111.94	111.1	128	NR	20	108	128	3.9	-16.1	NR	NR	NR
MW-E ¹	Piezometer	NR	109.88	107.0	118	NR	20	98	118	11.9	-8.1	NR	NR	NR
MW-1R ¹	Peizometer ³	NR	118.08	115.3	125	NR	10	115	125	3.1	-6.9	NR	NR	NR
MW-2 ¹	Peizometer ³	NR	136.29	133.5	161	NR	15	146	161	-9.7	-24.7	NR	NR	NR
MW-3 ¹	Background	NR	120.47	119.7	119	NR	15	104	119	16.5	1.5	NR	NR	NR
MW-4R ⁴	Piezometer	11/9/05	119.33	119.71	125.0	124.6	20	105.0	125.0	14.7	-5.3	NR	1642794.06	515836.95
MW-5 ¹	Piezometer	NR	121.14	118.6	120	NR	10	110	120	11.1	1.1	NR	NR	NR
MW-6 ¹	Intermediate	NR	118.48	115.8	122	NR	10	112	122	6.5	-3.5	NR	NR	NR
MW-7 ¹	Background	NR	128.66	NR	137	NR	20	117	137	11.7	-8.3	NR	NR	NR
MW-8R ¹	Piezometer	NR	118.13	NR	128	NR	20	108	128	10.1	-9.9	NR	NR	NR
MW-9 ¹	Piezometer	NR	113.55	NR	121	NR	20	101	121	12.6	-7.5	NR	NR	NR
MW-10	Compliance	11/2/05	113.51	114.05	120.5	118.6	20	100.5	120.5	14.9	-5.1	20/30	1643658.80	514808.73
MW-11	Compliance	11/2/05	104.83	105.17	112.0	111.5	20	92.0	112.0	13.3	-6.7	Gravel	1643432.56	514300.80
MW-12	Compliance	11/2/05	103.49	103.98	110.0	108.8	20	90.0	110.0	14.7	-5.3	20/30	1642972.51	514307.73
MW-13	Compliance	11/10/05	112.04	112.55	120.0	118.8	20	100.0	120.0	13.2	-6.8	20/30	1642402.16	514320.79
MW-14	Compliance	11/10/05	108.63	109.09	116.0	115.9	20	96.0	116.0	12.7	-7.3	20/30	1641950.73	514332.03
MW-15	Compliance	11/10/05	123.71	124.15	130.0	129.5	20	110.0	130.0	14.2	-5.8	20/30	1641702.99	514864.91
MW-16	Piezometer	10/31/05	119.81	120.22	127.0	126.5	20	107.0	127.0	13.3	-6.7	20/30	1642141.07	515781.53
MW-17	Compliance	11/3/05	110.98	111.50	118.0	117.6	20	98.0	118.0	13.4	-6.6	20/30	1641705.53	515647.01
MW-18	Assessment	1/23/07	115.98	116.28	120.0	119.6	20	100.0	120.0	16.4	-3.6	20/30	1643745.78	514731.67
MW-19	Assessment	1/22/07	113.64	114.04	140.0	139.6	10	130.0	140.0	-16.0	-26.0	20/30	1643659.75	514817.07
MW-20 ²	Compliance	proposed	~118.5	~119	~124	~123.5	20	~104	~124	15.0	-5.0	20/30	~1643068.7	~516100.2
MW-21 ²	Compliance	proposed	~114	~114.5	~119	~119	20	~99	~119	~15	~5	20/30	~1643841	~515435
PZ-1	Piezometer	1/26/07	111.12	111.42	120.0	119.6	20	100.0	120.0	11.5	-8.5	20/30	1643505.21	514454.92
PZ-2	Piezometer	1/24/07	117.00	117.19	120.0	119.6	20	100.0	120.0	17.4	-2.6	20/30	1643832.98	515021.33

BLS = Below Land Surface
 BTOC = Below Top of Casing
 NR = Not recorded
 Ft. = Feet
 NGVD = National Geodetic Vertical Datum

Notes: ¹ Well Construction and Elevation information obtained from the Two-Year Groundwater Monitoring Report for Years 1997 and 1998, prepared by CH2MHill

² Wells MW-20 and MW-21 are proposed; wells will be installed to position the screen interval between 15 and -5 ft NGVD. Total depths and location are approximate and will be updated after surveying.

³ Wells MW-1R and MW-2 changed from background to piezometer with the Phase 3 Expansion

⁴ Piezometer MW-4R is proposed to be abandoned.

Elevation and survey data compiled from a Nature Coast Land Surveying, Inc. survey dated December 16, 2005 and from a Terrence J. Brannan Land Surveyor Inc. survey dated March 22, 2007

ATTACHMENT 3
GROUNDWATER ELEVATION SUMMARY
CENTRAL CITRUS LANDFILL, CENTRAL COUNTY
PREPARED BY FDEP

Ground Water Elevation Summary, Citrus Central Landfill, Citrus County

	Monitor Well Identification Number													
	MW-1R	MW-2	MW-3	MW-6	MW-7	MW-10	MW-11	MW-13	MW-13	MW-14	MW-15	MW-17	MW-18	MW-19
Top of Well Screen Elevation	3.1	-8.7	16.5	6.5	11.7	14.9	13.3	14.7	13.2	12.7	14.2	13.4	16.4	-16
Bottom of Well Screen Elevation	-6.9	-24.7	1.5	-3.5	-8.3	-5.1	-6.7	-5.3	-6.8	-7.3	-5.8	-6.6	-3.6	-26
Lithology in Screened Interval	Limestone	Silty sand	Silty sand	N/A	N/A	Clayey sand & silty clayey sand	Limestone & clayey sand	Limestone & clayey sand	Limestone, clay & silty clay	Sand, sandy clay & limestone	Sand	Sand, clay & sandy clay	Sand	Sand
Ground Water Elevation														
11/16/05						7.84	6.37	6.35	6.65	6.37	6.98	6.55		
7/17/06	5.33	6.86	6.27	6.82	6.45	6.06	5.15	4.83	5.35	5.15	5.57	5.29		
1/25/07	4.83	6.21	5.73		5.93	5.94	4.89	4.98	5.29	4.98	5.41	5.14		
2/28/07	4.76					5.81								
7/17/07	4.43	5.37		5.33	5.09	5.59	4.58	4.75	4.86	4.65	4.86	4.81	5.15	5.27
1/21/08	4.8	5.72		5.9	5.47	5.64	4.79	4.95	5.05	4.85	5.12	5.04	5.48	5.65
7/22/08	5.27	5.98	6.18	6.33	5.80	6.06	5.47	5.58	5.52	5.55	5.45	5.64	6.02	5.98
1/26/09	5.03	7.09	6.89	6.89	6.84	7.00	5.26	5.38	5.68	5.36	5.88	5.59	6.89	6.83
7/20/09	5.29	6.45	6.76	6.42	6.17	6.44	5.60	5.72	5.78	5.70	5.80	5.92	6.30	6.31
MAXIMUM	5.33	7.09	6.89	6.89	6.84	7.84	6.37	6.35	6.65	6.37	6.98	6.55	6.89	6.83
MINIMUM	4.43	5.37	5.73	5.33	5.09	5.59	4.58	4.75	4.86	4.65	4.86	4.81	5.15	5.27

All elevations reported in feet NGVD

NOTE: **4.83** = top of well screen submerged below water table surface

- Lithology of screened interval at wells MW-1R, MW-2 and MW-3 from JEA document received 7/21/01 as part of operating permit renewal
- Lithology of screened interval at wells MW-10 through MW-15, and MW-17 from document entitled "Citrus County Central Landfill Ground Water Investigation Report," prepared by JEA, dated September 2006
- Lithology of screened interval at wells MW-18 and MW-19 transmitted via letter prepared by JEA dated 4/11/07

Attachment B

Revised Section L of the Engineering Report

SECTION L

WATER QUALITY AND LEACHATE MONITORING REQUIREMENTS

L.1 WATER QUALITY AND LEACHATE MONITORING PLAN

The Citrus County Central Landfill Water Quality and Leachate Monitoring Plan (WQLMP), ~~November 2008~~ ~~2009~~ September 24, 2010, by Jones, Edmunds & Associates, Inc. (JE&A) was included in the Phase 3 construction permit application as Attachment M-1 is included in Attachment L-1.

L.1.a Signed, Dated and Sealed Plan

Please see Attachment ML-1 of the Phase 3 construction permit application for signed, dated and sealed plans. ~~There are no changes to this subsection.~~

L.1.b Performing Sampling and Analysis

Sampling and analysis of groundwater, leachate and surface water is described in the Water Quality And Leachate Monitoring Plan. There are no changes to this subsection.

L.1.c Ground Water Monitoring Requirements

L.1.c.1 Location of Detection Wells

There are no detection wells at the Citrus County Central Landfill and no detection wells are currently planned to be constructed. There are no changes to this subsection.

L.1.c.2 Downgradient Compliance Well

There are currently seven compliance wells (MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, and MW-17) positioned at the edge of the zone of discharge, which is the compliance line boundary. One compliance well (MW-20) north of the Phase 3 Expansion Area is currently planned to be constructed. ~~The approximate location is shown on Figure 2 of the Monitoring Plan.~~ Please refer to Attachment 1 of the WQLMP document for the approximate location of the downgradient compliance well. The well will be installed 100 feet from the edge of waste on the zone of discharge compliance line. There are no changes to this subsection.

L.1.c.3 Background Wells

There are currently four background wells (MW-1R, MW-2, MW-3, and MW-7). MW-1R is down gradient from the Phase 3 Expansion area and is proposed to be used as a piezometer in the new monitoring network. Therefore the proposed network will have three background wells (MW-2, MW-3, and MW-7).

The only laterally continuous aquifer at the Citrus County Central Landfill is the unconfined Floridan aquifer. There are no other changes to this subsection.

L.1.c.4 Monitoring Well Location Information

The location of the monitoring wells is shown on the site plan located in Attachment 1 of the WQLMP document. One compliance well (MW-20) north of the Phase 3 Expansion Area is currently planned to be constructed. ~~The approximate location is shown on Figure 2 of the Monitoring Plan.~~ Please refer to Attachment 1 of the WQLMP document. The well will be installed 100 feet from the edge of waste on the zone of discharge compliance line.

Well MW-1R is downgradient of the Phase 3 Expansion Area. The well will be re-designated as a piezometer and used to provide water levels only. Water level measurements will be collected semiannually in conjunction with the continuous-round measurements. There are no changes to this subsection.

L.1.c.5 Well Spacing

There are no changes to this subsection.

L.1.c.6 Well Screen Locations

The well screen for the proposed well MW-20 will be positioned to intersect the water table during normal seasonal fluctuation. ~~A construction diagram for proposed compliance well MW-20 is provided as Figure 3 in the Monitoring Plan.~~ Please refer to the table of construction characteristics for proposed wells MW-20 and MW-21 that are provided in Attachment 2 of the WQLMP document. The screen will be positioned between 15 ft and -5 ft NGVD. There are no changes to this subsection.

L.1.c.7 Well Construction

There are no changes to this subsection.

L.1.c.8 Abandoning Monitoring Wells

~~There are no changes to the subsection.~~ Piezometer MW-4R will be abandoned as approved by the FDEP in email correspondence from Steven Morgan dated September 2, 2010.

L.1.c.9 Detection Sensors

No detection sensors are used at the Citrus County Central Landfill therefore this subsection is not applicable.

L.1.d Surface Water Monitoring Requirements

There are no changes to this subsection.

L.1.e Leachate Sampling Locations Proposed

Attachment 1 of the WQLMP provides the locations for collecting samples of leachate from the disposal areas. Leachate can be sampled from the above-ground pipe access pad located at land surface on the west end of the cell at the leachate manifold crossing. At the piping access pad, sampling access is provided in the discharge pipe from each leachate pump through a valved port on each pipe where it exits the 24-inch diameter riser pipe.

L.1.f Initial and Routine Sampling Frequency and Requirements**L.1.f.1 Initial Background Ground Water and Surface Water Sampling**

There are no changes to this subsection.

L.1.f.2 Routine Leachate Sampling and Analysis

Leachate will be sampled and analyzed annually for the parameters listed in Rule 62-701.510 (8) (c) and (d), F.A.C.

L.1.f.3 Routine Monitor Well Sampling and Analysis

There are no changes to this subsection.

L.1.f.4 Routine Surface Water Sampling and Analysis

There are no changes to this subsection.

L.1.g Procedures for Implementing Evaluation Monitoring, Prevention Measures and Corrective Action

There are no changes to this section.

L.1.h Water Quality Monitoring Report**L.1.h.1 Semi-annual Report Requirements**

There are no changes to this subsection.

L.1.h.2 Electronic Format

The water quality data shall be provided to the Department in an electronic format consistent with requirements for importing into Department databases.

L.1.h.3 Two and One-Half Report Requirements

The two and one-half report requirements is signed, dated and sealed by a PG.