BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS
SOLID WASTE MANAGEMENT DIVISION

P.O. Box 340, Lecanto, Florida 34460
(352) 527-7670 FAX (352) 527-7672
Citrus Springs/Dunnellon area Toll Free # (352) 489-2120

RECEIVED
DEC 23 2002
D.E.P.
SOUTHWEST DISTRICT

December 20, 2002

Kim B. Ford, P.E.
Solid Waste Section
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

Stephanie mp 1/17

Re: Citrus County Central Landfill
Permit No. 21375-003-SO

Dear Mr. Ford:

During the early morning hours of Friday December 13, 2002, our facility received over two inches of rainfall, including the overnight period. Upon arriving in the morning, staff members discovered that the berm between the lower end of the fill area and the stormwater system had been breached in one area. As a result, we estimate that 3,500 gallons of contaminated stormwater was released into the stormwater system at the location shown on the attached map. The berm was replaced immediately. When the berm is dried out, it will be reinforced with stormwater ditch liner material on the inside.

If you have any questions, please contact me.

Sincerely,

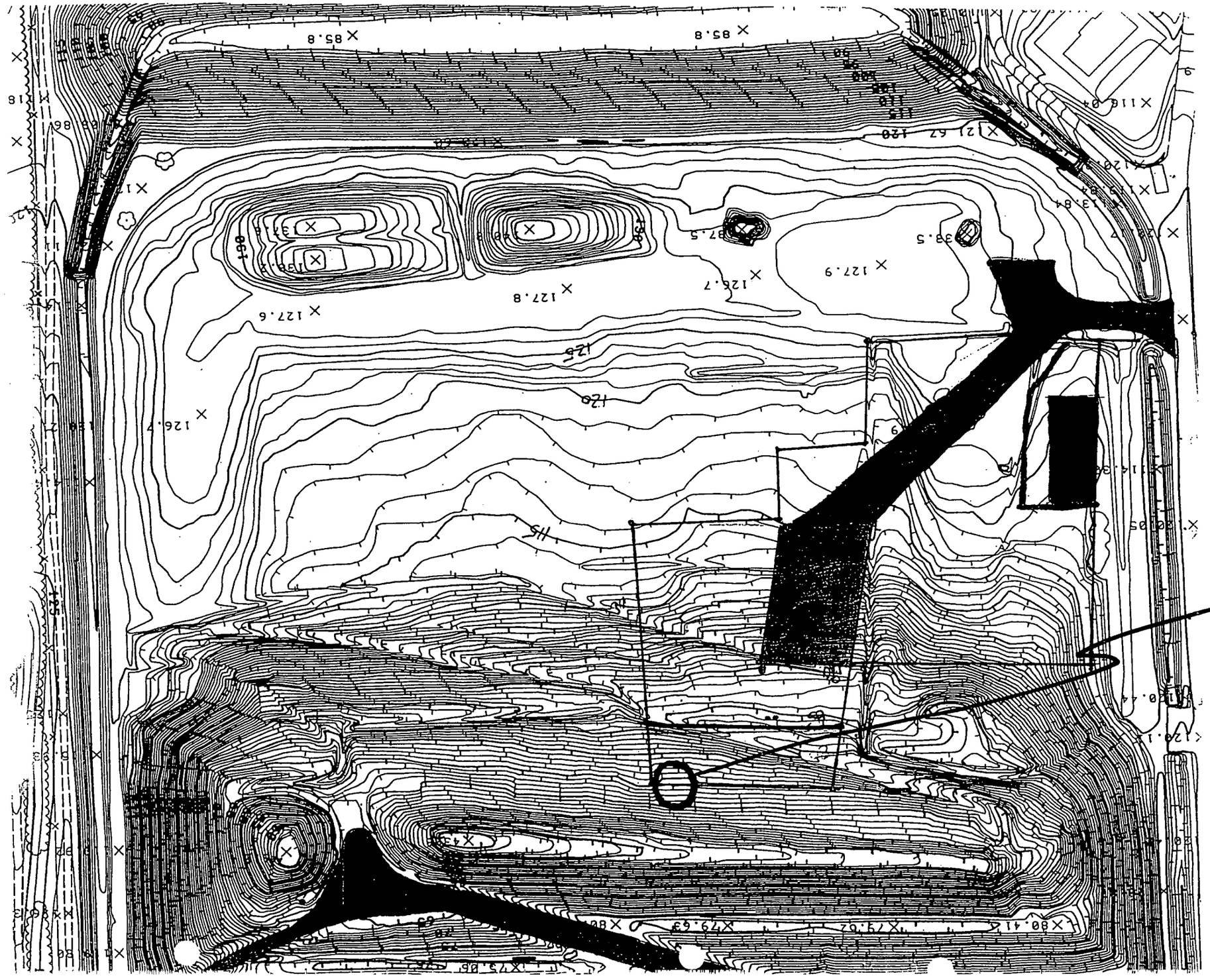
Susan J. Metcalfe

Susan Metcalfe, Director
Solid Waste Management

CONT
12/17/02

Attachment: Map

CC: Tom Dick, Assistant Director, Public Works Department
John Banks, SCS Engineers, Tampa
David Keough, JEA, Gainesville
Susan Pelz, Solid Waste Section, FDEP, Tampa


AREA of breach.

21375

KF

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS
SOLID WASTE MANAGEMENT DIVISION

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RECEIVED
DEC 16 2002
D.E.P.
SOUTHWEST DISTRICT

John
fyi
tn

December 13, 2002

John Morris, P.G.
Solid Waste Section
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

Re: Citrus County Central Landfill
Permit No. 21375-003-SO

Dear Mr. Morris:

The attached memo from the leachate plant operator describes the events that resulted in release of approximately 2,600 gallons of treated leachate that did not meet permit criteria on November 29, 2002. The standard for ammonia (10 ppm) was exceeded with treated effluent having ammonia levels at 12.6 ppm. The out-of compliance discharge was due to an electrical failure that was not recognized due to the Thanksgiving holiday. The item was fixed the next day. We are considering budgeting for a system that would detect such failures and notify the operator, however, even if it is approved, implementation would be at least a year in the future. Please contact me if you have any questions.

Sincerely,

Susan J Metcalfe

Susan Metcalfe, Director
Solid Waste Management

BAD EFFLUENT LEACHATE 11/29/02

Attachment: Utilities memo

CC: Tom Dick, Assistant Director, Public Works Department
Robert Merkel, Assistant Director, Utilities Division
John Banks, SCS Engineers, Tampa
David Keough/John Locklear, JEA, Gainesville
Susan Pelz, Solid Waste Section, FDEP, Tampa

(a1375) KFd

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RECEIVED
DEC 1 6 2002
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SOUTHWEST DISTRICT

December 13, 2002

John Morris, P.G.
Solid Waste Section
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

Re: Citrus County Central Landfill
Permit No. 21375-003-SO

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Sincerely,

Susan J Metcalfe

Susan Metcalfe, Director
Solid Waste Management

Attachment: Utilities memo

CC: Tom Dick, Assistant Director, Public Works Department
Robert Merkel, Assistant Director, Utilities Division
John Banks, SCS Engineers, Tampa
David Keough/John Locklear, JEA, Gainesville
Susan Pelz, Solid Waste Section, FDEP, Tampa

MEMORANDUM

DATE: DECEMBER 10, 2002

TO: JIM CONLEY, CHIEF OPERATOR, UTILITIES DIVISION JC

FROM: JIM BRUNSWICK, OPERATOR II, UTILITIES DIVISION

SUBJECT: LANDFILL LEACHATE TREATMENT FACILITY

In follow-up of operational notes made in the Plant Logbook, following are the chronological events for Friday November 29, 2002:

Note: Plant had been in automatic mode with no operator monitoring due to the Thanksgiving Holiday, Thursday November 28, 2002.

I receive a phone call from Dave Vance who was assigned to operate the plant on that day, requesting assistance with plant operations. I advised him to secure effluent filter feed pumps to chlorine contact chamber and I proceed to the Landfill.

Upon arrival, I reviewed the plant problems with Dave and found that the effluent ammonia levels to be at 12.6 ppm. Permit standard for on-site discharge is 10 ppm.

We proceeded to drain the chlorine contact chamber; re-circulated remainder of effluent batch and back washed sand filters.

I have estimated 2,600 gallons of non-compliance leachate had been discharged prior to testing.

After troubleshooting the plant operation, we found that the problem was due to a power failure, which tripped #1 SBR blower. We also reset alarm , LCD's, checked blower breaker and collected samples for additional analysis.

All other parameters were in compliance with permit standards.

JB

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Citrus Springs/Dunnellon area Toll Free # (352) 489-2120

D.E.P.
SEP 18 2002
Southwest District Tampa

September 13, 2002

David Penoyer
SCS Engineers
3012 U.S. Highway 301 North
Tampa, Florida 33619-2242

Re: Remedial Actions – Gun Range

Dear Mr. Penoyer:

In the gas monitoring report prepared by SCS Engineers for the second quarter of 2002, you noted several items for which you recommended remedial actions for landfill gas safety in the area of the firing range on the closed landfill. WTI personnel who operate that gun range have reported to us that those actions are completed. We will provide the suggested monitoring for the next two weeks. We will inform you, FDEP and WTI if gas is still detected either in the plugged conduits or nearby areas. Thank you for bringing those items to our attention.

Also, please note that Laura Ross had requested additional information related to the July gas-sampling report be submitted to FDEP, which they have not received as yet. That information included the specific locations and readings for gas sampling in the leachate plant electrical room, scalehouse and administration building. Your prompt attention will be appreciated.

Sincerely,

Susan J. Metcalfe, P.G.
Director

CC: Tom Dick, Assistant Director, Public Works Department
Laura Ross, FDEP, Tampa
Eber Brown, WTI, Inverness

Morris, John R.

From: Susan Metcalfe [Susan.Metcalfe@bocc.citrus.fl.us]
Sent: Friday, May 31, 2002 3:57 PM
To: Michael Cammarata <mcammarata@aellab.com
Cc: Cathy Winter; John Morris <john.r.morris@dep.state.fl.us
Subject: Groundwater monitoring

Thank you for reporting the error in groundwater level measurements during the January sampling. Your deduction from review of the field sheets, interviewing the sampling technician and reviewing historical records was that some (I am not sure how many) of the measurements were 10 feet off. It surprises me that it took four months to recognize this error. I understand that as a result of the water level measurement error, there is an error in purge times.

After conferring with FDEP, it is my conclusion that
1) all wells must have water level measurements repeated so that we can produce a water level map.
2) the January and repeat date water levels must be compared and a determination made of which wells likely had water level errors.
3) report the January purge volume in terms of saturated length casing volumes, however use the repeat date water level measurement for determining casing volume.
4) purge/sample and analyze all wells for which the minimum purge standard was not met in the January sampling at no additional cost to the County.
5) if there are any apparent violations of GW standards in results of analyses performed on January samples, that well must be resampled and analyzed.
6) sampling will be completed no later than June 12
7) report of resampling results will be delivered to County no later than July 3.
8) County will review report within 3 working days of delivery and if report revisions are required after County review, final report will be delivered to County within 3 working days after receipt of comments.

SOLID WASTE ROUTING DATE: 9/18/02
Lindsay McCoy
Kim Ford
Steve Morgan
John Morris
Lora Ross
Vacant E4 []
==========
DEPOSITION AFTER REVIEW
FILE [] SUSAN PELZ []

Citrus Co Inspection file a1375

)UNTY CC MISSIONERS
NT OF PUBLIC WORKS
MANAGEMENT DIVISION
0, Lecanto, Florida 34460
670 FAX (352) 527-7672
llon area Toll Free # (352) 489-2120

D.E.P. SEP 05 2002 Southwest District Tampa

September 5, 2002

Kim B. Ford, P.E.
Solid Waste Section
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

COMET = LTR
DATE DONE = 9/5/02
PNCP = contaminated stormwater
Then file

Re: Citrus County Central Landfill
Permit No. 21375-003-SO

Dear Mr. Ford:

On Friday August 30, 2002 our facility received approximately four inches of rainfall during the afternoon and evening; about half of that fell in one hour. A pump was placed in the contaminated stormwater sump at the low point of the area with no intermediate cover. Due to the rapid rainfall rate, sediment filled part of the sump and the pump head was buried late in the evening. The top of the berm separating the contaminated stormwater from the clean stormwater area was breached and approximately 1,500 gallons of contaminated stormwater escaped. A second pump was placed and pumping continued on Saturday. About 40,000 gallons of contaminated stormwater was pumped to the leachate storage tank from that event over the two days. The berm was repaired by Saturday afternoon. The approximate location of the area contributing to the contaminated stormwater is shown on the attached map.

Over the next few days, we intend to complete intermediate cover over approximately half the area that now has daily cover only, in order to divert part of the stormwater from that sump. We will remove that intermediate cover after the rainy season and continue the intended fill pattern. If you have any questions, please contact me.

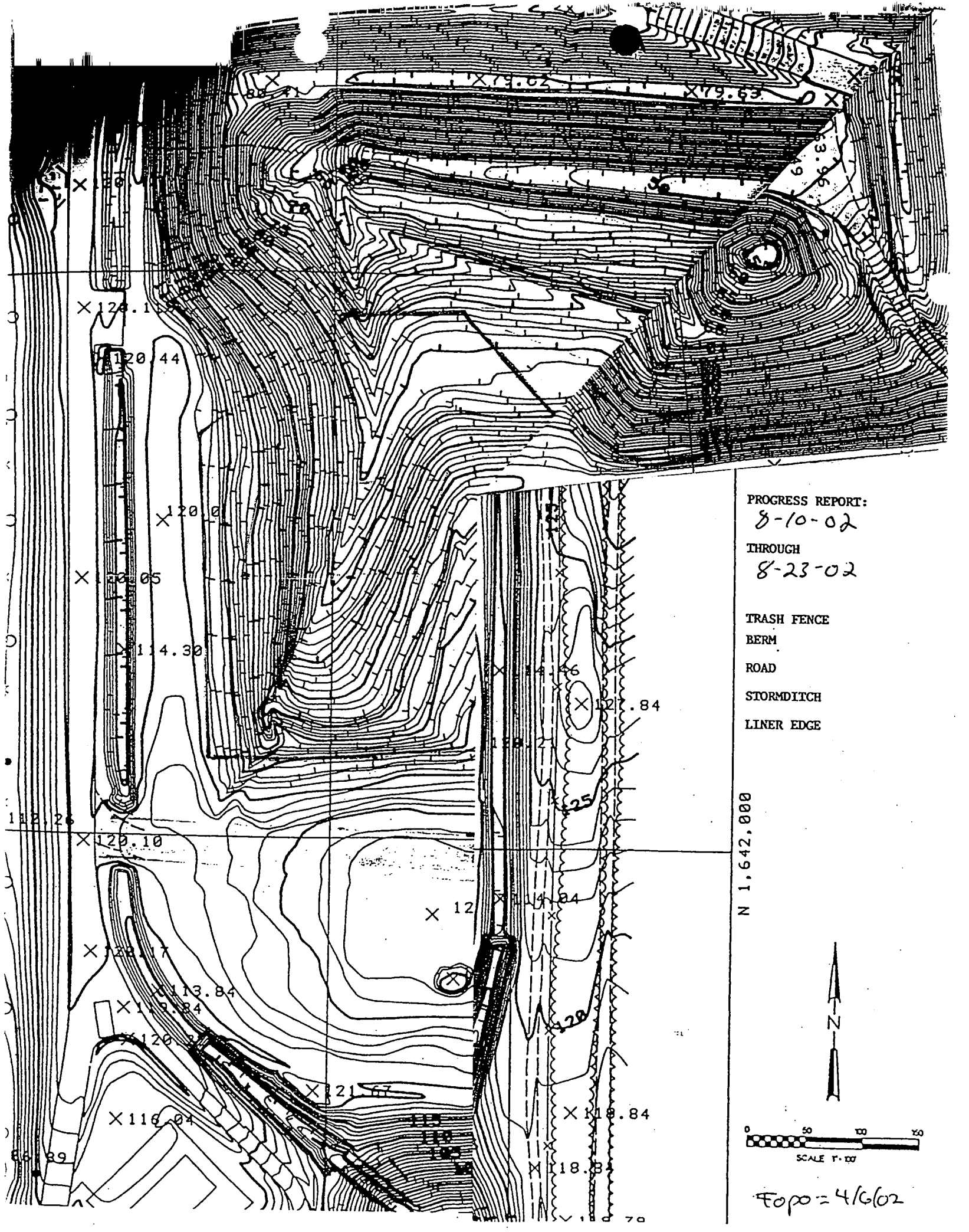
Sincerely,

Susan J Metcalfe

Susan Metcalfe, Director
Solid Waste Management

Attachment: Map

CC: Tom Dick, Assistant Director, Public Works Department
John Banks, SCS Engineers, Tampa
David Keough, JEA, Gainesville
Susan Pelz, Solid Waste Section, FDEP, Tampa


PROGRESS REPORT:
8-10-02
THROUGH
8-23-02
TRASH FENCE
BERM
ROAD
STORMDITCH
LINER EDGE
N 1,642,000
N
SCALE 1"=100'
Topo = 4/6/02

21375

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DEPARTMENT OF PUBLIC WORKS
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Citrus Springs/Dunnellon area Toll Free # (352) 489-2120

D.E.P.
JUL 18 2002
Southwest District Tampa

July 16, 2002

Kim B. Ford, P.E.
Solid Waste Section
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

Re: Citrus County Central Landfill
Permit No. 21375-003-SO

Dear Mr. Ford:

The Citrus County Central Landfill received over 2 inches of rainfall Saturday July 13 during the day and overnight. As a result of that rainfall, the berm surrounding the fill area was breached and an unmeasured amount of contaminated stormwater entered the clean stormwater system. Considering the "open" area and the total amount of rainfall, the maximum amount would have been 30,855 gallons. It is believed that the actual amount was much less than this. The problem was identified Monday morning and the berm was repaired by the end of the day. Please contact me if you have any questions

Sincerely,

Susan J. Metcalfe

Susan J. Metcalfe, P.G.
Director

CC: Tom Dick, Assistant Director, Public Works Department
Prime DeVaughn, Field Crew Leader

CONT STORMWATER RELEASE 7/13/02

Citrus Co Central LF
permit file

OARD OF COUNTY CON IISSIONERS
DEPARTMENT OF PUBLIC WORKS
SOLID WASTE MANAGEMENT DIVISION

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(352) 527-7670 FAX (352) 527-7672
Citrus Springs/Dunnellon area Toll Free # (352) 489-2120

D.E.P.
SEP 05 2002
Southwest District Tampa

September 3, 2002

Kim B. Ford, P.E.
Solid Waste Section
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

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Permit No. 21375-003-SO

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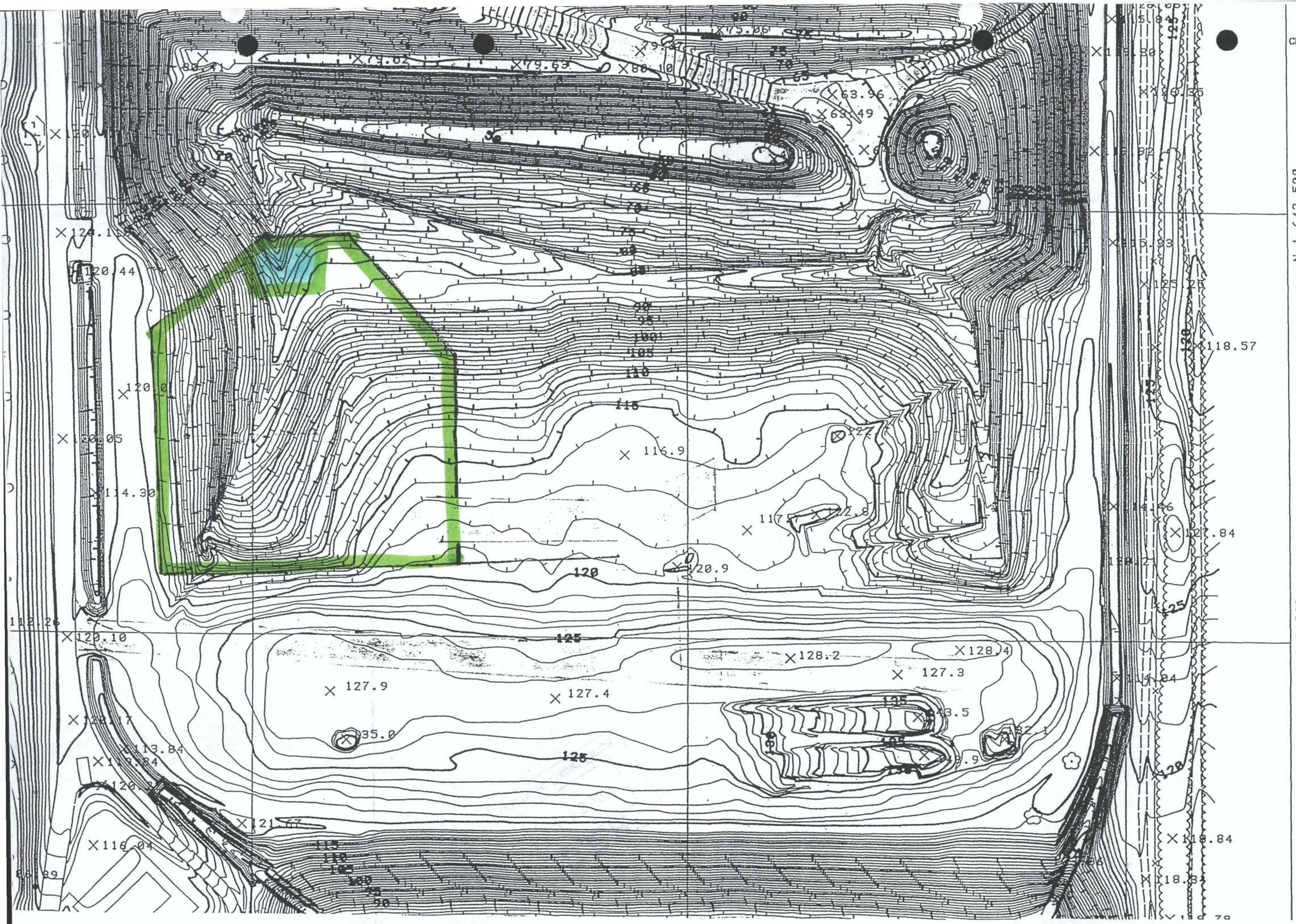
Sincerely,

Susan J Metcalfe

Susan Metcalfe, Director
Solid Waste Management

Attachment: Map

CC: Tom Dick, Assistant Director, Public Works Department
John Banks, SCS Engineers, Tampa
David Keough, JEA, Gainesville
Susan Pelz, Solid Waste Section, FDEP, Tampa



CITRUS COUNTY
CENTRAL LANDFILL

5/17

ELEVATION: 119' top
LENGTH: 80' ~ 100 bottom
WIDTH: 150'
DEPTH: 10'

PROGRESS REPORT:
8-10-02

THROUGH
8-23-02

TRASH FENCE
BERM
ROAD
STORMDITCH
LINER EDGE

Topo = 4/6/02

N

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D.E.P.
JUL 18 2002
Southwest District Tampa

July 16, 2002

Kim B. Ford, P.E.
Solid Waste Section
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

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Susan J. Metcalfe, P.G.
Director

CC: Tom Dick, Assistant Director, Public Works Department
Prime DeVaughn, Field Crew Leader

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John
Susan

RECEIVED
JUL 0 5 2002
D.E.P.
SOUTHWEST DISTRICT

Eber Brown, Director
Criminal Justice Academy
Withlacoochee Technical Institute
1201 W. Main St.
Inverness, FL 34452

Re: Gas monitoring results at firing range

Dear Mr. Brown:

I have attached a copy of the most recent gas monitoring report prepared by SCS Engineers, who were under contract to the County to perform this work. Please note that the only two areas in which they found methane gas levels of concern, on either the active or closed landfill site, were in the area of the firing range. The levels were not above the LEL, which would be a violation of regulatory limits, but were elevated. The report provides suggested remedial actions as well. WTI holds the lease with Forestry for this section of the site, separate from the lease for the rest of the closed landfill, and controls facilities and operations in this area. Therefore, I am suggesting that you complete these recommended actions. We will be glad to assist you with the suggested monitoring after the plugging and sealing operations are complete. Please call to coordinate this activity or if you have any questions. David Penoyer, with SCS Engineers, can be reached at 813-621-0080 if those questions are related to the monitoring results or remedial action recommendations.

Sincerely,

Susan J. Metcalfe

Susan J. Metcalfe, P.G.
Director

CC: Tom Dick, Assistant Director, Public Works Department
Michelle Hutman, Risk Manager, Office of Management and Budget
Kim Ford, FDEP, Tampa
Winnie Schreiber, Division of Forestry, Brooksville

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John
Susan

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Susan J. Metcalfe, P.G.
Director

CC: Tom Dick, Assistant Director, Public Works Department
Michelle Hutman, Risk Manager, Office of Management and Budget
Kim Ford, FDEP, Tampa
Winnie Schreiber, Division of Forestry, Brooksville

Environmental Consultants

3012 U.S. Highway 301 N
Suite 700
Tampa, FL 33619-2242

813 621-0080
FAX 813 623-6757

SCS ENGINEERS

June 28, 2002
File No. 09199056.03

Ms. Susan J. Metcalfe, P.G., Director
Citrus County Department of Public Works
Division of Solid Waste Management
P.O. Box 340
Lecanto, Florida 34460

Subject: Landfill Gas Monitoring Report, Second Quarter 2002
Central Landfill, Citrus County, Florida

Dear Susie:

SCS Engineers (SCS) is pleased to provide you the results of the second quarter landfill gas (LFG) monitoring at Citrus County Central Landfill. SCS conducted this monitoring in accordance with our scope of services dated March 11, 2002. Provided below are a description of our activities, summary of the monitoring results, and recommendations.

BACKGROUND

As you know, there are 62 monitoring wells on site, 60 of which surround the closed 60-acre landfill. The other two wells are located to the south and to the east of the Phase 1 landfill area. Of the 60 wells around the closed landfill, 27 are located to the east of the closed landfill, between the toe of the landfill and the main access road. The others are spaced fairly evenly across the north, west and south sides of the closed landfill near the fence line. Several wells are located outside the fence line to the west and south of the property. Attachment 1 includes a site map provided by the County that shows the LFG monitoring well locations.

Rule 62-701.530(1)(a) of the Florida Administrative Code (F.A.C.) requires the following:

- The methane concentration in on- or off-site structures may not exceed 25 percent of the lower explosive limit (LEL). The LEL for methane is five percent by volume in air. Therefore, the maximum allowable concentration in on- or off-site structures is 1.25 percent methane by volume.

- The methane concentration at or beyond the landfill property boundary may not exceed the LEL (i.e., five percent methane by volume).

This quarterly monitoring was conducted in accordance with Rule 62-701.530(2)(c).

MONITORING RESULTS

On June 13, 2002, SCS personnel monitored the LFG monitoring wells and on-site structures. For the monitoring wells, SCS utilized a Landtec GEM-500 gas monitor to measure gas

composition and pressure within the wells. Gas composition readings included percent by volume of methane, carbon dioxide, oxygen, and balance gas, which is considered to be composed primarily of nitrogen. The GEM-500 was calibrated prior to sampling, and the pressure zeroed prior to monitoring of each well.

On-site structures were monitored with a Gas Trac Gas Tester model NGX-6. This instrument is slightly more sensitive than the GEM-500, and has a quicker reaction time, which makes it more appropriate for monitoring along baseboards, in enclosed spaces such as cabinets and closets, and at slab penetrations. Because the Gas Trac provides an audible alarm when methane is detected, and does not have a readout showing the methane concentration, the Gas Trac was used as a screening tool; the GEM-500 was used to measure methane concentrations at locations where methane was detected by the Gas Trac.

LFG Monitoring Wells

SCS monitored 59 of the monitoring wells for both gas composition and pressure. The labcock valve on one well, GS-M10E, was damaged, and therefore not sampled. This well lies on the east side of the closed landfill, and is one of a cluster of three wells installed immediately adjacent to each other. SCS was unable to locate two other wells, GS-I3WA and GS-G3WA that are located outside the fence line to the west of the site. County staff familiar with the location of these two wells subsequently monitored them for methane content during the week of June 17.

The monitoring data are shown on two tables in Attachment 2. The readings obtained from the wells along the facility property line (i.e., those wells along the north, west and south sides of the closed landfill, and the two wells near Phase 1) are shown on Page 1 of Table 1. Page 2 of that table includes only the data collected from the wells along the east side of the 60-acre closed landfill.

Wells at Facility Perimeter--

As shown in Table 1, the maximum methane concentration detected from any of the wells along the perimeter of the site was 0.8 percent, which was recorded at GS-1S. Twenty eight of the wells contained no methane, and at the other four, methane was detected in minor concentrations (0.1 to 0.3 percent).

Wells Along East Side of Closed Landfill--

Table 2 presents the data collected from the 29 LFG monitoring wells along the east side of the 60-acre closed landfill. The methane concentration in these wells varied from zero to approximately 44 percent by volume. However, methane was detected in only 13 of these wells, and only six wells had concentrations that exceeded the lower explosive limit (LEL) for methane. As explained below, the concentrations that were above the LEL are not considered

regulatory exceedances since these wells are not located at the property boundary. However, this data does indicate the presence of subsurface LFG between the landfill and facility structures such as the leachate treatment plant and scale house.

Monitoring of On-Site Structures

No methane was detected in the scale house, administration building, or leachate treatment facility. Consistent with past monitoring conducted by County staff, SCS monitored in the restrooms of the administration building, as well as in select closets, the break room, conference room, and hallways. Monitoring also was performed outside the building at the edge of the building foundation, electrical outlets, and where pipes protrude from the ground.

In the scale house, SCS monitored the main work area, cabinets, the restroom, at electrical outlets, and at the electrical box outside the building. Monitoring of the leachate treatment facility included all enclosed spaces, around the base of structures, and at electrical outlets.

At the Sheriff's firing range, SCS detected methane at two locations which are shown on the photographs included in Attachment 3. The first photograph, which was taken while facing west, shows the location where SCS measured a methane concentration of 2.1 percent at a conduit near the base of a support post for the shelter at the main firing range platform. SCS also detected 1.5 percent methane at a nearby floor joint, also near a support post. SCS did not detect methane at any other floor joints, conduit, electrical outlets, or at the base of slabs or posts that penetrated the ground.

While the methane detection readings were below the LEL, and the locations of the readings are not in enclosed spaces, it is important to follow safety procedures while conducting any operations on the closed landfill that involve sources of ignition, such as open flames, etc.

CONCLUSIONS

There were no exceedances of the regulatory limits for methane concentration at either the property boundary or in on-site structures. The maximum methane concentration detected at the perimeter monitoring wells was 0.8 percent, and no methane was detected in the administration building, scale house, or leachate treatment plant.

Regarding the 27 LFG monitoring wells along the east side of the 60-acre closed landfill, because these wells are not located at the property boundary, they are not considered true compliance wells. This is because a high methane concentration in any of these 27 wells does not necessarily demonstrate that the concentration of methane at the property boundary is above the regulatory limit of 5 percent by volume. Instead, these wells allow the County to identify if LFG is migrating laterally from the landfill, which might potentially pose a concern at on-site structures. Furthermore, because these monitoring wells are located at the toe of an

unlined landfill, it should be expected that they will contain significant concentrations of methane.

RECOMMENDATIONS

While there were no exceedances of the regulatory limits in Rule 62-701.530(1)(a), F.A.C., SCS recommends that the County address the minor methane concentrations detected at the gun range.

For the location shown in the first photograph of Attachment 3, SCS recommends sealing the conduit per electrical code, and installing a hydrated bentonite plug around the conduit where it penetrates the ground. The bentonite plug should be installed by excavating by hand to a depth of two feet around the conduit. Granular or pellet bentonite should be poured into the excavation, and hydrated per the manufacturer's instructions. Hydrated bentonite will expand significantly and should seal the interface between the conduit and the surrounding soil.

At the location shown in the second photograph, SCS recommends sealing the concrete joints with a thorough coating of elastomeric or polyurethane joint sealant. After sealing these two locations, SCS recommends that County staff monitor the location shown in the first photograph as well as all floor joints every other day for a two-week period to ensure that additional sources of methane venting do not exist.

Please forward a copy of these results to the Florida Department of Environmental Protection Southwest District office. SCS appreciates the opportunity to assist you with this work. Please call us if you have any questions or would like additional information.

Sincerely,

David H. Penoyer, P.E.
Project Engineer

John A. Banks, P.E.
Project Director
SCS ENGINEERS

Attachments

ATTACHMENT 1

MONITORING WELL LOCATIONS

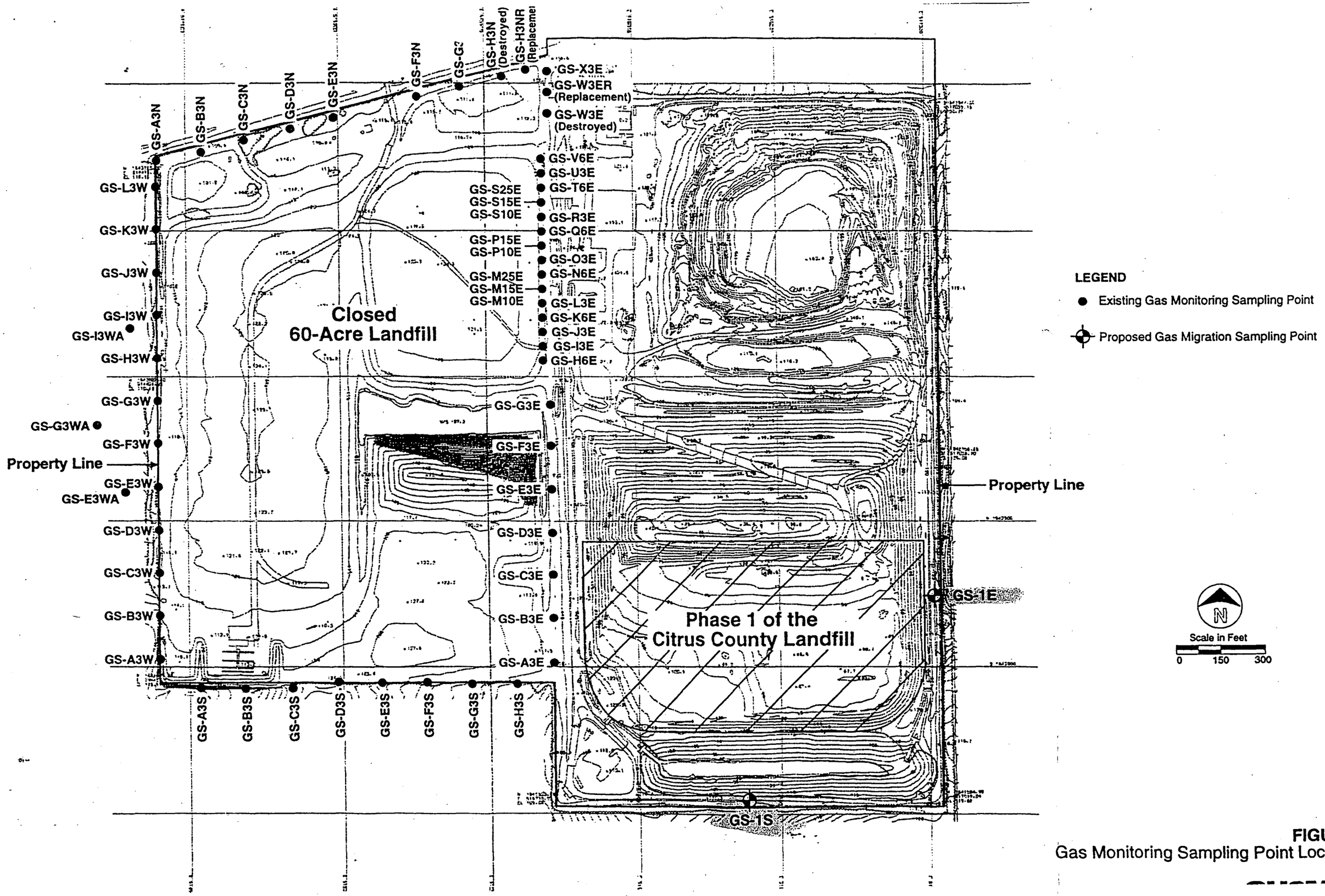


FIGURE 1
Gas Monitoring Sampling Point Locations

ATTACHMENT 2

LFG MONITORING RESULTS

TABLE 1
LANDFILL GAS MONITORING DATA, SECOND QUARTER 2002
CENTRAL LANDFILL, CITRUS COUNTY

Project Name:	Citrus County Central Landfill	Date:	June 13, 2002
Project No.:	09199056.03	Weather:	85 deg F, partly cloudy
Personnel:	D. Penoyer, L. Eldridge (SCS)	Comments:	Barometric pressure: 1018 mbar
Method of Calibration:	calibration gas		

Well No.	CH_4 (%)	CO_2 (%)	O_2 (%)	Balance (%)	Pressure (in-w.c.)	Comments
GS-H3NR	0.0	0.3	19.3	80.4	0.1	
GS-G3N	0.0	0.0	19.6	80.4	0.0	
GS-F3N	0.0	0.7	18.0	81.3	0.1	
GS-E3N	0.0	0.0	19.0	81.0	0.0	
GS-D3N	0.0	0.4	18.7	80.9	0.0	
GS-C3N	0.0	0.5	18.6	80.9	0.0	
GS-B3N	0.0	0.3	18.8	80.9	0.0	
GS-A3N	0.0	0.2	19.0	80.8	0.0	
GS-L3W	0.0	0.3	18.9	80.8	0.0	
GS-K3W	0.1	0.5	18.7	80.7	0.0	
GS-J3W	0.0	1.5	16.9	81.6	0.2	
GS-I3W	0.0	5.8	13.1	81.1	0.0	
GS-I3WA	0.0	---	---	---	---	Monitored by County
GS-H3W	0.3	13.6	5.3	80.8	0.0	
GS-G3W	0.3	11.1	7.6	81.0	0.2	
GS-G3WA	0.0	---	---	---	---	Monitored by County
GS-F3W	0.0	14.1	5.0	80.9	0.0	
GS-E3W	0.0	11.9	7.4	80.7	0.0	
GS-E3WA	0.0	2.0	17.6	80.4	0.0	
GS-D3W	0.1	5.3	13.0	81.6	0.0	
GS-C3W	0.0	5.2	14.9	79.9	0.0	
GS-B3W	0.0	1.9	16.8	81.3	0.0	
GS-A3W	0.0	3.1	15.1	81.8	0.0	
GS-A3S	0.0	4.0	14.9	81.1	0.0	
GS-B3S	0.0	5.0	14.3	80.7	0.0	
GS-C3S	0.0	6.6	12.2	81.2	0.0	
GS-D3S	0.0	10.0	9.8	80.2	0.0	
GS-E3S	0.0	4.6	13.6	81.8	0.0	
GS-F3S	0.0	3.7	14.5	81.8	0.0	
GS-G3S	0.0	2.7	15.3	82.0	0.0	
GS-H3S	0.0	1.3	17.0	81.7	0.0	
GS-1E	0.0	10.0	4.5	85.5	0.0	
GS-1S	0.8	13.7	0.0	85.5	0.0	

TABLE 1 (continued)

Well No.	CH_4 (%)	CO_2 (%)	O_2 (%)	Balance (%)	Pressure (in-w.c.)	Comments
GS-A3E	0.0	4.6	15.3	80.1	0.0	
GS-B3E	0.0	9.1	10.7	80.2	0.0	
GS-C3E	0.0	4.0	16.0	80.0	0.0	
GS-D3E	0.0	6.4	13.7	79.9	0.1	
GS-E3E	0.0	5.1	14.9	80.0	0.2	
GS-F3E	0.0	0.4	19.3	80.3	0.0	
GS-G3E	0.0	1.0	18.9	80.1	0.0	
GS-H6E	3.5	21.2	0.2	75.1	0.0	
GS-I3E	0.1	2.8	17.1	80.0	0.0	
GS-J3E	24.2	23.6	3.2	49.0	0.0	
GS-K6E	0.8	1.6	18.9	78.7	5.8	
GS-L3E	0.1	3.2	16.4	80.3	0.0	
GS-M10E	N/A	N/A	N/A	N/A	N/A	Broken labcock valve
GS-M15E	24.7	18.1	7.6	49.6	0.0	
GS-M25E	0.1	0.0	19.7	80.2	0.0	
GS-N6E	43.8	34.3	0.1	21.8	0.0	
GS-O3E	0.1	1.9	17.7	80.3	0.0	
GS-P10E	0.5	0.3	19.4	79.8	0.0	
GS-P15E	0.0	0.0	19.6	80.4	0.0	
GS-Q6E	40.8	30.9	3.5	24.8	0.0	
GS-R3E	0.0	1.0	18.8	80.2	0.1	
GS-S10E	0.0	0.0	19.7	80.3	0.0	
GS-S15E	0.0	0.0	19.6	80.4	0.0	
GS-S25E	27.0	24.8	5.1	43.1	0.0	
GS-T6E	37.1	37.0	0.3	25.6	0.0	
GS-U3E	0.0	1.4	18.4	80.2	0.0	
GS-V6E	0.0	0.0	19.4	80.6	0.0	
GS-W3ER	0.0	2.9	17.0	80.1	0.2	
GS-X3E	0.0	0.8	19.2	80.0	0.0	

Notes:

1. Page 1 of the table includes only the wells along the north, west, and south of the 60-acre closed landfill, as well as the two wells near Phase 1.
2. The wells on page 2 are located along the east side of the 60-acre closed landfill, and not at the facility property boundary.
3. Monitoring data provided by the County for wells GS-I3WA and GS-G3WA included methane concentration only.

ATTACHMENT 3

PHOTOGRAPHS OF AREAS OF METHANE DETECTION AT SHERIFF'S GUN RANGE

Citrus County Central Landfill – Firing Range Platform

7/16

Morris, John R.

From: Morris, John R.
Sent: Tuesday, July 16, 2002 5:17 PM
To: 'Susan Metcalfe'
Cc: Pelz, Susan
Subject: RE: Groundwater monitoring report

I would prefer a single submittal to include the results and ground water elevations/contour map with the analytical data. However, if it is anticipated that it will take more than 2 weeks to get the water levels/map together, then please go ahead submit what you have and follow up with the remaining information when available. Thanks.

-----Original Message-----
From: Susan Metcalfe [mailto:Susan.Metcalfe@bocc.citrus.fl.us]
Sent: Monday, July 15, 2002 1:06 PM
To: John Morris <john.r.morris@dep.state.fl.us
Cc: Thomas Dick
Subject: Groundwater monitoring report

The report whose deadline for submittal is today will be late. We have water quality data from the lab, but as yet do not have the water level data. Would you prefer a single submittal?

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

July 3, 2002

Ms. Susan Metcalfe
Solid Waste Management
P.O. Box 340
Lecanto, FL 34460

Re: Citrus County Central Landfill - Liner Remediation
Certification of Construction Completion
Permit No.: 21375-002-SC, Citrus County

Dear Ms. Metcalfe:

On June 7, 2002, an inspection of the above referenced facility relative to construction completion and adherence to the permit issued by the Florida Department of Environmental Protection (FDEP) was made by David Keough (JEA) and Kim Ford (FDEP).

Certification of Construction Completion dated June 5, 2002 with related report was received by the Department on June 7, 2002. Based on the certification, related documents and construction inspection, FDEP approves the certification for the above referenced project in accordance with the construction permit #21375-002-SC.

If you have any questions you may call me at (813) 744-6100, extension 382.

Sincerely,

Kim B. Ford, P.E.
Solid Waste Section
Division of Waste Management

KBF/ab

cc: David Keough, P.E., JEA
Susan Pelz, P.E. FDEP Tampa

Jones Edmunds & Associates, Inc.
CONSULTING ENGINEERS AND SCIENTISTS JEA

June 6, 2002

Mr. Kim Ford, P.E.
Florida Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619-8318

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
JUN - 7 2002
SOUTHWEST DISTRICT TAMPA

RE: Citrus County Central Landfill
Geomembrane Liner Remediation Construction Completion Report
JEA Project number: 03860-008-01

Dear Kim:

As the project engineer for the geomembrane liner remediation at Citrus County Central Landfill in Lecanto, Florida, Jones, Edmunds & Associates, Inc. (JEA) presents the enclosed Certification of Construction Completion and the associated Construction Completion Report.

Plans and specifications for the geomembrane liner remediation prepared by JEA were reviewed and approved by the Florida Department of Environmental Protection (FDEP) as part of the construction permit application submitted December 2000. FDEP issued a construction permit for this project on April 25, 2001. The notice to proceed for the geomembrane remediation was issued to the contractor MWM South, Inc. on July 2, 2001.

The work performed included placement of a new geomembrane liner over the existing, damaged geomembrane liner. The new geomembrane liner was covered with a protective Dura-Skrim D16WB "rain coat". JEA was retained by Citrus County to provide construction phase services associated with the geomembrane liner remediation.

If you have any questions regarding this information, please feel free to call Mickey Pollman or me at (353) 377-5821.

Sincerely,

David A. Keough, P.E.
Project Manager

Enclosures

Xc: Mickey Pollman, JEA
Susie Metcalfe, Citrus County Central Landfill

H:\JMcGregor\DKeough\03860\030.doc

730 NE Waldo Road, Bldg. A • Gainesville, Florida 32641 • Telephone (352) 377-5821 • FAX (352) 377-3166 • www.jonesedmunds.com

Citrus central
Class I LR
permit

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

May 30, 2002

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
JUN 05 2002
SOUTHWEST DISTRICT
TAMPA

Ms. Susan J. Metcaffe
Citrus County Board of County Commissioners
P.O. Box 340
Lecanto, Florida 34460

Dear Ms. Metcaffe:

Your Application for Registration of a Yard Trash Processing Facility for Citrus County Central Landfill is complete. Your facility identification number is 054-01-YT. This registration is valid until **May 1, 2003**. The receipt number for the registration fee you paid is 384450.

You must comply with the following requirements in order to maintain qualification for the registration program:

1. Monthly records of incoming and outgoing material shall be kept on site or at another location as indicated on the registration form for at least three years.

2. An Annual Report for a Yard Trash Processing Facility, DEP Form 62-709.320 (7)(b), shall be submitted by April 1 of each year.

3. A registration renewal, DEP Form 62-709.320(7)(a), shall be submitted by April 1 of each year to renew this registration.

4. The facility shall be operated in accordance with Rules 62-709.320(3) and (4), Florida Administrative Code (F.A.C.). A summary of these requirements is enclosed.

If you need further information, please contact Francine Joyal at the above address, Mail Station 4565, telephone 850/921-9977, or email Francine.Joyal@dep.state.fl.us.

Sincerely,

Francine Joyal

Francine Joyal
Environmental Specialist

Enclosure

cc: Susan Pelz, Southwest District

RECEIVED
JUN 05

"More Protection, Less Process"

Printed on recycled paper.

SP 4/10

Morris, John R.

From: Susan Metcalfe [Susan.Metcalfe@bocc.citrus.fl.us]
Sent: Friday, May 31, 2002 3:57 PM
To: Michael Cammarata <mcammarata@aellab.com
Cc: Cathy Winter; John Morris <john.r.morris@dep.state.fl.us
Subject: Groundwater monitoring

Thank you for reporting the error in groundwater level measurements during the January sampling. Your deduction from review of the field sheets, interviewing the sampling technician and reviewing historical records was that some (I am not sure how many) of the measurements were 10 feet off. It surprises me that it took four months to recognize this error. I understand that as a result of the water level measurement error, there is an error in purge times.

After conferring with FDEP, it is my conclusion that
1) all wells must have water level measurements repeated so that we can produce a water level map.
2) the January and repeat date water levels must be compared and a determination made of which wells likely had water level errors.
3) report the January purge volume in terms of saturated length casing volumes, however use the repeat date water level measurement for determining casing volume.
4) purge/sample and analyze all wells for which the minimum purge standard was not met in the January sampling at no additional cost to the County.
5) if there are any apparent violations of GW standards in results of analyses performed on January samples, that well must be resampled and analyzed.
6) sampling will be completed no later than June 12
7) report of resampling results will be delivered to County no later than July 3.
8) County will review report within 3 working days of delivery and if report revisions are required after County review, final report will be delivered to County within 3 working days after receipt of comments.

this seems to be what was missing the first time

PROJ. # 21375

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS
SOLID WASTE MANAGEMENT DIVISION

P.O. Box 340, Lecanto, Florida 34460
(352) 527-7670 FAX (352) 527-7672
Citrus Springs/Dunnellon area Toll Free # (352) 489-2120

RECEIVED
APR 17 2002
Department of Environmental Protection
BY SOUTHWEST DISTRICT

April 12, 2002

Kim B. Ford, P.E.
Solid Waste Section
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

Re: Citrus County Central Landfill
Permit No. 21375-003-SO

Dear Mr. Ford:

In accordance with Permit Condition 22 of the referenced permit, Citrus County hereby submits the annual estimate of remaining capacity for the facility. SCS Engineers prepared this report for us, performed the calculations and signed and sealed the report. A copy of the topographic survey for October 2, 2001 is included.

If you have any questions, please contact me. Please note that we have a new phone number.

Sincerely,

Susan J Metcalfe

Susan Metcalfe, Director
Solid Waste Management

Attachment: SCS letter report and map

CC: Tom Dick, Assistant Director, Public Works Department
John Banks, SCS Engineers, Tampa
Robert Butera, Solid Waste Section, FDEP, Tampa ✓

Environmental Consultants

3012 U.S. Highway 301 !
Suite 700
Tampa, FL 33619-2242

813 621-0080
FAX 813 623-6757

SCS ENGINEERS

April 11, 2002
File No. 09199056.02

Ms. Susan J. Metcalfe, P.G., Director
Citrus County Department of Public Works
Solid Waste Management Division
P.O. Box 340
Lecanto, Florida 34460

Subject: Remaining Air Space and Site Life Calculation
Citrus County Central Landfill, Lecanto, Florida

Dear Ms. Metcalfe:

Per your request, SCS Engineers (SCS) has calculated the remaining air space and site life for the Central Landfill. The estimated remaining air space was calculated based on the proposed final contours that were generated by CH2M Hill, and aerial topographic maps provided by Kucera International, Inc. (Kucera). As explained below, SCS used the volume calculations provided by Kucera, and the Central County Landfill waste tonnage records (June 2001 – September 2001), to perform the remaining site life calculation for Phase I and IA of Central Landfill.

Kucera calculated the remaining air space volume by comparing the proposed final contours to the topographic map dated October 2, 2001. From this volume, SCS subtracted the volume of an estimated three (3) foot final cover. The difference between the two volumes is the approximate net remaining air space available for refuse disposal.

As shown in the attached calculations, the estimated remaining air space volume for Phase I as of October 10, 2001 was 341,219 cubic yards. SCS estimated the remaining site life using an annual rate of filling of 80,500 tons (i.e. 6,708 tons monthly average) for the Fiscal Year 2001/2002 (see Appendix 1). For each subsequent year, we have assumed that the waste tonnage would increase by four (4) percent. Based on this assumption, the landfill is projected to reach capacity in June of 2004 (see Appendix 2). Note that these calculations assume that future filling will occur in the current active area (i.e. Phase 1 and 1A).

Please call either of us if you have any questions or comments.

Sincerely,

4-11-02

Monty M. Morshed
Senior Project Professional
SCS ENGINEERS

John A. Banks, P.E.
Project Director
SCS ENGINEERS

MMM/JAB:mmm

Attachment

APPENDIX 1

Monthly Disposal Summary

SCS ENGINEERS

Client: Citrus County	Project: Central Landfill, Florida	Job No. 09199056.02	
Subject: Life of Site Assessment as of October, 2001		By: MMM	Date: 4-Apr-02
		Checked: GAD	Date: 4-11-02

Monthly Disposal Summary [1]
(June 2001 - October 2001)

Material [2]	Jun-01	Jul-01	Aug-01	Sep-01
Scale Weight Garbage	6,316.8	6,513.1	6,539.2	6,075.1
Flat Fee Garbage	196.5	189.2	172.8	173.5
Household Garbage (Advance Disposal Pass)	30.9	27.9	29.7	28.1
Special Handle Waste	0.0	1.6	0.7	0.0
Dried Sludge	80.1	62.1	80.8	40.0
Scale Weight Garbage (Free)	58.2	57.9	89.5	70.4
Monthly Total =	6,682.5	6,851.8	6,912.7	6,387.1
Average Monthly Total =				6,708.5

Note:
(1) Source: Citrus County Waste Tonnage Record, June 2001 - October 2001
(2) The following materials are excluded from monthly tonnage calculations:
Yardwaste, Brush, Tires, A/C Freon Units, and Scrap Metal.

APPENDIX 2

SITE LIFE ASSESSMENT

SCS ENGINEERS

Client	Project	Job No.
Citrus County	Central Landfill, Florida	09199056.02

Subject	By	Date
Life of Site Assessment (as of October, 2001)	MMM	4-Apr-02
	Checked GAB	Date 4-11-02

Objective: Calculate remaining site life using waste tonnage records from Citrus County

Approach: Calculate "effective" density using volume consumed between June 2001 and October 2001.

1. Airspace available from October 2001 to Final Grades = 445,376 CY (per Kucera report)

2. Air volume consumed between 06/2001 and 10/2001 = 40,272 CY (per Kucera report)

3. Waste disposed between 06/2001 and 10/2001 = 26,834 tons (per scalehouse records).

4. Effective density = $\frac{26{,}834 \text{ tons}}{40{,}272 \text{ cubic yards}}$ = 1,333 lbs/CY

5. Calculate volume consumed by final capping system of 3 foot thickness over 21.52 acres.
   Cap Vol. = 104,157 CY

6. Subtract Cap Volume from Air Volume to determine useable Waste Volume for site life calc.
   Waste Vol. = 341,219 CY (as of 10/01/2001)

SITE LIFE CALCULATION (based on waste tonnage reports from Citrus County):

Year	Tonnage *	Volume Consumed (CY)	Net Remaining Airspace (CY)	
			341,219	(approx. air volume remaining as of Oct. 2001)
2001-02	80,500	120,813	220,407	
2002-03	83,720	125,645	94,762	
2003-04	87,069	130,671	---	

* Assume a 4.0% increase in annual disposal rate

CONCLUSION:

Remaining Site Life = Approximately 2 years and 8 months from October 2001

Therefore, site is estimated to reach capacity in June 2004.

APPENDIX 3

VOLUME CALCULATIONS
AND
WASTE TONNAGE RECORDS

KUCERA INTERNATIONAL INC.

GEOGRAPHIC INFORMATION PROFESSIONALS / PHOTOGRAMMETRISTS

KUCERA SOUTH

January 18, 2002

Corporate Headquarters
38133 Western Parkway
Willoughby, OH 44094-7589
(440) 975-4230
Fax (440) 975-4238
map @ kucera-gis.com
http://www.kucera-gis.com

Kucera South
2215 South Florida Avenue
Lakeland, FL 33803-7226
(941) 686-8640
Fax (941) 688-9594

Kucera West
Suite 215
11049 W. 44th Avenue
Wheat Ridge, CO 80033-2554
(303) 456-1820
Fax (303) 456-1821

Henderson Aerial Surveys
3889 Grove City Road
Grove City, OH 43123-9193
(614) 539-3925
Fax (614) 539-3928

Keddal Aerial Mapping
Suite 3100, 1121 Boyce Road
Pittsburgh, PA 15241-3918
(724) 942-2881
Fax (724) 942-2885

Kucera Southeast
Suite 200
1150 Lake Hearn Drive, NE
Atlanta, GA 30342-1506
(404) 261-3141
Fax (404) 250-3267

Ms. Susan J. Metcalfe, Director
CITRUS COUNTY DIV. OF SOLID WASTE MGNT.
P.O. Box 340
Lecanto, Florida 34460-0340

Re: Volume Calculation for Central Landfill Lecanto, FL October 2, 2001 Event

Dear Ms. Metcalfe:

New aerial photography of Citrus Countys' Central Landfill was taken October 2, 2001. From the new flight an updated topographic and planimetric map was prepared at a scale of 1" = 100' with a 1' foot contour interval.

Change in volume calculations were run on the Soil Pile, Mulch Piles and Fill Pile. The following is a summation of those calculations.

SOIL PILE: The soil pile boundary used is shown on the enclosed attachment.
Soil Pile volume remaining as of October 2, 2001 from the 120' elevation is: 778,884 Cu. Yd.

Soil Pile volume used from June 21, 2001 to October 2, 2001 is: 15,909 Cu. Yd.

SOIL MULCH PILE: As of October 2, 2001 is: 5,956 Cu. Yd.

MULCH PILE at FILL SITE: As of October 2, 2001 is: 5,144 Cu. Yd.

LANDFILL VOLUMES

DATA	ACRES		VOLUME
Liner To October 2001	27,67 Acres		1,512,585 Cu. Yd.
June 2001 to October 2001	27.67 Acres		45,416 Cu. Yd.
Minus the October 2001	Fill Mulch Pile	-	5,144 Cu. Yd.
June 2001 to October 2001	27.67 Acres	Total	40,272 Cu. Yd.
October 2001 to Final Design	21.52 Acres		445,376 Cu. Yd.

Note: Liner data provided by SCS
Final Design provided by CH2M Hill
June 2001 provided by Citrus Co/PTI

If you have any questions regarding the above, please do not hesitate to call.

Very truly yours,

Larry E. Towles

Larry E. Towles, PSM
Manager

LET:mt

RECEIVED
JAN 25 2002
CITRUS COUNTY DPW
SOLID WASTE MANAGEMENT DIV.

YOUR WINDOW TO THE WORLD

SOLID WASTE MGMT

527-1204

04/01/2002 17:41

MATERIAL SUMMARY
SEPTEMBER 2001

MATERIAL	CURRENT NUMBER TRANS.	CURRENT TOTAL TONS	CURRENT TOTAL RECEIPTS	CHANGE IN TONS FROM LAST MONTH	CHANGE IN TONS FROM SAME MO LAST YR	CHANGE IN TONS FROM TO DATE LAST YR	TOTALS - YEAR TO DATE TRANS.	TOTALS - YEAR TO DATE TONS	TOTALS - YEAR TO DATE RECEIPTS	PERCENT OF MONTHLY TOTAL TONS	PERCENT OF YEAR TO DATE TOTAL TONS	YTD REVENUE % OF TOTAL PROJECTED RECEIPTS
SCALE WEIGHT GARBAGE	4,072	6,075.1	$199,810.26	-7.1%	1.3%	1.3%	55,763	77,815.1	$2,544,157.94	82.2%	84.6%	92.2%
FLAT FEE GARBAGE	3,734	173.5	$4,244.50	0.4%	-7.1%	9.6%	52,769	2,495.5	$58,287.26	2.3%	2.7%	2.[illegible]
ADVANCE DISPOSAL PASS												
HOUSEHOLD GARBAGE	1,406	28.1	$12,520.00	-5.4%	-6.3%	11.1%	15,854	317.1	$20,240.00	0.4%	0.3%	0.7%
YARDWASTE	469	2.3	$1,072.00	-5.3%	-6.2%	11.0%	5,284	26.4	$1,744.00	0.0%	0.0%	0.1%
BRUSH	2,623	904.5	$13,900.15	68.7%	63.7%	27.0%	24,797	7,804.5	$120,685.40	12.2%	8.5%	4.4%
SPECIAL HANDLE WASTE	0	0.0	$0.00	-100.0%	-100.0%	-45.6%	17	23.4	$2,016.90	0.0%	0.0%	0.1%
TIRES	97	23.0	$1,779.50	-9.2%	-17.1%	19.9%	1,217	217.7	$16,959.50	0.3%	0.2%	0.6%
A/C, FREON UNITS	88	14.2	$817.50	-33.9%	-23.0%	16.8%	1,220	201.1	$11,235.00	0.2%	0.2%	0.4%
DRIED SLUDGE	6	40.0	$1,658.77	-50.6%	6.6%	53.6%	137	850.6	$35,298.50	0.5%	0.9%	1.3%
FREE:												
SCALE WEIGHT GARBAGE	61	70.4	$0.00	-21.3%	-52.1%	19.4%	954	1,012.4	$0.00	1.0%	1.1%	0.0%
TIRES	104	12.1	$0.00	126.7%	-87.4%	31.8%	869	245.4	$0.00	0.2%	0.3%	0.0%
SCRAP METAL	245	42.9	$0.00	-57.2%	61.3%	25.8%	3,100	1,025.0	$0.00	0.6%	1.1%	0.0%
OTHER TRANSACTIONS	558	0.0	$0.00	N/A	N/A	N/A	7,646	0.0	$0.00	0.0%	0.0%	0.0%
TOTALS	13,463	7,386.3	$235,802.68	-2.9%	3.7%	4.2%	169,627	92,033.1	$2,810,624.50	100.0%	100.0%	101.9%
WORKING DAYS 24	DAILY AVERAGES			LAST MONTH	SAME MO LAST YR	TO DATE LAST YR	YEAR TO DATE MONTHLY AVERAGES			ANTICIPATED REVENUE %		100.0%
										ACTUAL Y.T.D. REVENUE		$2,810,624.50
ACCOUNTING PERIOD 12	561	307.8	$9,825.11	CHANGE IN TONS FROM			14,136	7,669.4	$234,218.71	PROJECTED ANNUAL REVENUE		$2,758,800.00
										ACTUAL Y.T.D. REVENUE %		101.9%
TOTAL CLASS I MATERIAL	9,279	6,387.1	$218,233.53									

Annual total Class I 82 515

SOLID WASTE MGMT

527-1204

04/01/2002 17:41

MATERIAL SUMMARY
AUGUST 2001

MATERIAL	CURRENT NUMBER TRANS.	CURRENT TOTAL TONS	CURRENT TOTAL RECEIPTS	CHANGE IN TONS FROM LAST MONTH	CHANGE IN TONS FROM SAME MO LAST YR	CHANGE IN TONS FROM TO DATE LAST YR	TOTALS - YEAR TO DATE TRANS.	TOTALS - YEAR TO DATE TONS	TOTALS - YEAR TO DATE RECEIPTS	PERCENT OF MONTHLY TOTAL TONS	PERCENT OF YEAR TO DATE TOTAL TONS	YTD REVENUE % OF TOTAL PROJECTED RECEIPTS
SCALE WEIGHT GARBAGE	4,553	6,539.2	$214,576.29	0.4%	-2.0%	1.3%	51,691	71,740.0	$2,344,347.68	86.0%	84.8%	85.0%
FLAT FEE GARBAGE	3,946	172.8	$4,319.00	-8.7%	-8.4%	11.1%	49,035	2,322.0	$54,042.76	2.3%	2.7%	2.0%
ADVANCE DISPOSAL PASS												
HOUSEHOLD GARBAGE	1,486	29.7	$20.00	6.4%	-1.1%	13.1%	14,448	289.0	$7,720.00	0.4%	0.3%	0.3%
YARDWASTE	495	2.5	$2.00	6.5%	-1.2%	13.1%	4,815	24.1	$672.00	0.0%	0.0%	0.0%
BRUSH	1,659	536.2	$8,293.10	-2.0%	-10.2%	23.4%	22,174	6,900.0	$106,785.25	7.1%	8.2%	3.9%
SPECIAL HANDLE WASTE	1	0.7	$65.70	-54.4%	-18.9%	-42.6%	17	22.4	$2,016.90	0.0%	0.0%	0.1%
TIRES	133	25.4	$1,962.00	196.3%	27.9%	26.5%	1,120	194.6	$15,180.00	0.3%	0.2%	0.6%
A/C, FREON UNITS	138	21.5	$1,237.50	3.1%	5.8%	33.4%	1,132	186.9	$10,417.50	0.3%	0.2%	0.4%
DRIED SLUDGE	13	80.8	$3,354.88	30.2%	71.7%	57.0%	131	810.6	$33,639.73	1.1%	1.0%	1.2%
FREE:												
SCALE WEIGHT GARBAGE	66	89.5	$0.00	54.5%	20.8%	34.4%	893	942.0	$0.00	1.2%	1.1%	0.0%
TIRES	64	5.4	$0.00	89.7%	-28.4%	89.3%	765	233.2	$0.00	0.1%	0.3%	0.0%
SCRAP METAL	314	100.3	$0.00	28.2%	-27.2%	24.6%	2,855	982.1	$0.00	1.3%	1.2%	0.0%
OTHER TRANSACTIONS	675	0.0	$0.00	N/A	N/A	N/A	7,088	0.0	$0.00	0.0%	0.0%	0.0%
TOTALS	13,543	7,603.8	$233,830.47	1.2%	-2.5%	4.2%	156,164	84,646.8	$2,574,821.82	100.0%	100.0%	93.3%
WORKING DAYS 27	DAILY AVERAGES			LAST MONTH	SAME MO LAST YR	TO DATE LAST YR	YEAR TO DATE MONTHLY AVERAGES			ANTICIPATED REVENUE %		91.7%
										ACTUAL Y.T.D. REVENUE		$2,574,821.82
ACCOUNTING PERIOD 11	502	281.6	$8,660.39	CHANGE IN TONS FROM			14,197	7,695.2	$234,074.71	PROJECTED ANNUAL REVENUE		$2,758,800.00
										ACTUAL Y.T.D. REVENUE %		93.3%
TOTAL CLASS I MATERIAL	10,065	6,912.7	$222,335.87									

MATERIAL SUMMARY
JULY 2001

MATERIAL	CURRENT NUMBER TRANS.	CURRENT TOTAL TONS	CURRENT TOTAL RECEIPTS	CHANGE IN TONS FROM LAST MONTH	CHANGE IN TONS FROM SAME MO LAST YR	CHANGE IN TONS FROM TO DATE LAST YR	TOTALS - YEAR TO DATE TRANS.	TOTALS - YEAR TO DATE TONS	TOTALS - YEAR TO DATE RECEIPTS	PERCENT OF MONTHLY TOTAL TONS	PERCENT OF YEAR TO DATE TOTAL TONS	YTD REVENUE % OF TOTAL PROJECTED RECEIPTS
SCALE WEIGHT GARBAGE	4,508	6,513.1	$214,292.30	3.1%	-0.3%	1.7%	47,138	65,200.8	$2,129,771.39	86.7%	84.6%	77.2%
FLAT FEE GARBAGE	4,030	189.2	$4,528.50	-3.8%	-6.1%	13.1%	45,089	2,149.2	$49,723.76	2.5%	2.8%	1.8%
ADVANCE DISPOSAL PASS												
HOUSEHOLD GARBAGE	1,396	27.9	$80.00	-9.8%	7.6%	15.0%	12,962	259.2	$7,700.00	0.4%	0.3%	0.3%
YARDWASTE	465	2.3	$6.00	-9.8%	7.6%	15.0%	4,320	21.6	$670.00	0.0%	0.0%	0.0%
BRUSH	1,679	547.0	$8,451.50	-1.1%	2.0%	27.4%	20,515	6,363.8	$98,492.25	7.3%	8.3%	3.6%
SPECIAL HANDLE WASTE	1	1.6	$144.00	N/A	-53.6%	-43.1%	16	23.7	$1,951.20	0.0%	0.0%	0.1%
TIRES	108	8.6	$691.50	3.4%	14.0%	26.3%	987	169.3	$13,218.00	0.1%	0.2%	0.5%
A/C, FREON UNITS	129	20.8	$1,200.00	5.3%	34.9%	38.0%	994	165.4	$9,180.00	0.3%	0.2%	0.3%
DRIED SLUDGE	10	62.1	$2,576.76	-22.5%	259.1%	55.6%	118	729.8	$30,284.85	0.8%	0.9%	1.1%
FREE:												
SCALE WEIGHT GARBAGE	80	57.9	$0.00	-0.5%	-31.8%	36.0%	827	852.5	$0.00	0.8%	1.1%	0.0%
TIRES	44	2.8	$0.00	-85.6%	-51.1%	96.9%	701	127.9	$0.00	0.0%	0.3%	0.0%
SCRAP METAL	294	78.2	$0.00	-2.6%	32.4%	35.5%	2,541	881.8	$0.00	1.0%	1.1%	0.0%
OTHER TRANSACTIONS	602	0.0	$0.00	N/A	N/A	N/A	6,413	0.0	$0.00	0.0%	0.0%	0.0%
TOTALS	13,346	7,511.4	$231,970.56	2.0%	0.2%	4.9%	142,621	77,043.0	$2,340,991.35	100.0%	100.0%	84.9%
WORKING DAYS 25	DAILY AVERAGES			LAST MONTH	SAME MO LAST YR	TO DATE LAST YR	YEAR TO DATE MONTHLY AVERAGES			ANTICIPATED REVENUE %		83.3%
										ACTUAL Y.T.D. REVENUE		$2,340,991.35
ACCOUNTING PERIOD 10	534	300.5	$9,278.82	CHANGE IN TONS FROM			14,262	7,704.3	$234,099.14	PROJECTED ANNUAL REVENUE		$2,758,800.00
										ACTUAL Y.T.D. REVENUE %		84.9%
TOTAL CLASS I MATERIAL	10,025	6,851.7	$221,621.56									

SOLID WASTE MGMT

527-1204

04/01/2002 17:41

MATERIAL SUMMARY
JUNE 2001

MATERIAL	CURRENT NUMBER TRANS.	CURRENT TOTAL TONS	CURRENT TOTAL RECEIPTS	CHANGE IN TONS FROM LAST MONTH	CHANGE IN TONS FROM SAME MO LAST YR	CHANGE IN TONS FROM TO DATE LAST YR	TOTALS - YEAR TO DATE TRANS.	TOTALS - YEAR TO DATE TONS	TOTALS - YEAR TO DATE RECEIPTS	PERCENT OF MONTHLY TOTAL TONS	PERCENT OF YEAR TO DATE TOTAL TONS	YTD REVENUE % OF TOTAL PROJECTED RECEIPTS
SCALE WEIGHT GARBAGE	4,887	6,316.8	$207,573.59	-5.9%	-4.5%	1.9%	42,630	58,687.8	$1,915,479.09	85.8%	84.4%	69.4%
FLAT FEE GARBAGE	4,142	196.5	$4,819.00	2.7%	2.8%	15.3%	41,059	1,960.1	$45,195.26	2.7%	2.8%	1.6%
ADVANCE DISPOSAL PASS									-			
HOUSEHOLD GARBAGE	1,547	30.9	$60.00	-28.0%	7.4%	15.9%	31,566	231.3	$7,620.00	0.4%	0.3%	0.3%
YARDWASTE	516	2.6	$8.00	-28.0%	7.4%	15.9%	3,855	19.3	$664.00	0.0%	0.0%	0.0%
BRUSH	1,755	553.2	$8,580.65	-15.4%	7.2%	30.4%	18,836	5,816.8	$90,040.65	7.5%	8.4%	3.3%
SPECIAL HANDLE WASTE	0	0.0	$0.00	-100.0%	-100.0%	-42.1%	15	20.1	$1,807.20	0.0%	0.0%	0.1%
TIRES	88	8.3	$669.75	-36.3%	-54.1%	27.1%	879	160.7	$12,526.50	0.1%	0.2%	0.5%
A/C, FREON UNITS	117	19.8	$1,140.00	16.9%	81.0%	38.5%	865	144.6	$7,980.00	0.3%	0.2%	0.3%
DRIED SLUDGE	13	80.1	$3,325.01	-9.0%	83.8%	47.8%	108	667.7	$27,708.09	1.1%	1.0%	1.0%
FREE:												
SCALE WEIGHT GARBAGE	71	58.2	$0.00	1.4%	-35.7%	46.6%	747	794.6	$0.00	0.8%	1.1%	0.0%
TIRES	204	19.7	$0.00	-57.8%	29.2%	104.7%	657	225.1	$0.00	0.3%	0.3%	0.0%
SCRAP METAL	294	80.4	$0.00	-38.7%	83.3%	35.8%	2,247	803.5	$0.00	1.1%	1.2%	0.0%
OTHER TRANSACTIONS	593	0.0	$0.00	N/A	N/A	N/A	5,811	0.0	$0.00	0.0%	0.0%	0.0%
TOTALS	14,227	7,366.4	$226,176.00	-7.4%	-2.5%	5.5%	129,275	69,531.5	$2,109,020.79	100.0%	100.0%	76.4%
WORKING DAYS 26	DAILY AVERAGES			LAST MONTH	SAME MO LAST YR	TO DATE LAST YR	YEAR TO DATE MONTHLY AVERAGES			ANTICIPATED REVENUE %		75.0%
										ACTUAL Y.T.D. REVENUE		$2,109,020.79
ACCOUNTING PERIOD 9	547	283.3	$8,699.08	CHANGE IN TONS FROM			14,364	7,725.7	$234,335.64	PROJECTED ANNUAL REVENUE		$2,758,800.00
										ACTUAL Y.T.D. REVENUE %		76.4%
TOTAL CLASS I MATERIAL	10,660	6,682.6	$215,777.60									

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS
SOLID WASTE MANAGEMENT DIVISION

P.O. Box 340, Lecanto, Florida 34460
(352) 527-7670 FAX (352) 527-7672
Citrus Springs/Dunnellon area Toll Free # (352) 489-2120

April 12, 2002

RECEIVED
APR 17 2002
Department of Environmental Protection
SOUTHWEST DISTRICT
BY _____

Kim B. Ford, P.E.
Solid Waste Section
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

Re: Citrus County Central Landfill
Permit No. 21375-003-SO

Dear Mr. Ford:

In accordance with Permit Condition 22 of the referenced permit, Citrus County hereby submits the annual estimate of remaining capacity for the facility. SCS Engineers prepared this report for us, performed the calculations and signed and sealed the report. A copy of the topographic survey for October 2, 2001 is included.

If you have any questions, please contact me. Please note that we have a new phone number.

Sincerely,

Susan J Metcalfe

Susan Metcalfe, Director
Solid Waste Management

Attachment: SCS letter report and map

CC: Tom Dick, Assistant Director, Public Works Department
John Banks, SCS Engineers, Tampa
Robert Butera, Solid Waste Section, FDEP, Tampa

Environmental Consultants

3012 U.S. Highway 301
Suite 700
Tampa, FL 33619-2242

813 621-0080
FAX 813 623-6757

SCS ENGINEERS

April 11, 2002
File No. 09199056.02

Ms. Susan J. Metcalfe, P.G., Director
Citrus County Department of Public Works
Solid Waste Management Division
P.O. Box 340
Lecanto, Florida 34460

Subject: Remaining Air Space and Site Life Calculation
Citrus County Central Landfill, Lecanto, Florida

Dear Ms. Metcalfe:

Per your request, SCS Engineers (SCS) has calculated the remaining air space and site life for the Central Landfill. The estimated remaining air space was calculated based on the proposed final contours that were generated by CH2M Hill, and aerial topographic maps provided by Kucera International, Inc. (Kucera). As explained below, SCS used the volume calculations provided by Kucera, and the Central County Landfill waste tonnage records (June 2001 – September 2001), to perform the remaining site life calculation for Phase I and IA of Central Landfill.

Kucera calculated the remaining air space volume by comparing the proposed final contours to the topographic map dated October 2, 2001. From this volume, SCS subtracted the volume of an estimated three (3) foot final cover. The difference between the two volumes is the approximate net remaining air space available for refuse disposal.

As shown in the attached calculations, the estimated remaining air space volume for Phase I as of October 10, 2001 was 341,219 cubic yards. SCS estimated the remaining site life using an annual rate of filling of 80,500 tons (i.e. 6,708 tons monthly average) for the Fiscal Year 2001/2002 (see Appendix 1). For each subsequent year, we have assumed that the waste tonnage would increase by four (4) percent. Based on this assumption, the landfill is projected to reach capacity in June of 2004 (see Appendix 2). Note that these calculations assume that future filling will occur in the current active area (i.e. Phase 1 and 1A).

Please call either of us if you have any questions or comments.

Sincerely,

4-11-02

Monty M. Morshed
Senior Project Professional
SCS ENGINEERS

John A. Banks, P.E.
Project Director
SCS ENGINEERS

MMM/JAB:mmm

Attachment

APPENDIX 1

Monthly Disposal Summary

SCS ENGINEERS

Client: Citrus County	Project: Central Landfill, Florida	Job No. 09199056.02
Subject: Life of Site Assessment as of October, 2001	By: MMM	Date: 4-Apr-02
	Checked: JAB	Date: 4-11-02

Monthly Disposal Summary [1]
(June 2001 - October 2001)

Material [2]	Jun-01	Jul-01	Aug-01	Sep-01
Scale Weight Garbage	6,316.8	6,513.1	6,539.2	6,075.1
Flat Fee Garbage	196.5	189.2	172.8	173.5
Household Garbage (Advance Disposal Pass)	30.9	27.9	29.7	28.1
Special Handle Waste	0.0	1.6	0.7	0.0
Dried Sludge	80.1	62.1	80.8	40.0
Scale Weight Garbage (Free)	58.2	57.9	89.5	70.4
Monthly Total =	6,682.5	6,851.8	6,912.7	6,387.1
Average Monthly Total =				6,708.5

Note:
(1) Source: Citrus County Waste Tonnage Record, June 2001 - October 2001
(2) The following materials are excluded from monthly tonnage calculations:
Yardwaste, Brush, Tires, A/C Freon Units, and Scrap Metal.

APPENDIX 2

SITE LIFE ASSESSMENT

SCS ENGINEERS

Client	Project	Job No.
Citrus County	Central Landfill, Florida	09199056.02

Subject	By	Date
Life of Site Assessment (as of October, 2001)	MMM	4-Apr-02
	Checked OAB	Date 4-11-02

Objective: Calculate remaining site life using waste tonnage records from Citrus County

Approach: Calculate "effective" density using volume consumed between June 2001 and October 2001.

1. Airspace available from October 2001 to Final Grades = 445,376 CY (per Kucera report)
2. Air volume consumed between 06/2001 and 10/2001 = 40,272 CY (per Kucera report)
3. Waste disposed between 06/2001 and 10/2001 = 26,834 tons (per scalehouse records).
4. Effective density = 26,834 tons / 40,272 cubic yards = 1,333 lbs/CY
5. Calculate volume consumed by final capping system of 3 foot thickness over 21.52 acres.
   Cap Vol. = 104,157 CY
6. Subtract Cap Volume from Air Volume to determine useable Waste Volume for site life calc.
   Waste Vol. = 341,219 CY (as of 10/01/2001)

SITE LIFE CALCULATION (based on waste tonnage reports from Citrus County):

Year	Tonnage *	Volume Consumed (CY)	Net Remaining Airspace (CY)	
			341,219	(approx. air volume remaining as of Oct. 2001)
2001-02	80,500	120,813	220,407	
2002-03	83,720	125,645	94,762	
2003-04	87,069	130,671	---	

* Assume a 4.0% increase in annual disposal rate

CONCLUSION:

Remaining Site Life = Approximately 2 years and 8 months from October 2001

Therefore, site is estimated to reach capacity in June 2004.

APPENDIX 3

VOLUME CALCULATIONS
AND
WASTE TONNAGE RECORDS

KUCERA INTERNATIONAL INC.

GEOGRAPHIC INFORMATION PROFESSIONALS / PHOTOGRAMMETRISTS

KUCERA SOUTH

January 18, 2002

Corporate Headquarters
38133 Western Parkway
Willoughby, OH 44094-7589
(440) 975-4230
Fax (440) 975-4238
map @ kucera-gis.com
http://www.kucera-gis.com

Kucera South
2215 South Florida Avenue
Lakeland, FL 33803-7226
(941) 686-8640
Fax (941) 688-9594

Kucera West
Suite 215
11049 W. 44th Avenue
Wheat Ridge, CO 80033-2554
(303) 456-1820
Fax (303) 456-1821

Henderson Aerial Surveys
3889 Grove City Road
Grove City, OH 43123-9193
(614) 539-3925
Fax (614) 539-3928

Keddal Aerial Mapping
Suite 3100, 1121 Boyce Road
Pittsburgh, PA 15241-3918
(724) 942-2881
Fax (724) 942-2885

Kucera Southeast
Suite 200
1150 Lake Hearn Drive, NE
Atlanta, GA 30342-1506
(404) 261-3141
Fax (404) 250-3267

Ms. Susan J. Metcalfe, Director
CITRUS COUNTY DIV. OF SOLID WASTE MGNT.
P.O. Box 340
Lecanto, Florida 34460-0340

Re: Volume Calculation for Central Landfill Lecanto, FL October 2, 2001 Event

Dear Ms. Metcalfe:

New aerial photography of Citrus Countys' Central Landfill was taken October 2, 2001. From the new flight an updated topographic and planimetric map was prepared at a scale of 1" = 100' with a 1' foot contour interval.

Change in volume calculations were run on the Soil Pile, Mulch Piles and Fill Pile. The following is a summation of those calculations.

SOIL PILE: The soil pile boundary used is shown on the enclosed attachment.
Soil Pile volume remaining as of October 2, 2001 from the 120' elevation is: 778,884 Cu. Yd.

Soil Pile volume used from June 21, 2001 to October 2, 2001 is: 15,909 Cu. Yd.

SOIL MULCH PILE: As of October 2, 2001 is: 5,956 Cu. Yd.

MULCH PILE at FILL SITE: As of October 2, 2001 is: 5,144 Cu. Yd.

LANDFILL VOLUMES

DATA	ACRES		VOLUME
Liner To October 2001	27,67 Acres		1,512,585 Cu. Yd.
June 2001 to October 2001	27.67 Acres		45,416 Cu. Yd.
Minus the October 2001	Fill Mulch Pile	-	5,144 Cu. Yd.
June 2001 to October 2001	27.67 Acres	Total	40,272 Cu. Yd.
October 2001 to Final Design	21.52 Acres		445,376 Cu. Yd.

Note: Liner data provided by SCS
Final Design provided by CH2M Hill
June 2001 provided by Citrus Co/PTI

If you have any questions regarding the above, please do not hesitate to call.

Very truly yours,

Larry E. Towles

Larry E. Towles, PSM
Manager

LET:mt

RECEIVED
JAN 25 2002
CITRUS COUNTY DPW
SOLID WASTE MANAGEMENT DIV

YOUR WINDOW TO THE WORLD

SOLID WASTE MGMT

527-1204

04/01/2002 17:41

MATERIAL SUMMARY
SEPTEMBER 2001

MATERIAL	CURRENT NUMBER TRANS.	CURRENT TOTAL TONS	CURRENT TOTAL RECEIPTS	CHANGE IN TONS FROM LAST MONTH	CHANGE IN TONS FROM SAME MO LAST YR	CHANGE IN TONS FROM TO DATE LAST YR	TOTALS - YEAR TO DATE TRANS.	TOTALS - YEAR TO DATE TONS	TOTALS - YEAR TO DATE RECEIPTS	PERCENT OF MONTHLY TOTAL TONS	PERCENT OF YEAR TO DATE TOTAL TONS	YTD REVENUE % OF TOTAL PROJECTED RECEIPTS
SCALE WEIGHT GARBAGE	4,072	6,075.1	$199,810.26	-7.1%	1.3%	1.3%	55,763	77,815.1	$2,544,157.94	82.2%	84.6%	92.2%
FLAT FEE GARBAGE	3,734	173.5	$4,244.50	0.4%	-7.1%	9.6%	52,769	2,495.5	$58,287.26	2.3%	2.7%	2.1
ADVANCE DISPOSAL PASS												
HOUSEHOLD GARBAGE	1,406	28.1	$12,520.00	-5.4%	-6.3%	11.1%	15,854	317.1	$20,240.00	0.4%	0.3%	0.7%
YARDWASTE	469	2.3	$1,072.00	-5.3%	-6.2%	11.0%	5,284	26.4	$1,744.00	0.0%	0.0%	0.1%
BRUSH	2,623	904.5	$13,900.15	68.7%	63.7%	27.0%	34,797	7,804.5	$120,685.40	12.2%	8.5%	4.4%
SPECIAL HANDLE WASTE	0	0.0	$0.00	-100.0%	-100.0%	-45.6%	17	22.4	$2,016.90	0.0%	0.0%	0.1%
TIRES	97	23.0	$1,779.50	-9.2%	-17.1%	19.9%	1,217	217.7	$16,959.50	0.3%	0.2%	0.6%
A/C, FREON UNITS	88	14.2	$817.50	-33.9%	-23.0%	26.8%	1,220	201.1	$11,235.00	0.2%	0.2%	0.4%
DRIED SLUDGE	6	40.0	$1,658.77	-50.6%	6.6%	53.6%	137	850.6	$35,298.50	0.5%	0.9%	1.3%
FREE:												
SCALE WEIGHT GARBAGE	61	70.4	$0.00	-21.3%	-52.1%	19.4%	954	1,012.4	$0.00	1.0%	1.1%	0.0%
TIRES	104	12.1	$0.00	126.7%	-87.4%	31.8%	869	245.4	$0.00	0.2%	0.3%	0.0%
SCRAP METAL	245	42.9	$0.00	-57.2%	61.3%	25.8%	3,100	1,825.0	$0.00	0.6%	1.3%	0.0%
OTHER TRANSACTIONS	558	0.0	$0.00	N/A	N/A	N/A	7,646	0.0	$0.00	0.0%	0.0%	0.0%
TOTALS	13,463	7,386.3	$235,802.68	-2.9%	3.7%	4.2%	169,627	92,033.1	$2,810,624.50	100.0%	100.0%	101.9%
WORKING DAYS 24	DAILY AVERAGES			LAST MONTH	SAME MO LAST YR	TO DATE LAST YR	YEAR TO DATE MONTHLY AVERAGES			ANTICIPATED REVENUE %		100.0%
										ACTUAL Y.T.D. REVENUE		$2,810,624.50
ACCOUNTING PERIOD 12	561	307.8	$9,825.11	CHANGE IN TONS FROM			14,136	7,669.4	$234,218.71	PROJECTED ANNUAL REVENUE		$2,758,800.00
										ACTUAL Y.T.D. REVENUE %		101.9%
TOTAL CLASS I MATERIAL	9,279	6,387.1	$218,233.53									

Annual total Class I 82 515

SOLID WASTE MGMT

MATERIAL SUMMARY
AUGUST 2001

MATERIAL	CURRENT NUMBER TRANS.	CURRENT TOTAL TONS	CURRENT TOTAL RECEIPTS	CHANGE IN TONS FROM LAST MONTH	CHANGE IN TONS FROM SAME MO LAST YR	CHANGE IN TONS FROM TO DATE LAST YR	TOTALS - YEAR TO DATE TRANS.	TOTALS - YEAR TO DATE TONS	TOTALS - YEAR TO DATE RECEIPTS	PERCENT OF MONTHLY TOTAL TONS	PERCENT OF YEAR TO DATE TOTAL TONS	YTD REVENUE % OF TOTAL PROJECTED RECEIPTS
SCALE WEIGHT GARBAGE	4,553	6,539.2	$214,576.29	0.4%	-2.0%	1.3%	51,693	71,740.0	$2,344,347.68	86.0%	84.8%	85.0%
FLAT FEE GARBAGE	3,946	172.8	$4,319.00	-8.7%	-8.4%	11.1%	49,035	2,322.0	$54,042.76	2.3%	2.7%	2.0%
ADVANCE DISPOSAL PASS												
HOUSEHOLD GARBAGE	1,486	29.7	$20.00	6.4%	-1.1%	13.1%	14,448	289.0	$7,720.00	0.4%	0.3%	0.3%
YARDWASTE	495	2.5	$2.00	6.5%	-1.2%	13.1%	4,815	24.1	$672.00	0.0%	0.0%	0.0%
BRUSH	1,659	536.2	$8,293.10	-2.0%	-10.2%	23.4%	22,174	6,900.0	$106,785.25	7.1%	8.2%	3.9%
SPECIAL HANDLE WASTE	1	0.7	$65.70	-54.4%	-18.9%	-42.6%	17	22.4	$2,016.90	0.0%	0.0%	0.1%
TIRES	133	25.4	$1,962.00	196.3%	27.9%	26.5%	1,120	194.6	$15,180.00	0.3%	0.2%	0.6%
A/C, FREON UNITS	138	21.5	$1,237.50	3.1%	5.8%	33.4%	1,132	186.9	$10,417.50	0.3%	0.2%	0.4%
DRIED SLUDGE	13	80.8	$3,354.88	30.2%	71.7%	57.0%	131	810.6	$33,639.73	1.1%	1.0%	1.2%
FREE:												
SCALE WEIGHT GARBAGE	66	89.5	$0.00	54.5%	20.8%	34.4%	893	942.0	$0.00	1.2%	1.1%	0.0%
TIRES	64	5.4	$0.00	89.7%	-28.4%	89.3%	765	233.2	$0.00	0.1%	0.3%	0.0%
SCRAP METAL	314	100.3	$0.00	28.2%	-27.2%	24.6%	2,855	982.1	$0.00	1.3%	1.2%	0.0%
OTHER TRANSACTIONS	675	0.0	$0.00	N/A	N/A	N/A	7,088	0.0	$0.00	0.0%	0.0%	0.0%
TOTALS	13,543	7,603.8	$233,830.47	1.2%	-2.5%	4.2%	156,164	84,646.8	$2,574,821.82	100.0%	100.0%	93.3%
WORKING DAYS 27	DAILY AVERAGES			LAST MONTH	SAME MO LAST YR	TO DATE LAST YR	YEAR TO DATE MONTHLY AVERAGES			ANTICIPATED REVENUE %		91.7%
										ACTUAL Y.T.D. REVENUE		$2,574,821.82
ACCOUNTING PERIOD 11	502	281.6	$8,660.39	CHANGE IN TONS FROM			14,197	7,695.2	$234,074.71	PROJECTED ANNUAL REVENUE		$2,758,800.00
										ACTUAL Y.T.D. REVENUE %		93.3%
TOTAL CLASS I MATERIAL	10,065	5,912.7	$222,335.87									

SOLID WASTE MGMT

MATERIAL SUMMARY
JULY 2001

MATERIAL	CURRENT NUMBER TRANS.	CURRENT TOTAL TONS	CURRENT TOTAL RECEIPTS	CHANGE IN TONS FROM LAST MONTH	CHANGE IN TONS FROM SAME MO LAST YR	CHANGE IN TONS FROM TO DATE LAST YR	TOTALS - YEAR TO DATE TRANS.	TOTALS - YEAR TO DATE TONS	TOTALS - YEAR TO DATE RECEIPTS	PERCENT OF MONTHLY TOTAL TONS	PERCENT OF YEAR TO DATE TOTAL TONS	YTD REVENUE % OF TOTAL PROJECTED RECEIPTS
SCALE WEIGHT GARBAGE	4,508	6,513.1	$214,292.30	3.1%	-0.3%	1.7%	47,138	65,200.8	$2,129,771.39	86.7%	84.6%	77.2%
FLAT FEE GARBAGE	4,030	189.2	$4,528.50	-3.8%	-6.1%	13.1%	45,089	2,149.2	$49,723.76	2.5%	2.8%	1.8%
ADVANCE DISPOSAL PASS												
HOUSEHOLD GARBAGE	1,396	27.9	$80.00	-9.8%	7.6%	15.0%	12,962	259.2	$7,700.00	0.4%	0.3%	0.3%
YARDWASTE	465	2.3	$6.00	-9.8%	7.6%	15.0%	4,328	21.6	$670.00	0.0%	0.0%	0.0%
BRUSH	1,679	547.0	$8,451.50	-1.1%	2.0%	27.4%	20,515	6,363.8	$98,492.25	7.3%	8.3%	3.6%
SPECIAL HANDLE WASTE	1	1.6	$144.00	N/A	-53.6%	-43.1%	16	21.7	$1,951.20	0.0%	0.0%	0.1%
TIRES	108	8.6	$691.50	3.4%	14.0%	26.3%	987	169.3	$13,218.00	0.1%	0.2%	0.5%
A/C, FREON UNITS	129	20.8	$1,200.00	5.3%	34.9%	38.0%	994	165.4	$9,180.00	0.3%	0.2%	0.3%
DRIED SLUDGE	10	62.1	$2,576.76	-22.5%	259.1%	55.6%	118	729.8	$30,284.85	0.8%	0.9%	1.1%
FREE:												
SCALE WEIGHT GARBAGE	80	57.9	$0.00	-0.5%	-31.8%	36.0%	827	852.5	$0.00	0.8%	1.1%	0.0%
TIRES	44	2.8	$0.00	-85.6%	-51.1%	96.9%	701	227.9	$0.00	0.0%	0.3%	0.0%
SCRAP METAL	294	78.2	$0.00	-2.6%	32.4%	35.5%	2,541	881.8	$0.00	1.0%	1.1%	0.0%
OTHER TRANSACTIONS	602	0.0	$0.00	N/A	N/A	N/A	6,413	0.0	$0.00	0.0%	0.0%	0.0%
TOTALS	13,346	7,511.4	$231,970.56	2.8%	0.2%	4.9%	142,621	77,043.0	$2,340,991.35	100.0%	100.0%	84.9%
WORKING DAYS 25	DAILY AVERAGES			LAST MONTH	SAME MO LAST YR	TO DATE LAST YR	YEAR TO DATE MONTHLY AVERAGES			ANTICIPATED REVENUE %		83.3%
										ACTUAL Y.T.D. REVENUE		$2,340,991.35
ACCOUNTING PERIOD 10	534	300.5	$9,278.82	CHANGE IN TONS FROM			14,262	7,704.3	$234,099.14	PROJECTED ANNUAL REVENUE		$2,758,800.00
										ACTUAL Y.T.D. REVENUE %		84.9%
TOTAL CLASS I MATERIAL	10,025	6,851.7	$221,621.56									

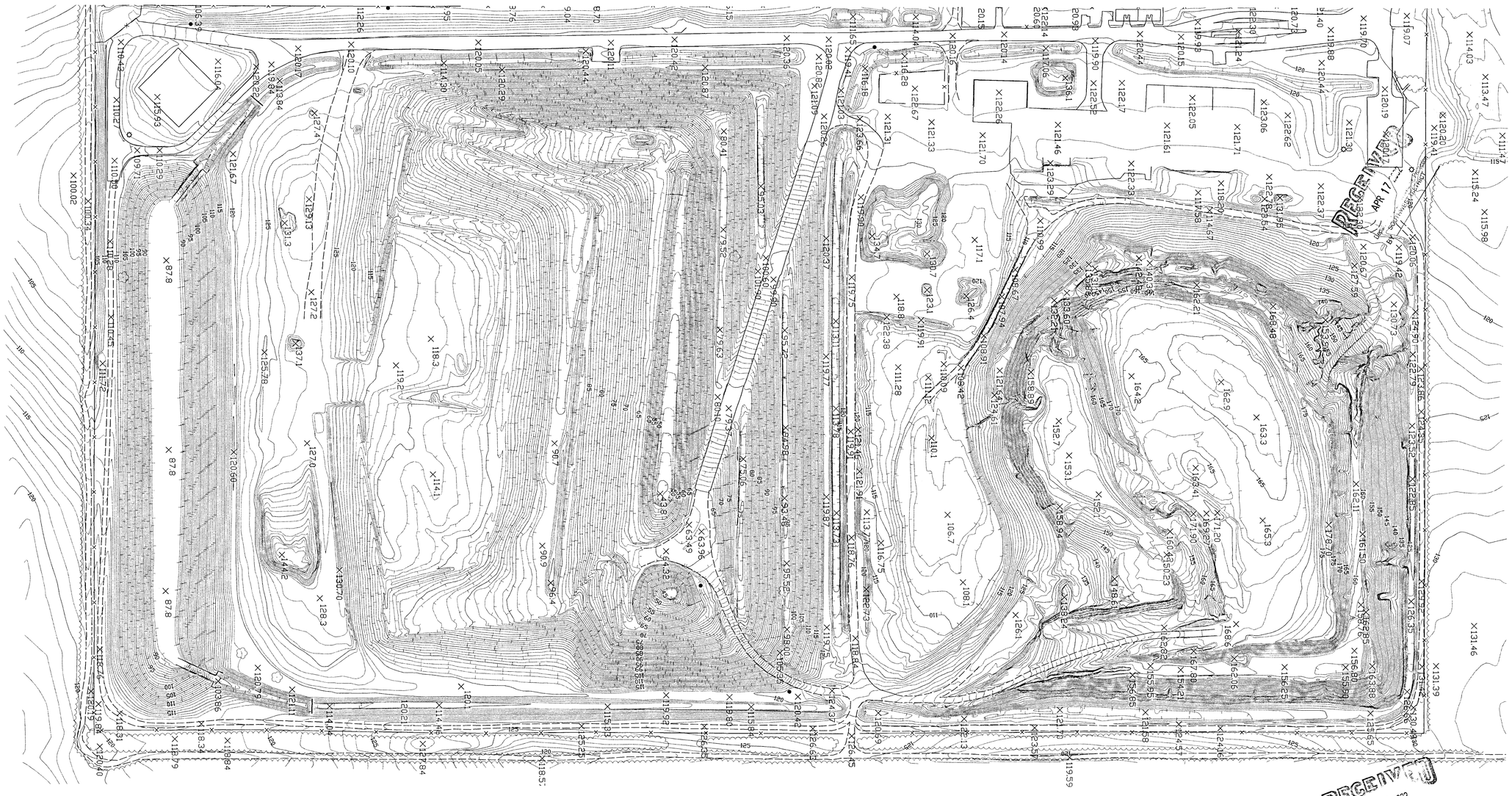
SOLID WASTE MGMT

527-1204

04/01/2002 17:41

MATERIAL SUMMARY
JUNE 2001

MATERIAL	CURRENT NUMBER TRANS.	CURRENT TOTAL TONS	CURRENT TOTAL RECEIPTS	CHANGE IN TONS FROM LAST MONTH	CHANGE IN TONS FROM SAME MO LAST YR	CHANGE IN TONS FROM TO DATE LAST YR	TOTALS - YEAR TO DATE TRANS.	TOTALS - YEAR TO DATE TONS	TOTALS - YEAR TO DATE RECEIPTS	PERCENT OF MONTHLY TOTAL TONS	PERCENT OF YEAR TO DATE TOTAL TONS	YTD REVENUE % OF TOTAL PROJECTED RECEIPTS
SCALE WEIGHT GARBAGE	4,887	6,316.8	$207,573.59	-5.9%	-4.5%	1.9%	42,630	58,687.8	$1,915,479.09	85.8%	84.4%	69.4%
FLAT FEE GARBAGE	4,142	196.5	$4,819.00	2.7%	2.8%	15.3%	41,059	1,960.1	$45,195.26	2.7%	2.8%	1.6%
ADVANCE DISPOSAL PASS												
HOUSEHOLD GARBAGE	1,547	30.9	$60.00	-28.0%	7.4%	15.9%	31,566	231.3	$7,620.00	0.4%	0.3%	0.3%
YARDWASTE	516	2.6	$8.00	-28.0%	7.4%	15.9%	3,855	19.3	$664.00	0.0%	0.0%	0.0%
BRUSH	1,755	553.2	$8,580.65	-15.4%	7.2%	30.4%	18,836	5,816.8	$90,040.65	7.5%	8.4%	3.3%
SPECIAL HANDLE WASTE	0	0.0	$0.00	-100.0%	-100.0%	-42.1%	15	20.1	$1,807.20	0.0%	0.0%	0.1%
TIRES	88	8.3	$669.75	-36.3%	-54.1%	27.1%	879	160.7	$12,526.50	0.1%	0.2%	0.5%
A/C. FREON UNITS	117	19.8	$1,140.00	16.9%	81.0%	38.5%	865	144.6	$7,980.00	0.3%	0.2%	0.3%
DRIED SLUDGE	13	80.1	$3,325.01	-9.0%	83.8%	47.8%	188	667.7	$27,708.09	1.3%	1.0%	1.0%
FREE:												
SCALE WEIGHT GARBAGE	71	58.2	$0.00	1.4%	-15.7%	46.6%	747	794.6	$0.00	0.8%	1.1%	0.0%
TIRES	204	19.7	$0.00	-57.8%	29.2%	104.7%	657	225.1	$0.00	0.3%	0.3%	0.0%
SCRAP METAL	294	80.4	$0.00	-38.7%	83.3%	35.8%	2,247	803.5	$0.00	1.1%	1.2%	0.0%
OTHER TRANSACTIONS	593	0.0	$0.00	N/A	N/A	N/A	5,811	0.0	$0.00	0.0%	0.0%	0.0%
TOTALS	14,227	7,366.4	$226,176.00	-7.4%	-2.5%	5.5%	129,275	69,531.5	$2,109,020.79	100.0%	100.0%	76.4%
WORKING DAYS 26	DAILY AVERAGES			LAST MONTH	SAME MO LAST YR	TO DATE LAST YR	YEAR TO DATE MONTHLY AVERAGES			ANTICIPATED REVENUE %		75.0%
										ACTUAL Y.T.D. REVENUE		$2,109,020.79
ACCOUNTING PERIOD 9	547	283.3	$8,699.08	CHANGE IN TONS FROM			14,364	7,725.7	$234,335.64	PROJECTED ANNUAL REVENUE		$2,758,800.00
										ACTUAL Y.T.D. REVENUE %		76.4%
TOTAL CLASS I MATERIAL	10,660	6,682.6	$215,777.60									



NOTE:
THE CONTOURS DEPICTED ON THIS MAP WERE COMPILED TO NATIONAL MAP ACCURACY STANDARDS BY KUCERA SOUTH, LAKELAND, FLORIDA, USING PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY TAKEN 10-02-01 CONTOURS WHICH ARE IN WOODED OR DENSE VEGETATION AREAS ARE APPROXIMATIONS ONLY AND SHOULD BE TREATED AS "DASHED - CONTOURS".

DATE OF PHOTOGRAPHY: 10-02-01
CONTOUR INTERVAL: 1 FOOT
W. O. #35397

REV	DATE	DESCRIPTION	BY

DRAWING TITLE
EXISTING CONDITIONS

PROJECT TITLE
CENTRAL LANDFILL
LIFE OF SITE ASSESSMENT

CLIENT
CITRUS COUNTY
LECANTO, FL

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT, CONSULTING ENGINEERS
9010 U.S. HWY. 301 NORTH, SUITE 200, TAMPA, FL 33619
PH (813) 621-0080 FAX NO. (813) 623-9757

PROJ. NO.	DWN. BY:	Q/A RVW BY:
0399056.02	KJC	VAB
DATE	CHK. BY:	APP. BY:
03/29/02	BJC	VAB

CADD FILE: CITRUSLANDFILL.DWG

DATE: APRIL 2002

SCALE: 1" = 100'

DRAWING NO.
1 of 1

10278212 (1)

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

March 12, 2002

Mr. John Banks, P.E.
SCS Engineers
3012 U.S. Highway 301 North
Suite 700
Tampa, FL 33619-2242

Re: Citrus County Central Landfill
Earth Excavation in Area of Future Landfill Expansion

Dear Mr. Banks:

The Department has no objection to the excavation of future landfill area described in your January 8, 2002 letter as long as the activity will not interfere with or disturb any part of current waste management operations or related facilities. The north access ramp and north stormwater basin and pump station shall remain unaffected by the excavation. Design details are required for permanent improvements and the proposed landfill expansion as part of a construction permit application.

If you have any questions you may call me at (813) 744-6100, extension 382.

Sincerely,

Kim B. Ford, P.E.
Solid Waste Section
Division of Waste Management

KBF/ab

cc: Susan Metcalfe, P.E., Citrus County
Robert Butera, P.E., FDEP Tampa

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS
SOLID WASTE MANAGEMENT DIVISION
P.O. Box 340, Lecanto, Florida 34460
(352) 746-5000 FAX (352) 527-1204
Citrus Springs/Dunnellon area Toll Free # (352) 489-2120

D.E.P.
MAR 11 2002
Southwest District Tampa

March 6, 2002

Kim B. Ford, P.E.
Solid Waste Section
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

Re: Citrus County Central Landfill
Permit No. 21375-003-SO

Dear Mr. Ford:

You, John Banks and I recently have discussed one option for construction of Phase 2 of the landfill that would include separating the earthmoving portion of the construction from the liner installation. As part of that concept, we also discussed removing the soil excavated for Phase 2 from the site. You raised the question as to whether any of that soil may have been contaminated, specifically as a result of an incident that occurred in the fall of 1992. An amount of rainfall in excess of 10 inches fell in less than 24 hours, with resulting flooding of the disposal area and mixing of stormwater and leachate. The initial location of contaminated water outside the liner was in the internal drainage retention area (DRA), located directly to the north of Phase 1. That stormwater/leachate was then pumped into the east side perimeter ditch, which feeds the main DRA near the south end of the site. Those locations are shown on the attached sketch.

The soil that accumulated in the internal drainage retention area as a result of that storm was relocated (after it dried) to be used as daily cover for Phase 1. Staff recalls two separate events during operation of Phase 1 when sediment in that retention area was removed for use as daily cover, probably in 1993 and 1995. The area that was occupied by the internal DRA was reshaped and since 1997 lies under the liner installed for Phase 1A. No soil chemistry tests were performed.

Some of the soil that may have been pumped out with the contaminated stormwater may have settled on the bottom of the perimeter ditch. Some sediment has been removed periodically from the bottom of the perimeter ditch and it has either been used for daily cover or reshaped on the sides of that ditch. That area has been disturbed on three other occasions; one being installation of Phase 1A lining in 1997 and the others being installation of the exposed liner overlay and the raincoat layer during 2001-02.

Soil in the bottom of the main DRA was excavated one time between the 1992 event and the present, with the time frame uncertain. It was likewise used as daily cover. On one other occasion that area was turned to improve percolation without removing soil.

After reviewing these circumstances, it is our opinion that none of the soil that will be removed for construction of Phase 2 was involved with the 1992 stormwater/leachate incident. If you have any additional questions, please let me know.

Sincerely,

Susan J Metcalfe

Susan Metcalfe, Director
Solid Waste Management

Attachment: Site sketch

CC: Tom Dick, Assistant Director, Public Works Department
John Banks, SCS Engineers, Tampa

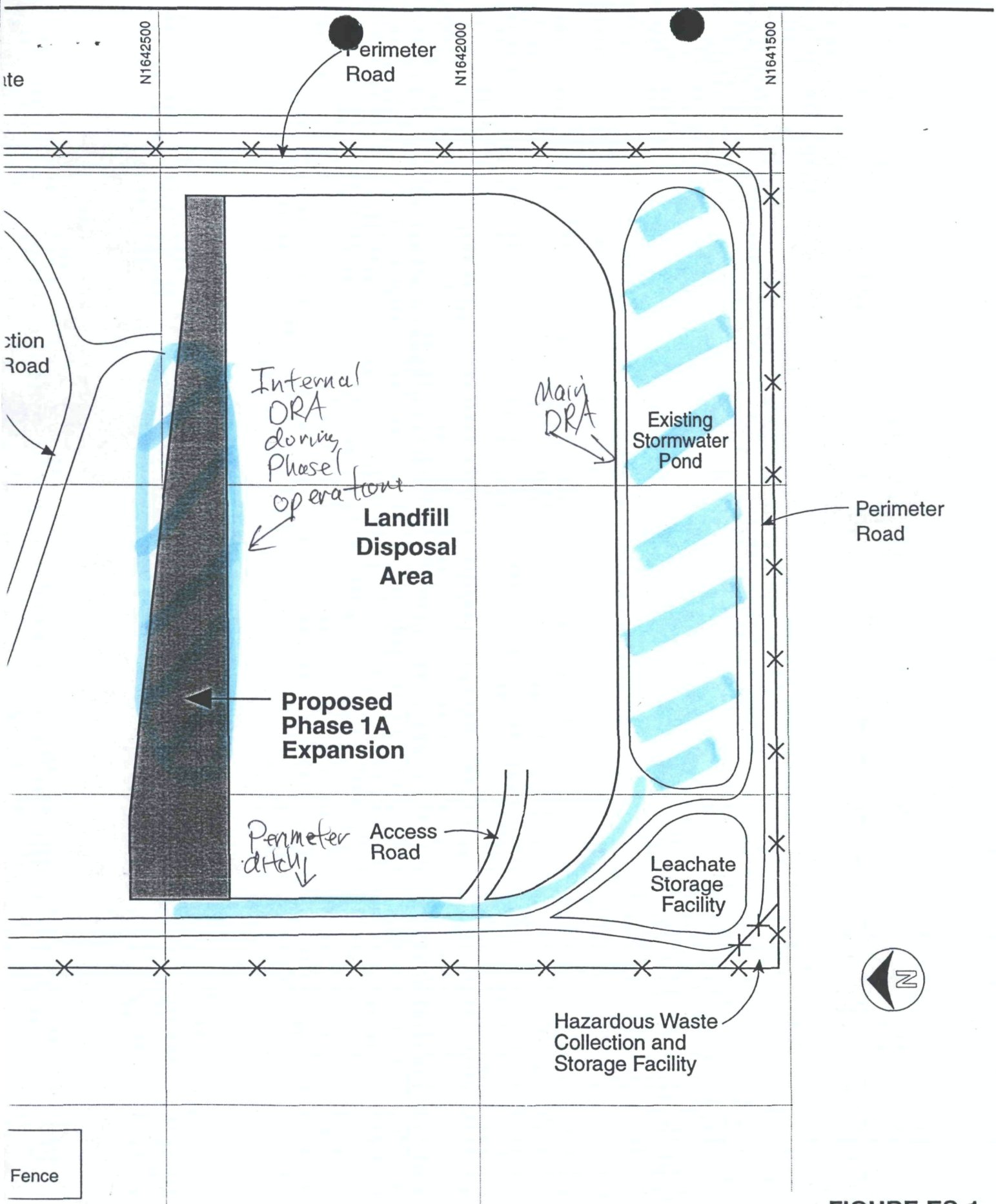


FIGURE ES-1
Citrus County Central Landfill Site Plan

CH2MHILL

Department of Environmental Protection

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619-8318

INFORMATION REQUEST

TO: John Banks
SCS
3012 US Highway 301 N.
Suite 700
Tampa, FL 33619-2242

We are pleased to send the enclosed information you requested.

If we can be of further service, please contact:

Kim B. Ford, P.E.
Solid Waste Section
Waste Management Division
3804 Coconut Palm Drive
Tampa, FL 33619-8318
(813) 744-6100, ext. 382

COMMENTS: May 3, OLD LF GUIDANCE
4/28/02
fm

Department of Environmental Protection
Solid Waste Section
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Bob 2/25/02

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
SOUTHWEST DISTRICT

CONVERSATION RECORD

Date 2/22/02

Time 11:28

Subject REQUEST to EXCAVATE

Permit No.

County CITRUS

M SUSAN MCGRAIFE

Telephone No. (352) 7465000

Representing CITRUS County

[ ] Phoned Me [✓] Was Called [ ] Scheduled Meeting [ ] Unscheduled Meeting

Other Individuals Involved in Conversation/Meeting

Summary of Conversation/Meeting

I ASKED SUSAN IF SHE WAS GOING TO PROVIDE CLARIFICATION ON PROPOSED EXCAVATION NORTH OF LINES LF.
SUSAN SAID YES, SHE FOUND SOMEONE THAT KNOWS OF LEACHATE DISCHARGE THAT RESULTED IN A C.O. IN OCT 1992 AND WILL EXPLAIN AND PROVIDE A MAP FOR LOCATION OF EXCAVATION

(continue on another sheet, if necessary)

Signature

Title

PA-01
1/96
pap

Ford, Kim

From: Butera, Robert
Sent: Friday, January 11, 2002 4:57 PM
To: Morgan, Steve
Cc: Ford, Kim; Pelz, Susan
Subject: Old CO - Citrus County LF - 1993?

Steve, do you know if we have a copy of the old INFAMOUS C.O. that resulted when we caught "Tennessee 3 Piece Suit Cat" who used to head up the Utilities/Technical Support Department discharging leachate after a 10 inch rainfall to the stormwater system back in 1992/93? The County wants to start excavating soil located on the North end and moving it off site which I do not have an objection to but recall this is the area that was significantly impounded with waste floating in leachate that resulted in a few million gallons of leachate being discharged. My concern as well is that the leachate was I recall was built up significantly on the north side. Did we require any analyticals or assessment as part of that consent order? Please let me know by Tuesday, if possible so Kim can send out an authorization to move the material off site.

Kim, do not send out the letter till I return on Tuesday.

CO 02/ 1992

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

January 11, 2002

NOTICE OF PERMIT

Citrus County
Board of County Commissioners
c/o Ms. Susan Metcalfe, P.G.
Solid Waste Management
P.O. Box 340
Lecanto, FL 34460

Dear Ms. Metcalfe:

Enclosed is a Permit Number **21375-003-SO**, issued pursuant to Section(s) 403.087(1), Florida Statues.

A person whose substantial interests are affected by the Department's proposed agency action may file a timely petition for an administrative hearing under sections 120.569 and 120.57 of the Florida Statutes, or may choose to pursue mediation as an alternative remedy under section 120.573 before the deadline for filing a petition. Choosing mediation will not adversely affect the right to a hearing if mediation does not result in a settlement. The procedures for pursuing mediation are set forth below.

A person may pursue mediation by reaching a mediation agreement with all parties to the proceeding (which include the applicant, the Department, and any person who has filed a timely and sufficient petition for a hearing) and by showing how the substantial interests of each mediating party are affected by the Department's action or proposed action. The agreement must be filed in (received by) the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, by the same deadline as set forth above for the filing of a petition.

The agreement to mediate must include the following:

(a) The names, addresses, and telephone numbers of any persons who may attend the mediation;

(b) The names, address, and telephone number of the mediator selected by the parties, or a provision for selecting a mediator within a specified time;

(c) The agreed allocation of the costs and fees associated with the mediation;

(d) The agreement of the parties on the confidentiality of discussions and documents introduced during mediation;

(e) The date, time, and place of the first mediation session, or a deadline for holding the first session, of no mediator has yet been chosen;

(f) The name of each party's representative who shall have authority to settle or recommend settlement; and

(g) Either an explanation of how the substantial interests of each mediating party will be affected by the action or proposed action addressed in this notice of intent or a statement clearly identifying the petition for hearing that each party has already filed, and incorporating it by reference.

(h) The signatures of all parties or their authorized representatives.

As provided in section 120.573 of the Florida Statutes, the timely agreement of all parties to mediate will toll the time limitations imposed by sections 120.569 and 120.57 for requesting and holding an administrative hearing. Unless otherwise agreed by the parties, the mediation must be concluded within sixty days of the execution of the agreement. If mediation results in settlement of the administrative dispute, the Department must enter a final order incorporating the agreement of the parties. Persons whose substantial interests will be affected by such a modified final decision of the Department have a right to petition for a hearing only in accordance with the requirements for such petitions set forth above, and must therefore file their petitions within fourteen days of receipt of this notice. If mediation terminates without settlement of the dispute, the Department shall notify all parties in writing that the administrative hearing processes under sections 120.569 and 120.57 remain available for disposition of the dispute, and the notice will specify the deadlines that they will apply for challenging the agency action and electing remedies under those two statutes.

The petition for an administrative hearing must conform to the requirements of Chapters 62-110 and 28-106, F.A.C., and must be filed (received) in the Department's Office of General Counsel, 3900 Commonwealth Boulevard, Tallahassee, 32399-3000, within fourteen (14) days of receipt of this notice. Failure to file a petition within fourteen (14) days constitutes a waiver of any right such person has to an administrative determination (hearing) pursuant to Section 120.57, Florida Statutes. This permit is final and effective on the date filed with the Clerk of the Department unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition and conforms to Rule 62-110, F.A.C. Upon timely filing of a petition or a request for an extension of time this permit will not be effective until further Order of the Department.

When the Order (Permit or Permit Modification) is final, any party to the Department has the right to seek judicial review of the Order pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 3900 Commonwealth Boulevard, Tallahassee, 32399-3000; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date the Final Order is filed with the Clerk of the Department.

Executed in Tampa Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Kim B. Ford, P.E.
Solid Waste Section
Division of Waste Management

KBF/ab
Attachment

cc: David Keough, P.E., Jones, Edmunds & Associates
Robert Butera, P.E., FDEP Tampa
Susan Pelz, P.E., FDEP Tampa (permit notebook)
Richard Tedder, P.E., FDEP Tallahassee

CERTIFICATE OF SERVICE

This is to certify that this NOTICE OF PERMIT and all copies were mailed before the close of business on Jan 11, 2002 to the listed persons.

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52(10), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Clerk

Jan 11, 2002
Date

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

PERMITTEE
Citrus County
Board of County Commissioners
c/o Ms Susan Metcalfe, P.G.
Solid Waste Management
P. O. Box 340
Lecanto, FL 34460

PERMIT/CERTIFICATION
WACS Facility ID No: SWD/09/39859
Permit No: **21375-003-SO**
Date of Issue: **January 11, 2002**
Expiration Date: **January 11, 2005**
County: Citrus
Lat/Long: 28°51'08"N
82°26'38"W
Sec/Town/Rge: 1/19S/18E
Project: Citrus County Central
Class I Landfill

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rule(s) 62-4, 62-330, 62-520, 62-522, and 62-701. The above named permittee is hereby authorized to perform the activities shown on the application and approved drawing(s), plans and other documents, attached hereto or on file with the Department and made a part hereof and specifically described as follows:

To operate and maintain a landfill with leachate storage and treatment, and related facilities (approximately 80 acres), referred to as the Citrus County Central Class I Landfill, and to provide long-term care, monitoring and maintenance for the closed Class I landfill and related systems (approximately 60 acres), referred to as the Closed Citrus County Central Landfill, subject to the specific and general conditions attached, for management and disposal of solid waste and leachate, (and for long-term care, monitoring and maintenance of the closed Class I landfill), near S.R. 44, 3 miles east of Lecanto, Citrus County, Florida. The specific conditions attached are for the operation and maintenance of:

1. Class I Landfill, Leachate Storage and Treatment Facility,
2. Closed Class I landfill

Replaces Permit No.: SO09-274381 and 126601-002-SF

General Information - Active Site:
Maximum elevation - Top of Phase IA: +160 feet NGVD
Disposal Acreage: 19.8 acres; Closed: 0.0 acres; Available: 19.8 acres
Bottom Liner, Leachate Collection Systems:
Phase I - 16.5 acres - Single, 60 mil HDPE; Primary LCS piping
Phase IA - 3.3 acres - Double, 60 mil HDPE; Primary LCS piping, Geonet LDS

This permit contains compliance items summarized in Attachment 1 that shall be complied with and submitted to the Department by the dates noted. If the compliance dates are not met and submittals are not received by the Department on the dates noted, enforcement action may be initiated to assure compliance with the conditions of this permit.

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations and restrictions set forth in this permit, are "permit conditions" and are binding and enforceable pursuant to Sections 403.141, 403.161, 403.727, or 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in subsections 403.087(6) and 403.722(5), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of rights, nor any infringement of federal, State, or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in this permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed and used by the permittee to achieve compliance with the conditions of this permit, are required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

GENERAL CONDITIONS:

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at reasonable times, access to the premises where the permitted activity is located or conducted to:

(a) Have access to and copy any records that must be kept under conditions of the permit;

(b) Inspect the facility, equipment, practices, or operations regulated or required under this permit; and

(c) Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

(a) A description of and cause of noncompliance; and

(b) The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.111 and 403.73, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

GENERAL CONDITIONS:

10. The permittee agrees to comply with changes in Department rules and Florida Statues after a reasonable time for compliance; provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Rule 62-4.120 and 62-730.300, Florida Administrative Code, as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

(a) Determination of Best Available Control Technology (BACT)

(b) Determination of Prevention of Significant Deterioration (PSD)

(c) Certification of compliance with State Water Quality Standards (Section 401, PL 92-500)

(d) Compliance with New Source Performance Standards

14. The permittee shall comply with the following:

(a) Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

(b) The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

GENERAL CONDITIONS:

(c) Records of monitoring information shall include:

1. the date, exact place, and time of sampling or measurements;
2. the person responsible for performing the sampling or measurements;
3. the dates analyses were performed;
4. the person responsible for performing the analyses;
5. the analytical techniques or methods used;
6. the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware the relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

SPECIFIC CONDITIONS:

1. **Landfill Designation.** This site shall be classified as a Class I landfill and shall be operated, monitored and maintained in accordance with all applicable requirements of Chapters 62-4, 62-330, 62-520, 62-522, and 62-701, Florida Administrative Code (F.A.C.) and all applicable requirements of Department rules.

2. **Permit Application Documentation.** This permit is valid for operation of Phases 1 and 1A of the Class I landfill and related facilities, (and long-term care, monitoring and maintenance of the closed Class I landfill and related systems), in accordance with the reports, plans and other information as follows:

- May 1998 Closed Landfill Long-Term Care Permit Renewal Application and supporting information by CH2M Hill received May 28, 1998;
- Supporting information by Citrus County dated July 20, 1998 received July 22, 1998;
- April 2001 Operation Permit Renewal Application and supporting information by Jones, Edmunds & Associates received April 27, 2001;
- Responses and supporting information by Jones, Edmunds & Associates, including the Operations Plan and Phase I and IA Filling Plans, received July 20, 2001;
- Responses and replacement pages by Jones, Edmunds & Associates received September 10 and October 17, 2001;
- and in accordance with all applicable requirements of Department rules.

3. **Permit Modifications.** Any construction, operation, or other activities such as future uses of the closed landfill, not previously approved as part of this permit may require a separate Department permit unless the Department determines a permit modification to be more appropriate, or unless otherwise approved in writing by the Department. Permits shall be modified in accordance with the requirements of 62-4.080, F.A.C. A modification which is reasonably expected to lead to substantially different environmental impacts which require a detailed review by the Department is considered a substantial modification.

a. This permit does not authorize landfill closure or operation of the temporary transfer station. The proposed transfer station will require a minor permit modification approved by FDEP prior to construction and operation. The construction and operation will be required to be substantially in accordance with Section 2.2.5 of the Operations Plan.

SPECIFIC CONDITIONS:

b. This permit does not authorize landfill expansion. Upon receipt and approval of a request for a minor permit modification pursuant to F.A.C. 62-4.050(4)(s) to operate any landfill expansion, including Certification of Construction Completion for the expansion, operations and filling plans, report assessing effectiveness of the related systems, and related supporting documents identified in a construction permit, the current operation permit shall be modified to allow the operation of the expansion. The expiration date of this permit shall be extended as part of the permit modification, to a date five years after the date when this permit was issued.

4. **Permit Renewal**. No later than **one hundred eighty (180) days** before the expiration of the Department Permit, the permittee shall apply for a renewal of a permit on forms and in a manner prescribed by the Department, in order to assure conformance with all applicable Department rules. Permits shall be renewed at least every five years as required by F.A.C. 62-701.330(2). Operation permit renewal shall include but not be limited to an updated Operations Plan and Site Plans for sequence of filling with cross-sections of lifts.

5. **Prohibitions**. The prohibitions of F.A.C. 62-701.300 shall not be violated by the activities at this facility.

6. **Special Wastes**. The design, operation, and monitoring of disposal or control of any "special wastes" shall be in accordance with F.A.C. 62-701.300(8), 62-701.520 and any other applicable Department rules, to protect the public safety, health and welfare.

a. White goods and scrap metal that are held for the purposes of recycling shall be held no longer than one hundred and eighty (180) days, and shall be stored in a manner so as to prevent the discharge of CFCs (such as freon) and other residuals (such as gasoline, oil, and antifreeze) which may cause air or groundwater pollution. Surface water shall be diverted away from all storage or holding areas.

b. All solid wastes, recovered materials or residues handled at the site shall be stored in a manner so as not to constitute a fire or safety hazard or a sanitary nuisance, and shall comply with all applicable local or state regulations. Recovered resources which may be offered for sale shall comply with applicable regulations of all appropriate state agencies.

c. Yard trash accepted at the site shall be processed and recycled, or disposed of within twelve months. Compliance with the conditions of the Yard Trash Processing Facility Registration (#054-01-YT) shall be maintained.

d. The operation of the citizen waste drop-off facility shall comply with the following procedures:

(1) Only residential customers shall use the facilities, that is, no solid waste collectors or commercial haulers will be allowed usage;

SPECIFIC CONDITIONS:

(2) An attendant shall be on duty when the facility is operating. Operating hours shall be posted, and fencing and gates shall be used to prevent unauthorized access when the facility is closed;

(3) Only roll-off containers and/or dumpsters shall be utilized for waste disposal. No compactors of any type shall be used; and

(4) All processable and non-processable solid waste, with the exception of recyclables, shall be removed from the site at least daily or when a container is full. At the close of business each day when no additional waste will be received, all processable and non-processable waste shall be covered with a waterproof tarp until the facility is again receiving solid waste.

(5) The Citizen Drop-off area shall be inspected for unauthorized materials and household hazardous waste at least daily.

e. The household hazardous waste collection/storage ("HHW C/S") facility shall be operated in accordance with the March 2001 Facility Standards for the Citrus County Hazardous Waste Collection and Storage Facility, as follows:

(1) HHW received at the Citizen Drop-off area shall be identified, and then relocated for storage within the containment area of the HHW Collection/Storage Facility at the end of each collection day.

(2) Spillage shall be removed and properly packaged for disposal. Soils which have been contaminated by spills shall be removed and packaged for proper disposal on the same day as the spill occurred.

(3) Liquids, including contaminated rainwater, shall not be discharged outside of the containment structures.

(4) Non-latex paints shall not be air dried.

(5) Waste received at the HHW C/S Facility shall be stored within containment areas at all times.

(6) Records on the quantities of HHW collected and removed for disposal shall be compiled monthly and maintained at the facility for Department review upon request.

f. The Used Oil Collection Center shall comply with FAC Chapter 62-710 and 40 Code of Federal Regulations (CFR) 280 and 281, and all applicable requirements of Department rules. Discharges are not allowed and are subject to FAC Chapter 62-770 for cleanup.

SPECIFIC CONDITIONS:

7. **Landfill Operation Requirements.** The permittee shall operate this facility in accordance with F.A.C. 62-701.500, Landfill Operation Requirements, and the Operations Plan by Jones, Edmunds and Associates.

8. **Operating Personnel.** As required by F.A.C. 62-701.500(1), at least one trained operator shall be at the landfill at all times when the landfill receives waste. At least one trained spotter shall be at each working face when waste is received. Training documentation shall be maintained at the landfill site, and copies shall be provided to the Department upon request.

9. **Operation Plan and Operating Record.** The landfill shall have an operational plan which meets the requirements of F.A.C. 62-701.500(2). A copy of the Department approved permit, operational plan, construction reports and record drawings, and supporting information shall be kept at the facility at all times for reference and inspections. The Department shall be notified of changes to the operational plan. The plan shall be updated as operations change and for renewal of this permit. An operating record as required by F.A.C. 62-701.500(3) is part of the operations plan, and shall also be maintained at the site.

10. **Method and Sequence of Filling.** The method and sequence of filling shall be in accordance with Section 2.7.1 and Appendix A of the Operations Plan, by Jones, Edmunds and Associates.

a. The top edge of the geomembrane liner shall be clearly identified in the field and maintained to prevent waste disposal and leachate runoff outside the geomembrane liner.

b. Waste shall not be placed within 5 feet of the inside top edge of the bottom liner.

c. Leachate shall not be deposited, injected, dumped, spilled, leaked, or discharged in any manner to soils, surface water or groundwater outside the liner system at any time.

11. **Waste Records.** Waste quantity records shall be compiled monthly and maintained as described by F.A.C. 62-701.500(4), and made available to the Department upon request.

12. **Control of Access.** Access to, and use of, the facility shall be controlled as required by F.A.C. 62-701.500(5) and 62-701.600(5)(i).

13. **Monitoring of Waste.** Wastes shall be monitored as required by F.A.C. 62-701.500(6), including a load checking program and associated activities.

a. The permittee shall not knowingly accept hazardous waste or any hazardous substance for disposal at this site. Hazardous waste is a waste identified in Chapter 62-730, F.A.C. Hazardous substances are those defined in Section 403.703, Florida Statute or in any other applicable state or federal law or administrative rule. Sludges or other wastes which may be hazardous should be disposed of in accordance with F.A.C. 62-701.300(4) and 62-701.500(6)(b).

SPECIFIC CONDITIONS:

b. The operating authority shall maintain a program which prohibits the disposal of bulk industrial wastes which operating personnel reasonably believe to either be or contain hazardous waste, without first obtaining a chemical analysis of the material showing the waste to be non-hazardous. The chemical analysis of any such material so placed in the landfill, along with the customer's name and date of disposal, shall be kept on file by the operating authority on-site.

14. **Waste Handling Requirements.** All solid waste disposed of in the Class I area shall be covered as required by F.A.C. 62-701.500(7).

a. Initial cover shall be applied and maintained in accordance with F.A.C. 62-701.500(7)(e) so as to protect the public health and welfare. All solid waste disposed of in the Class I area must be covered with at least 6 inches of compacted earth or other suitable material as approved by the Department, at the end of each working day.

b. Alternate initial cover materials not identified herein shall be approved by the Department prior to use at the facility. For those areas where solid waste will be deposited on the working face within 18 hours, initial cover may consist of a temporary cover or tarpaulin. Waste tires that have been cut into sufficiently small parts, which means that 70 percent of the waste tire material is cut into pieces of 4 square inches or less and 100 percent of the waste tire material is 32 square inches or less, and applied in a six (6) inch compacted layer, may be used as initial cover within the bermed working area.

c. Intermediate cover shall be applied and maintained in accordance with F.A.C. 62-701.500(7)(f). An intermediate cover of one (1) foot of compacted earth in addition to the six (6) inch initial cover shall be applied within seven (7) days of cell completion at all landfills if final cover or an additional lift is not to be applied within 180 days of cell completion.

15. **Working Face.** As required by F.A.C. 62-701.500(7)(d), the permittee shall minimize the size of the working face to minimize leachate, and unnecessary use of cover material. The permittee shall maintain the working face of a cell only wide enough to efficiently accommodate the maximum quantity of vehicles discharging waste simultaneously and to minimize the exposed area. **Interceptor berms shall be maintained around the active working area to prevent leachate runoff from the working face from entering the stormwater management system.** Runoff from outside the bermed working face area will be considered stormwater only if the flow passes over areas which have no exposed waste.

16. **Final Cover.** Portions of the landfill which have been filled with waste to the extent of designed dimensions shall be closed (shall receive final cover) in accordance with F.A.C. 62-701.500(7)(g) and all applicable requirements of Department rules.

SPECIFIC CONDITIONS:

17. **Leachate Management.** Leachate shall be managed in accordance with the requirements of F.A.C. 62-701.500(8) and the Operations Plan.

a. The leachate storage tanks shall be inspected as required by F.A.C. 62-701.400(6)(c)9.

b. Each pump shall be inspected on a semi-annual basis. Pump performance shall be verified and current draw recorded. Pumps showing reduced performance shall be removed for maintenance and repaired, and a replacement pump installed if required for continued compliance. Documentation of all inspections shall be kept on file at the facility.

c. Leachate generation reports shall be compiled monthly and submitted to the Department quarterly, or more frequently if requested, by January 15th, April 15th, July 15th and October 15th each year. Leachate generation reports shall include the number of open, intermediate and closed acres, and the quantities of leachate collected, recirculated, treated and disposed on-site, and hauled/piped off-site to a wastewater treatment facility, and daily precipitation amounts greater than one tenth of an inch. The reports shall include quantities for the leachate collection and leakage detection systems separately.

d. No later than **one hundred and eighty (180) days prior to permit expiration,** the entire leachate collection and removal system shall be water pressure cleaned or visually or video inspected where practical 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 inspection and cleaning shall be submitted to the Solid Waste Section of the Southwest District Office to demonstrate adequate performance prior to permit renewal.

e. Leachate Leakage Action Rates. Leakage into the leakage detection systems (LDS) in Phase IA should not exceed 330 gallons per day (3.3 acres @ 100 gpd) based on EPA recommended action leakage rates published in the Federal Register/Vol. 57 No. 19/ Wednesday January 29, 1992/Rules and Regulations. Exceedance of the leakage action rate indicates that deficiencies in the primary liner system may exist. In the event that the quantity of leachate which is removed from the LDS exceeds the action leakage rate, the Department shall be notified **within 48 hours** of discovery. A written plan for corrective action shall be submitted to the Department **within 7 days** of discovery. The approved plan of action shall be implemented within 15 days of Department approval, or in accordance with an alternate schedule approved by the Department.

18. **Gas Monitoring.**

a. Landfills that receive biodegradable wastes shall have a gas management system designed to prevent explosions and fires, and to minimize off-site odors, lateral migration of gases and damage to vegetation, and shall monitor landfill gas as required by Rules 62-701.500(9) and 62-701.530, F.A.C.

SPECIFIC CONDITIONS:

b. Landfill gas shall be monitored as described in Section 9 of the Operations Plan to demonstrate compliance with the criteria established in Rule 62.701.530(1)(a), F.A.C. (25% of the lower explosive limit (LEL) in on-site and off-site structures) and in Rule 62-701.530(1)(b), F.A.C. (100% of the LEL at the property boundary).

c. The results of **quarterly** monitoring required by Rule 62-701.530(2)(c), F.A.C., shall be submitted to the Department by the following dates:

Measured During	Report Submitted By
Quarter 1	April 15th of each year
Quarter 2	July 15th of each year
Quarter 3	October 15th of each year
Quarter 4	January 15th of each year

19. **Gas Monitoring Locations.** The gas monitoring locations described in Section 9 of the Operations Plan and as shown on the related figures shall be sampled at least **quarterly** for the Lower Explosive Limit (LEL) of methane, as described in F.A.C. Rule 62-701.530(2).

Monitoring Point	Locations:
Active Landfill	GS-1S and GS-1E, see Figure 9-1
Closed 60-acre Landfill	See Figure 9-1 (attached)
Scalehouse	See Figure 9-3 (attached)
Administrative Building	2 sampling points
Leachate Treatment Electrical Room	1 sampling points

The listed gas monitoring probes are to be clearly labeled and easily visible at all times.

20. **Gas Remediation.** If the results of gas monitoring show that combustible gas concentrations exceed 25% of the LEL in structures or 100% of the LEL at the property boundary, the permittee shall **immediately** take all necessary steps to ensure protection of human health and notify the Department. **Within 7 days of detection,** a gas remediation plan detailing the nature and extent of the problem and the proposed remedy shall be submitted to the Department for approval. The remedy shall be completed **within 60 days of detection** unless otherwise approved by the Department.

21. **Stormwater System Management.** Stormwater shall be managed as required by F.A.C. 62-701.400(9) to meet applicable standards of F.A.C. 62-302 and 62-330. The system shall minimize stormwater from entering waste filled areas and avoid the mixing of stormwater with leachate in accordance with Appendix B Figure 11 (attached) by CH2M Hill. All stormwater conveyances shall be inspected at least weekly to verify adequate performance. Conveyances not performing adequately shall be repaired within three (3) working days. Documentation of all inspections and repairs shall be kept on file at the facility.

22. **Recordkeeping.** Records shall be maintained as required by F.A.C. 62-701.500(13). An annual estimate of the remaining life and landfill capacity, as required by 62-701.500(13)(c), shall be maintained and submitted to the Department **annually, by April 15th of each year,** along with the most recent topographic survey or field measurements (not more than 1 year old) and supporting calculations, signed and sealed by a professional engineer.

SPECIFIC CONDITIONS:

23. **Waste Burning.** Open burning of solid waste is prohibited except in accordance with F.A.C. 62-701.300(3). Controlled burning of solid waste is prohibited at this site except for clean vegetative and wood wastes which may be burned in a permitted air curtain incinerator in accordance with F.A.C. 62-296.401. Any accidental fires which require longer than one (1) hour to extinguish must be promptly reported to the Department of Environmental Protection.

24. **Closure Permit Requirements.** No later than **one hundred eighty (180) days prior** to the date when wastes will no longer be accepted for active portions of the landfill, the landfill owner or operator shall submit a closure permit application to the Department in order to assure conformance with all applicable Department rules.

25. **Financial Assurance.** The permittee shall provide financial assurance for this landfill site in accordance with F.A.C. 62-701.630.

(a) All costs for closure and long-term care shall be adjusted and submitted **annually, by September 1 each year,** to: Solid Waste Manager, Solid Waste Section, Department of Environmental Protection, 3804 Coconut Palm Drive, Tampa, Florida 33619-8318.

(b) Proof that the financial assurance has been funded adequately shall be submitted **annually** to: Financial Coordinator, Solid Waste Section, Department of Environmental Protection, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.

26. **Control of Nuisance Conditions.** The operating authority shall be responsible for the control of odors and fugitive particulates arising from this facility. Such control shall minimize the creation of nuisance conditions on adjoining property. Complaints received from the general public, and confirmed by Department personnel upon site inspection, shall constitute a nuisance condition, and the permittee must take immediate corrective action to abate the nuisance. Mosquitoes and rodents shall be controlled so as to protect the public health and welfare.

27. **Facility Maintenance and Repair.** The site shall be properly maintained including erosion control, maintenance of grass cover, prevention of ponding, groundwater monitoring system repairs, gas venting and monitoring system repairs, repair and maintenance of leachate collection and removal systems, and maintenance of the leachate storage and treatment facilities. In the event of damage to any portion of the landfill site facilities or failure of <u>any part</u> of the landfill systems (including damaged or dry monitoring wells), the permittee shall immediately **(within 24 hours)** notify the Department of Environmental Protection explaining such occurrence and remedial measures to be taken, method to prevent reoccurrence, and time needed for repairs. Written detailed notification shall be submitted to the Department **within seven (7) days** following the occurrence.

SPECIFIC CONDITIONS:

28. **Water Quality Monitoring Quality Assurance.**

a. All field work and laboratory work done in connection with the facility's Water Quality Monitoring Plan shall be conducted in accordance with the Standard Operating Procedures (SOPs) referenced in Chapter 62-160, F.A.C., or in accordance with a Quality Assurance Plan (QAP) approved by the Department. The SOPs and QAP utilized must specifically address the types of sampling and analytical work that are required by the permit and shall be implemented by all persons performing sample collection or analysis related to this permit.

b. The field testing, sample collection and preservation, and laboratory testing, including the collection of quality control samples, shall be in accordance with methods approved by the Department in accordance with Rule 62-4.246 and Chapter 62-160, F.A.C. Approved methods published by the Department or as published in Standard Methods, or by A.S.T.M., or EPA methods shall be used.

29. **Zone of Discharge.**

a. The zone of discharge for the site landfills and the percolation ponds for treated leachate effluent shall extend horizontally as shown on Figure 1 entitled "Well Locations and Leachate Sampling Locations" received January 3, 2002 (attached), prepared by Jones Edmunds & Associates, Inc., and shall extend vertically to the bottom of the surficial aquifer. The dimensions of the western edge of the zone of discharge are described in the Public Records of Citrus County, Book 1169, pages 0399 and 0400, recorded February 4, 1997.

b. The permittee shall ensure that the water quality standards and minimum criteria for Class G-II ground waters will not be exceeded at the boundary of the zone of discharge according to Rule 62-520.420, F.A.C., and that the minimum criteria listed in Rule 62-520.400, F.A.C., will not be exceeded outside the footprint of the landfill.

30. **Leachate Influent Sampling.** Grab samples of leachate influent (WACS testsite ID No. 172) shall be collected from the master lift station (see attached Figure 1) to comply with the requirements of Rules 62-701.510(5) and 62-701.510(6)(c), F.A.C., as follow:

a. **Annual** leachate influent sampling shall be conducted for analysis of the following parameters:

Field Parameters	Laboratory Parameters
Specific conductivity	Total ammonia - N
pH	Bicarbonate
Dissolved oxygen	Chlorides
Colors & sheens (by observation)	Iron
	Mercury
	Nitrate
	Sodium
	Total dissolved solids (TDS)
	Those parameters listed in 40 CFR Part 258, Appendix II

SPECIFIC CONDITIONS:

b. If the annual leachate influent analysis indicates that a contaminant listed in 40 CFR Part 261.24 exceeds the regulatory level listed therein, the permittee shall initiate monthly sampling and analysis of the parameters listed in Specific Condition No. 30.a., and shall notify the Department in writing. If in any three consecutive months no listed contaminant is found to exceed the regulatory level, the permittee may discontinue the monthly sampling and analysis and return to a routine sampling schedule.

31. **Discharges from Percolation Pond.** Direct discharge from the percolation pond system to area surface waters is not allowed. Surface discharge shall be considered a violation of this permit and the permittee shall immediately report any such discharge to the Solid Waste Section, Southwest District office of the Department of Environmental Protection.

32. **Leachate Treatment Plant Effluent Testing.** These test parameters shall meet the Florida Groundwater Standards and minimum criteria listed in Rules 62-520.400 and 62-520.420, F.A.C., with the exception of sodium, chloride and total dissolved solids (TDS). These parameters shall meet the standards listed in Rule 62-520.420, F.A.C., at the edge of the zone of discharge (as described in Specific Condition No. 29).

a. Leachate effluent (WACS testsite ID No. 175) shall be sampled at the frequency listed below, and the analytical results shall be submitted quarterly, as follows: Quarter 1 results shall be submitted by **April 15th**; Quarter 2 by **July 15th**; Quarter 3 by **October 15th**; and, Quarter 4 by **January 15th**.

Parameter	Unit	Minimum	Maximum	Frequency
Flow	gpd	N/A	30,000	Daily
pH	STD UNITS	6.00	8.50	Daily
$CBOD_5$	mg/l	N/A	20	Weekly
TSS	mg/l	N/A	20	Weekly
Nitrate-N	mg/l	N/A	10	Weekly
Chloride	mg/l	N/A	N/A	Quarterly
Sodium	mg/l	N/A	N/A	Quarterly
TDS	mg/l	N/A	N/A	Quarterly
Benzene	µg/l	N/A	1	Quarterly
Toluene	µg/l	N/A	40	Quarterly
Ethylbenzene	µg/l	N/A	30	Quarterly
Total Xylenes	µg/l	N/A	20	Quarterly
Ethylene dibromide (EDB)	µg/l	N/A	0.02	Quarterly
Total Trihalomethanes	µg/l	N/A	100	Semi-annually*
Arsenic	mg/l	N/A	0.05	Annually
Barium	mg/l	N/A	2	Annually
Cadmium	mg/l	N/A	0.005	Annually
Chromium	mg/l	N/A	0.1	Annually
Iron	mg/l	N/A	0.3	Annually
Mercury	mg/l	N/A	0.002	Annually
Lead	mg/l	N/A	0.015	Annually
Selenium	mg/l	N/A	0.05	Annually
Silver	mg/l	N/A	0.1	Annually

* to be conducted concurrently with the semi-annual ground water sampling events described in Specific Condition Nos. 34.b. and 34.c.

Annually, the leachate effluent shall be analyzed for the parameters listed in 40 CFR Part 258, Appendix I, however the effluent shall be analyzed for the parameters listed in 40 CFR Part 258, Appendix II during the annual sampling event conducted prior to permit renewal.

SPECIFIC CONDITIONS:

If in any two consecutive weeks of effluent sampling, the same listed contaminant exceeds the regulatory level, the permittee shall immediately cease discharge into the percolation ponds and provide off-site disposal for its leachate and/or effluent, until acceptable leachate treatment is again demonstrated and until on-site discharge into the percolation ponds is again approved by the Department.

b. Waste sludge from the leachate treatment plant shall be sampled and analyzed **annually** using Department SOPs or a Department approved QAP for the following parameters:

Toxicity Characteristic Leaching Potential Test (TCLP) for the organics, metals and pesticides listed in 40 CFR Part 261.24, Table 1
pH (standard units)
Solids (percent)

Waste sludge that is not classified as hazardous waste (Chapter 62-730.030, F.A.C.) may be disposed in the Class I landfill. Based upon the results of the analyses, the Department may require further testing and alternative disposal to assure compliance with all Department rules and regulations. The Department shall be notified within thirty (30) days of alternative sludge disposal activities.

33. **Groundwater Monitoring Well Locations.** The ground water monitoring plan is described in the submittal entitled *Groundwater and Leachate Monitoring Plan Review, Class I Central Landfill*, prepared by Jones Edmunds & Associates, Inc., dated April 2001 (revised July 2001, September 2001, and October 2001). The monitor well locations shown on attached Figure 1 (received January 3, 2002) are described as follows:

Well No.	WACS Testsite ID Number	Aquifer	Designation	Location
MW-1(R)	165	Floridan	Background	See Figure 1
MW-2	149	Floridan	Background	See Figure 1
MW-3	150	Floridan	Background	See Figure 1
MW-4	166	Floridan	Piezometer	See Figure 1
MW-5	167	Floridan	Piezometer	See Figure 1
MW-6	168	Floridan	Intermediate	See Figure 1
MW-7	179	Floridan	Background	See Figure 1
MW-8R	180	Floridan	Detection	See Figure 1
MW-9	181	Floridan	Detection	See Figure 1
MW-AA	169	Floridan	Detection	See Figure 1
MW-B	65	Floridan	Detection	See Figure 1
MW-C	66	Floridan	Detection	See Figure 1
MW-D	27	Floridan	Detection	See Figure 1
MW-E	171	Floridan	Compliance	See Figure 1

All wells are to be clearly labeled and easily visible at all times. The permittee should keep all wells locked to minimize unauthorized access.

SPECIFIC CONDITIONS:

34. **Groundwater Sampling.** The locations, parameters, and frequencies specified herein represent the minimum requirements for ground water monitoring. Additional samples, wells, and parameters may be required based upon subsequent analysis. Method Detection Limits must be less than or equal to the Maximum Contaminant Levels established for the individual parameters to demonstrate compliance with Class G-II ground water standards referenced in Chapter 62-522, F.A.C. Ground water samples for analysis of metals may be field-filtered if the criteria listed in the Department's 1994 technical document entitled *Determining Representative Ground Water Samples, Filtered or Unfiltered* are met.

a. Ground water levels shall be measured for all sampling events described in Specific Condition Nos. 34.b. and 34.c., at all wells listed in Specific Condition No. 33 to a precision of 0.01 foot. The ground water surface contour maps prepared for each sampling event shall include ground water elevations (feet NGVD) calculated for each well.

b. Background wells (MW-1R, MW-2, MW3, and MW-7), detection wells (MW-AA, MW-B, MW-C, MW-D, MW-8R, and MW-9), and compliance well MW-E shall be sampled **semi-annually** for analysis of the following parameters:

Field Parameters	Laboratory Parameters
Static water levels before purging	Total ammonia - N
Specific conductivity	Chlorides
pH	Iron
Dissolved oxygen	Mercury
Temperature	Nitrate
Turbidity	Sodium
Colors & sheens (by observation)	Total dissolved solids(TDS)
	Those parameters listed in 40 CFR Part 258, Appendix I

c. Intermediate well MW-6 shall be sampled **semi-annually** for analysis of the following parameters:

Field Parameters	Laboratory Parameters
Static water levels before purging	Total ammonia - N
Specific conductivity	Chlorides
pH	Iron
Dissolved oxygen	Mercury
Temperature	Nitrate
Turbidity	Sodium
Colors & sheens (by observation)	Total dissolved solids(TDS)
	Those parameters listed in 40 CFR Part 258, Appendix I
	Fecal Coliform
	Total Trihalomethanes

35. **Groundwater Monitoring Well Construction.** The following information shall be submitted **within 90 days of installation** of all new or replacement wells, or as stated below:

a. Prior to construction of all new or replacement wells the permittee shall request and receive Department approval of a minor permit modification.

b. Construction details (record drawings) for all new or replacement wells shall be provided to the Department's Southwest District Office on Department Form No. 62-522.900(3), Monitor Well Completion Form (attached).

SPECIFIC CONDITIONS:

c. **Within one week of well completion** and development, each new well shall be sampled for the parameters listed in Rules 62-701.510(8)(a) and 62-701.510(8)(d), F.A.C.

d. A surveyed drawing shall be submitted in accordance with Rule 62-701.510(3)(d)(1), F.A.C., showing the location of all monitoring wells (active and abandoned) horizontally located in degrees, minutes and seconds of latitude and longitude, the Universal Transverse Mercator coordinates, and the elevation of the top of the well casing to the nearest 0.01 foot, National Geodetic Vertical Datum. The surveyed drawing shall include the monitor well identification numbers, locations and elevations of all permanent benchmarks and/or corner monument markers at the site. The survey shall be conducted by a Florida Registered Surveyor.

36. **Well Abandonment.** All wells not a part of the approved Water Quality Monitoring Plan are to be plugged and abandoned in accordance with Rule 62-532.440, F.A.C., and the Southwest Florida Water Management District (SWFWMD). Documentation of abandonment shall include a map showing piezometer/well locations and SWFWMD abandonment records. The permittee shall submit a written report to the Department providing verification of the well abandonment **within 30 days of abandonment.** A written request for exemption to the abandonment of a well must be submitted to the Department's Solid Waste Section for approval.

37. **Verification/Evaluation Monitoring.** If at any time monitoring parameters are detected at concentrations significantly above background water quality, or exceed the Department's water quality standards or criteria at the edge of the zone of discharge, the permittee has 30 days from receipt of the sampling results to resample the monitor well(s) to verify the original analysis. Should the permittee choose not to resample, the Department will consider the water quality analysis to be representative of current ground water conditions at the facility. <u>If the data is confirmed, or if the permittee chooses not to resample, the permittee shall notify the Department within 14 days of this finding</u>. Upon notification by the Department, the permittee shall initiate evaluation monitoring, prevention measures and corrective action as described in Rule 62-701.510(7), F.A.C.

38. **Water Quality, Leachate and Sludge Reporting Requirements.** All leachate and ground water quality monitoring results shall be reported on Department Form 62-522.900(2), Groundwater Monitoring Report (attached). The permittee shall submit to the Department the results of the leachate quality analysis by **January 15th, April 15th, July 15th, and October 15th of each year.** The permittee shall submit to the Department the results of sludge analysis by **January 15th of each year.** The permittee shall submit to the Department the results of ground water quality analysis **January 15th and July 15th of each year** for the semi-annual periods July-December and January-June, respectively. The reports that transmit the results of ground water analysis shall contain the information listed in Rule 62-701.510(9)(a), F.A.C., <u>including a ground water contour map representing conditions at the time of ground water sampling and a summary of any water quality standards or criteria that are exceeded</u>.

SPECIFIC CONDITIONS:

39. **Groundwater Monitoring Plan Evaluation. By December 15, 2003 and no later than June 15, 2006,** the permittee shall submit an evaluation of the water quality monitoring data. The periods of time to be covered by the evaluations are summarized below:

Water Quality Monitoring Data Evaluation Due Date	Starting Sampling Event	Ending Sampling Event
December 15, 2003	First Half 2001	First Half 2003
June 15, 2006	Second Half 2003	Second Half 2005

The evaluations shall include the applicable information as listed in Rule 62-701.510(9)(b), F.A.C., and shall include assessment of the effectiveness of the existing landfill design and operation as related to the prevention of ground water contamination. Any ground water contamination that may be reported shall be addressed as part of evaluation monitoring conducted at the facility in accordance with Rule 62-701.510(7), F.A.C.

40. **Air Requirements.**

a. An air construction permit is not required for the landfill unless landfill construction or any modification is subject to the prevention of significant deterioration (PSD) requirements of Chapter 62-212, F.A.C. A landfill for which construction or modification is subject to PSD requirements must make application to the Bureau of Air Regulation, Mail Station 5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, for an air construction permit and must obtain such permit prior to beginning any construction or modification.

b. An air operating permit is not required unless the landfill is required to obtain a Title V air operating permit (Title V permit) pursuant to Section 403.0872, F.S. A landfill is required to obtain a Title V permit if the landfill (or the total facility, if the landfill is collocated or part of a larger facility) has the potential to emit 10 TPY of any hazardous air pollutant, 25 TPY of any combination of hazardous air pollutants or 100 TPY of any other regulated air pollutant. A landfill is also required to obtain a Title V permit if the maximum design capacity, as defined at 40 CFR 60, Subpart WWW, is equal or greater than 2.5 million Megagrams or 2.5 million cubic meters. Title V permits must be applied for in accordance with the timing and contact requirements of Rule 62-204.800, F.A.C. and Chapter 62-213, F.A.C. Title V applications shall be submitted to the District Air Program Administrator or County Air Program Administrator with air permitting authority for the landfill location.

SPECIFIC CONDITIONS:

c. The landfill shall comply with the requirements of 40 CFR 60, Subpart WWW and CC, as adopted by reference at Rule 62-204.800, F.A.C. Any amended design capacity report and any Non-Methane Organic Compound (NMOC) emission rate report, as applicable, pursuant to 40 CFR 60.757(a)(3) and (b) shall be submitted to be Division of Air Resources Management, Department of Environmental Protection, Mail Station 5500, 2600 Blair Stone Road, Tallahassee, FL 32399-2400.

41. **Professional Certification.** Where required by Chapter 471 (P.E.) or Chapter 492 (P.G.), Florida Statutes, applicable portions of permit applications or modifications and supporting documents which are submitted to the Department for public record shall be signed and sealed by the professional(s) who prepared or approved them.

42. **General Conditions.** The permittee shall be aware of and operate under the "General Conditions". General Conditions are binding upon the permittee and enforceable pursuant to Chapter 403, Florida Statutes.

43. **Permit Acceptance.** By acceptance of this Permit, the Permittee certifies that he/she has read and understands the obligations imposed by the Specific and General Conditions contained herein and also including date of permit expiration and renewal deadlines. It is a violation of this permit for failure to comply with all conditions and deadlines.

44. **Regulations.** F.A.C. 62-701, effective May 27, 2001, is incorporated into this permit by reference. In the event that the regulations governing any part of this permitted operation are revised, the permittee shall comply with the new rules and request modification of those specific conditions which are affected by the revision of regulations to incorporate those revisions.

Executed in Tampa, Florida

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Deborah A. Getzoff
Director of District Management
Southwest District

Attachment 1

SPECIFIC CONDITION	SUBMITTAL DUE DATE	REQUIRED ITEM
4., 17.d.	180 days prior to permit expiration	Permit Renewal Application LCRS Inspection
17., 18. and 33.a	Quarterly, by January 15th, April 15th, July 15th, and October 15th	Leachate generation reports, Gas monitoring results, Leachate treatment results
22.	Annually, by April 15th	Capacity estimate and Topographic survey
25.a.	Annually, by September 1st	Financial assurance cost estimates
25.b.	Annually	Submit proof of funding
30.a.	Annually	Leachate influent sampled/analyzed
32.a.	Daily, weekly, quarterly semi-annually, or annually	Leachate effluent sampled/analyzed
32.b.	Annually	Leachate treatment - Sludge results
34.	Every 6 months	Groundwater wells sampled/ analyzed
38.	Semi-annually, by January 15th, and July 15th	Groundwater quality monitoring results
38.	Quarterly, by January 15th, April 15th, August 15th, and October 15th	Leachate monitoring results
38.	Annually, by January 15th	Leachate treatment plant sludge analyses
40.	December 15, 2003 June 15, 2006	Evaluation of groundwater monitoring plan

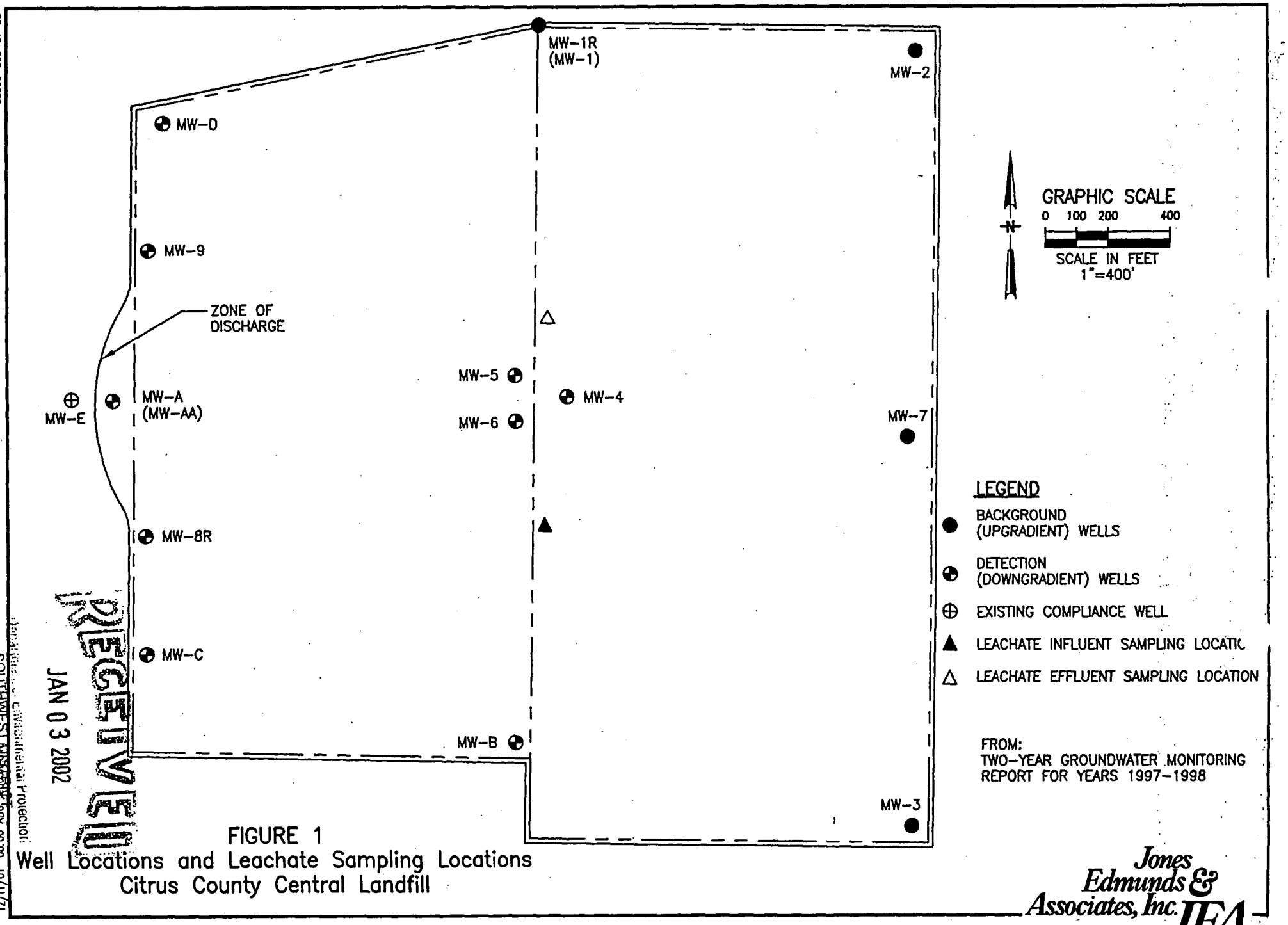
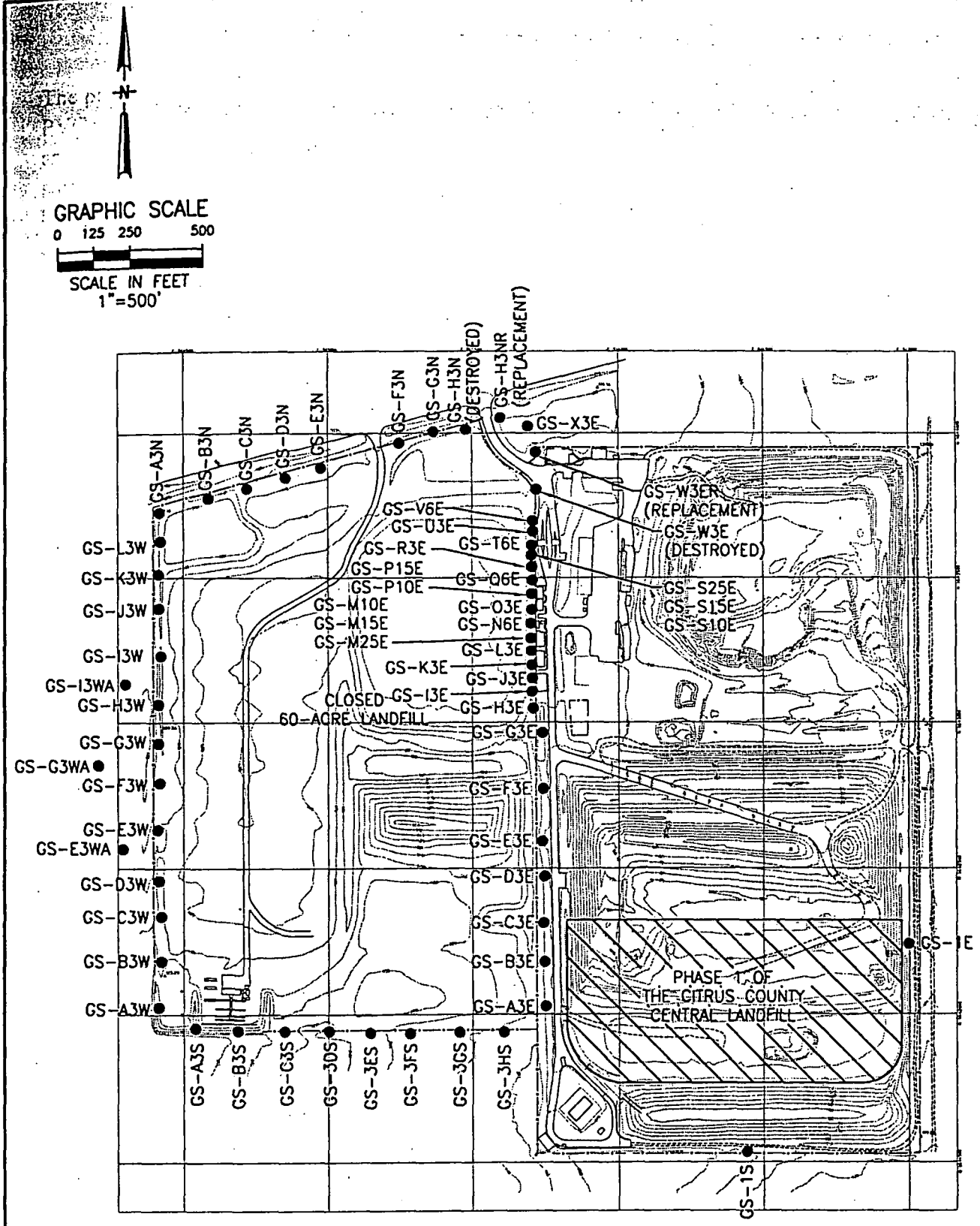


FIGURE 1
Well Locations and Leachate Sampling Locations
Citrus County Central Landfill



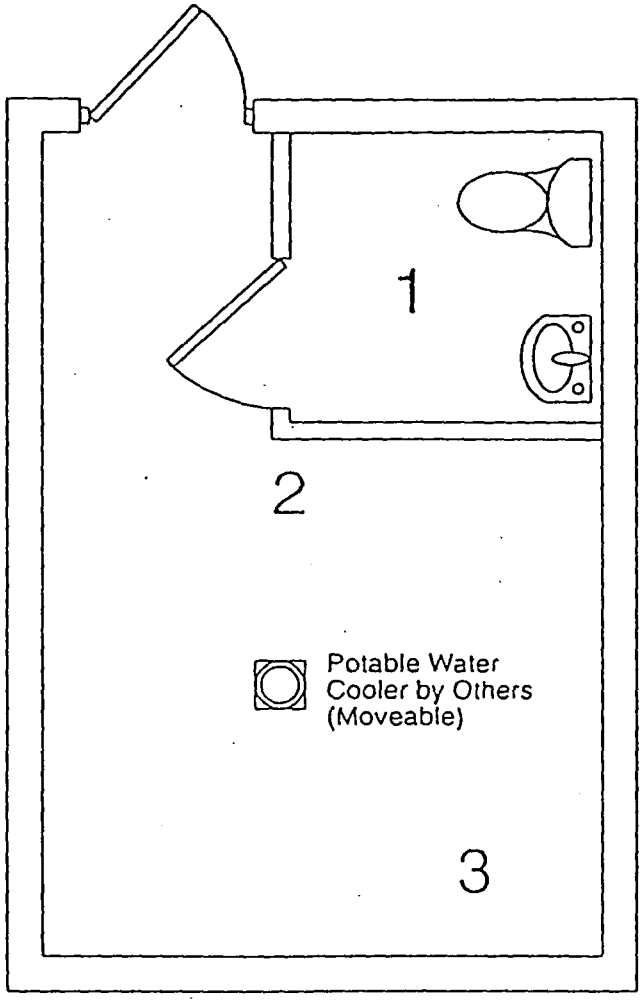
LEGEND

● GAS MONITORING SAMPLING POINT

Figure 9-1
Gas Monitoring Probes

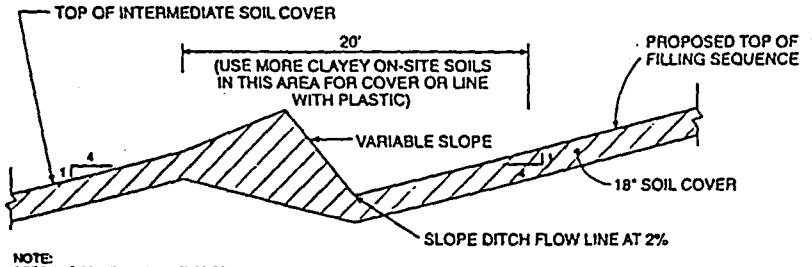
Jones Edmunds & Associates, Inc. JEA

04/05/01 16:44 klm jc00519-1.dwg



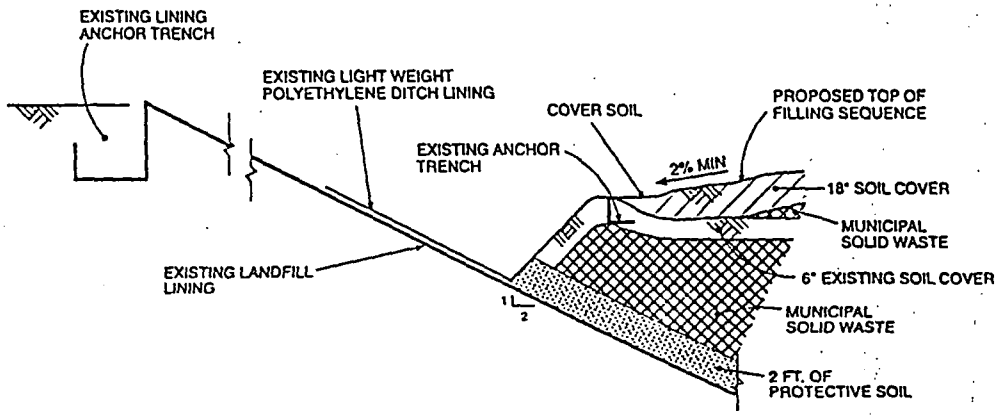
1 - Bathroom Floor Drain
2 - Electric Connections for Scale Meter - West Side
3 - Electric Conections for Scale Meter - East Side

FIGURE 3
Scalehouse Gas Monitoring Points

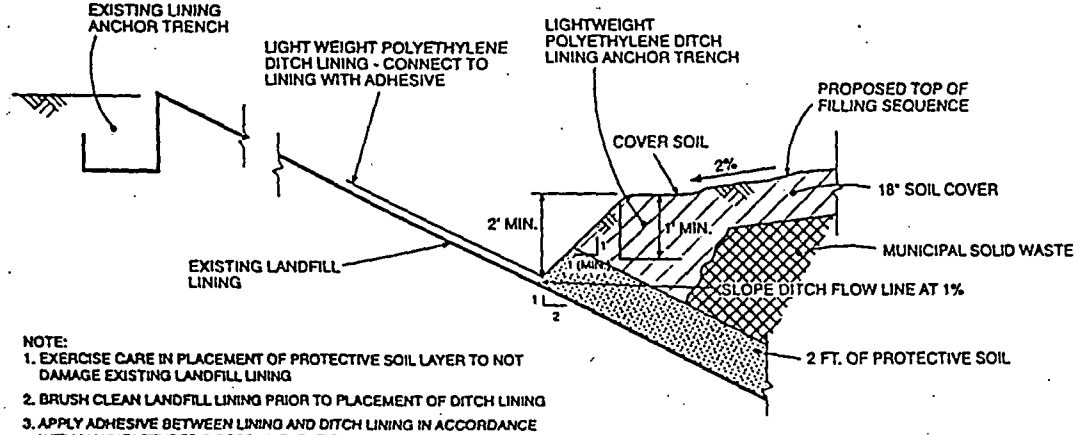


NOTE:
SEED AND MULCH ALL 4:1 SLOPES

DITCHES ON NORTHERN FACE
NTS

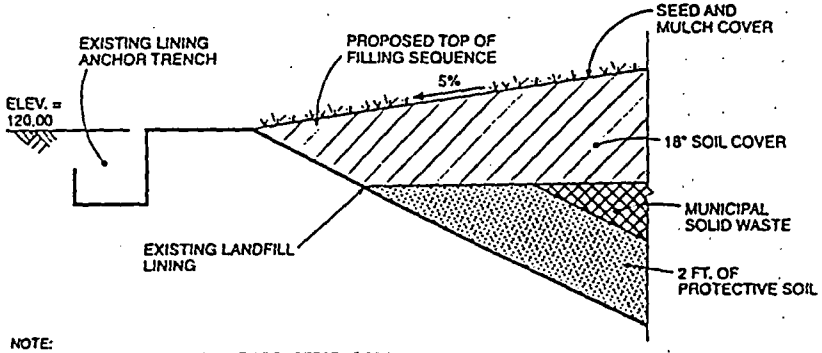


CONNECTION TO EXISTING LINED DITCH
NTS



NOTE:
1. EXERCISE CARE IN PLACEMENT OF PROTECTIVE SOIL LAYER TO NOT DAMAGE EXISTING LANDFILL LINING
2. BRUSH CLEAN LANDFILL LINING PRIOR TO PLACEMENT OF DITCH LINING
3. APPLY ADHESIVE BETWEEN LINING AND DITCH LINING IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS
4. DO NOT APPLY ADHESIVE IF LINING IS WET

NEW LINED DITCH
NTS

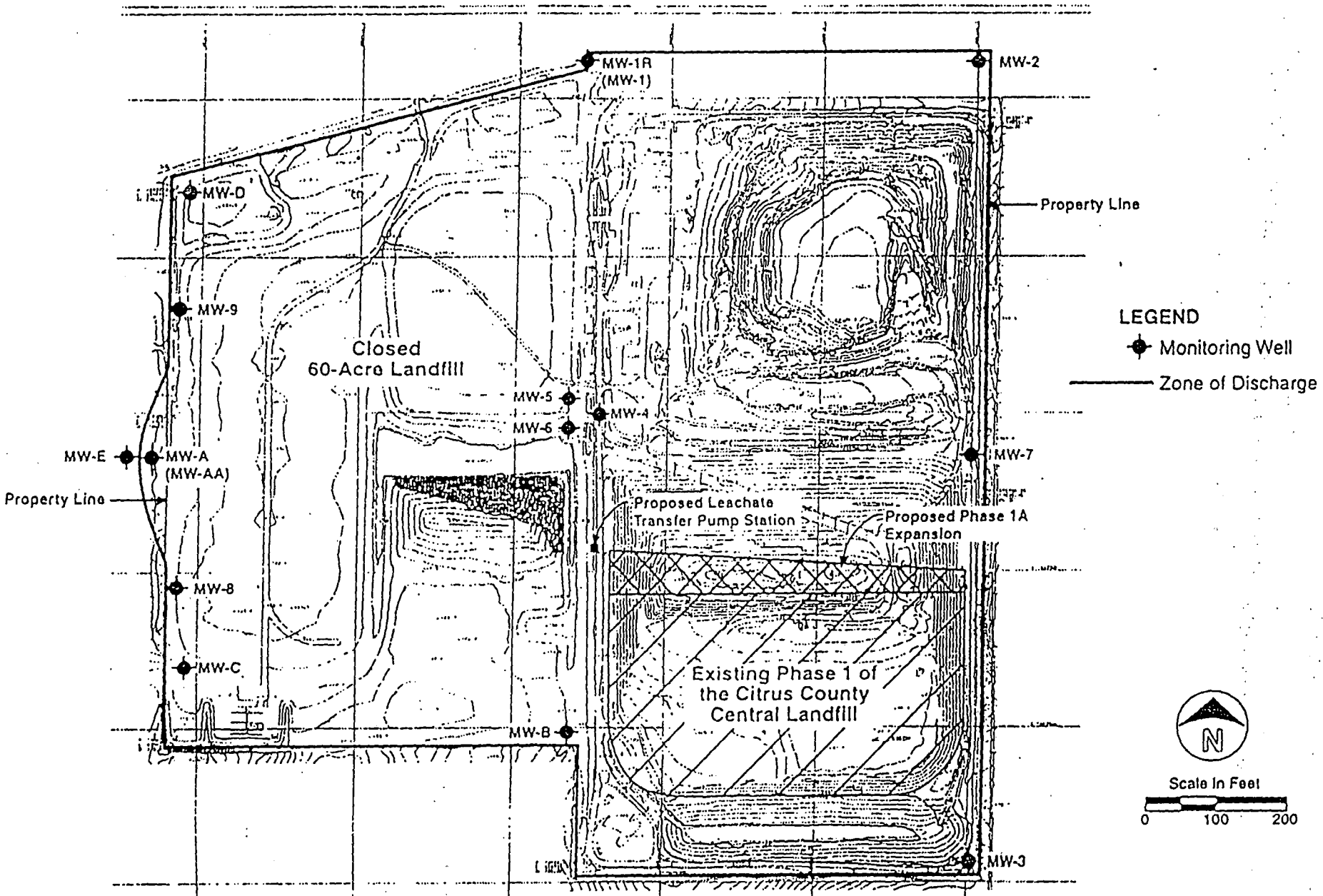


NOTE:
1. EXERCISE CARE IN PLACEMENT OF PROTECTIVE SOIL LAYER TO NOT DAMAGE EXISTING LANDFILL LINING
2. DO NOT ALLOW SOIL COVER TO MIX WITH UNDERLYING WASTE DURING PLACEMENT

EXISTING ANCHOR TRENCH DETAIL
NTS

Figure 11
Typical Sections

CH2M HILL



Specific Condition 30

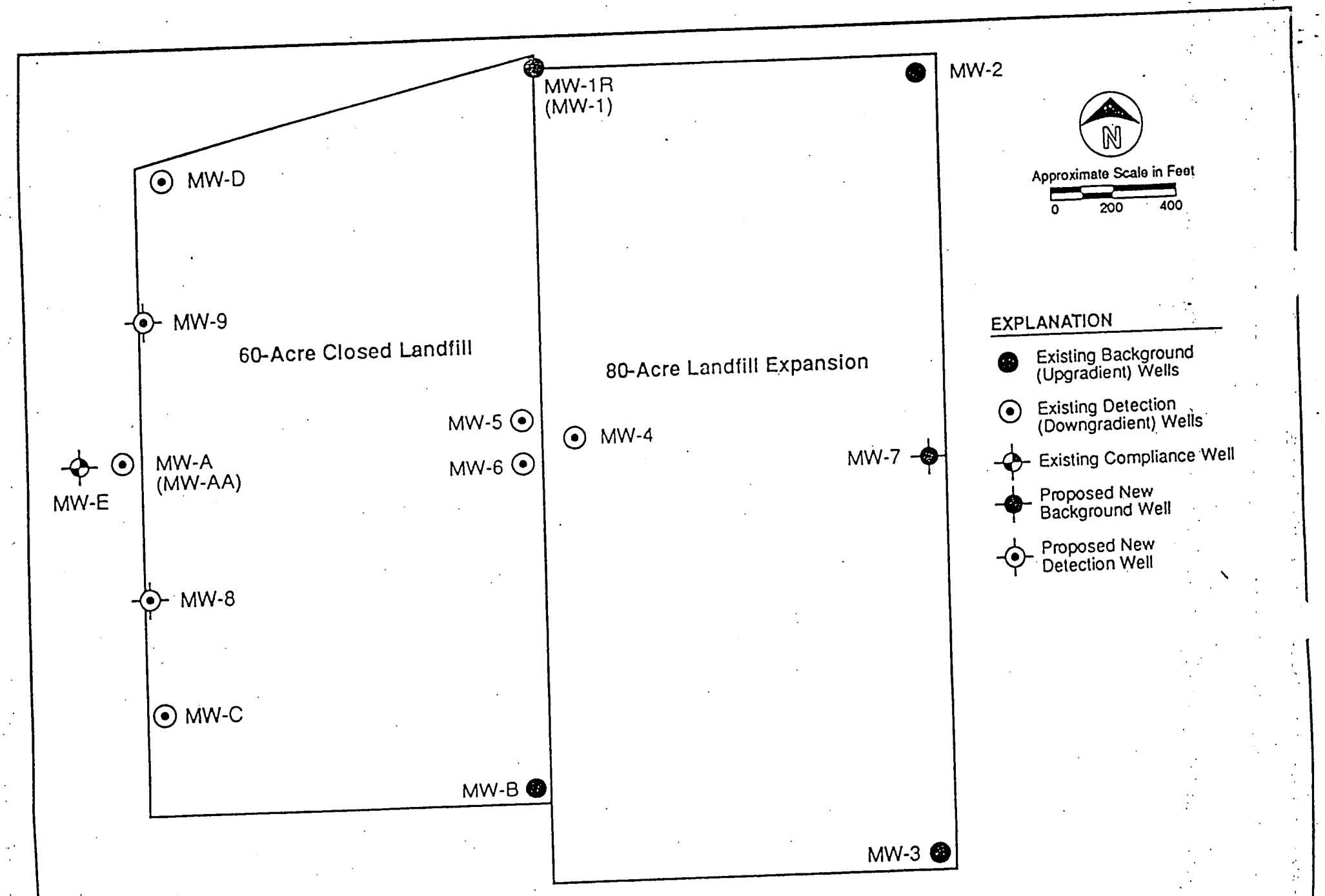


FIGURE 48
Proposed New Monitoring Wells

HYDRO

DEP Form # 62-522.900(2)

Form Title Ground Water Monitoring Report

Effective Date _____

DEP Application No. _____

Florida Department of Environmental Protection

Twin Towers Office Bldg. 2600 Blair Stone Road Tallahassee, Florida 32399-2400

GROUND WATER MONITORING REPORT

Rule 62-522.600(11)

PART I GENERAL INFORMATION

(1) Facility Name _____

Address _____

City _____ Zip _____

Telephone Number (___) _____

(2) The GMS Identification Number _____

(3) DEP Permit Number _____

(4) Authorized Representative Name _____

Address _____

City _____ Zip _____

Telephone Number (___) _____

(5) Type of Discharge _____

(6) Method of Discharge _____

Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Date: _____ _____

Signature of Owner or Authorized Representative

PART II QUALITY ASSURANCE REQUIREMENTS

Sample Organization Comp QAP # _____

Analytical Lab Comp QAP # /HRS Certification # _____

*Comp QAP # /HRS Certification # _____

Lab Name _____

Address _____

Phone Number (___) _____

PART III ANALYTICAL RESULTS

Facility GMS #: _____ Sampling Date/Time: _____

Test Site ID #: _____ Report Period: _____
(year/quarter)

Well Name: _____ Well Purged (Y/N): _____

Classification of Ground Water: _____

Well Type: ( ) Background
( ) Intermediate
( ) Compliance
( ) Other

Ground Water Elevation (NGVD): _____

or (MSL): _____

Storet Code	Parameter Monitored	Sampling Method	Field Filtered Y/N	Analysis Method	Analysis Date/Time	* Analysis Results/Units	Detection Limits/Units

* Attach Laboratory Reports

DEP Form #	62-522.900(3)
Form Title	MONITOR WELL COMPLETION REPORT
Effective Date	_____
DEP Application No.	_____ (Filled in by DEP)

Florida Department of Environmental Protection
Twin Towers Office Bldg. 2600 Blair Stone Road Tallahassee, Florida 32399-2400

MONITOR WELL COMPLETION REPORT

DATE: _____

INSTALLATION NAME: _____

DEP PERMIT NUMBER: _____ GMS NUMBER: _____

WELL NUMBER: _____ WELL NAME: _____

DESIGNATION: Background _____ Immediate _____ Compliance _____

LATITUDE/LONGITUDE: _____

AQUIFER MONITORED: _____

INSTALLATION METHOD: _____

INSTALLED BY: _____

TOTAL DEPTH: _____ (bls) DEPTH OF SCREEN: _____ (bls)

SCREEN LENGTH: _____ SCREEN SLOT SIZE: _____ SCREEN TYPE: _____

CASING DIAMETER: _____ CASING TYPE: _____

LENGTH OF CASING: _____ FILTER PACK MATERIAL: _____

TOP OF CASING ELEVATION (MSL): _____

GROUND SURFACE ELEVATION (MSL): _____

COMPLETION DATE: _____

DESCRIBE WELL DEVELOPMENT: _____

_____

_____

POST DEVELOPMENT WATER LEVER ELEVATION (MSL): _____

DATE AND TIME MEASURED: _____

REMARKS: (soils information, stratigraphy, etc.) : _____

_____

_____

REPORT PREPARED BY: _____
(name, company, phone number)

NOTE: PLEASE ATTACH BORING LOG.

(bls)= Below Land Surface

Memorandum

Florida Department of Environmental Protection

PERMIT COVER MEMO

1/11/02

TO: X DEBORAH GETZOFF, **Director of District Management**

FROM/THROUGH:

1/17/02

William Kutash, **ENVIRONMENTAL ADMINISTRATOR**
Bob Butera 1/9/02 **SUPERVISOR**
Kim Ford 1/9/02 **ENGINEER**

DATE: 1/9/02

FILE NAME: Citrus Central Landfill **PERMIT #:** 21375-003-SO
PROGRAM: Solid Waste **COUNTY:** Citrus

TYPE OF PERMIT ACTION: X **ISSUE** ___ **DENY** ___ **MODIFY**
___ **TRANSFER OWNER** ___ **NOD**
___ **PUBLIC NOTICE** ___ **INTENT TO ISSUE**

PUBLIC NOTICE PERIOD CLOSED? N/A **PETITION FILED?** N/A

PERMIT SUMMARY: This permit renewal is to allow the continued operation of an existing Class I landfill, water quality monitoring and long-term care of closed areas. Leachate will be collected and treated on -site. Financial assurance is provided.

PROFESSIONAL RECOMMENDATION: X **APPROVE** ___ **DENY**

EVALUATION SUMMARY: The permit application and supporting information were received on April 27, 2001. Three deficiency letters were sent with responses received on July 20, September 10, and October 17, 2001. A replacement groundwater monitoring well location map was received on January 3, 2002.

This application was deemed complete on **October 17, 2001.**

Department Processing Time = 169 days (as of January 10, 2002)
Total Processing Time (TIH) = 258 days (as of January 10, 2002)

Day 90/30 for this Action is January 15, 2002.

CERTIFICATION

Application No. 21375-003-50 CITRUS CENTRAL LANDFILL

I HEREBY CERTIFY that the engineering features described in the above referenced application (provide / ~~do not provide~~) reasonable assurance of compliance with applicable provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Title ~~27~~ 62. However, I have not evaluated and I do not certify aspects of the proposal outside of my area of expertise (including but not limited to the electrical, mechanical and structural features).

(Signed)

(Date)

(Seal)

KIM BROWNING CERTIFICATE NO. 23947 STATE OF FLORIDA PROFESSIONAL ENGINEER

Environmental Consultants

3012 U.S. Highway 301 N
Suite 700
Tampa, FL 33619-2242

813 621-0080
FAX 813 623-6757

SCS ENGINEERS

Bob — Any comments? OK with me — Kim 1/10/02

RECEIVED
JAN 09 2002
By

January 8, 2002
File No. 09199056.02

Mr. Kim Ford, P.E.
Solid Waste Permitting
Florida Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, FL 33619

Subject: Citrus County Central Landfill
Earth Excavation in Area of Future Landfill Expansion

Dear Mr. Ford:

As discussed in our recent telephone conversation, Citrus County may have the opportunity in the next few months to begin excavation of soils from the area of future landfill expansion in order to supply soils to construction projects off-site from the landfill property. The County would consider this activity because it would provide the following benefits:

1) Reduced cost of future landfill expansion by removing soils that will require excavation and hauling during the new landfill cell construction.

2) Reduced construction traffic as the proposed excavation can be distributed over a longer schedule than if conducted during the landfill construction project.

3) Reduced landfill construction time because the majority of excavation will be completed.

4) Excess soils will be removed from the site that are not needed for landfill operations.

If the County decides to pursue the preliminary excavation of the expansion area as a separate project, as described herein, a preliminary excavation plan will be developed to provide direction to the contractor. The excavation would take place in the area north of the existing stormwater pump station and would comprise an area that will become the new stormwater management area for the next phase of landfill areas below natural grade. This excavation would affect none of the existing landfill components. The actual landfill construction would pick up the excavation at the point where the existing stormwater facilities would need to be demolished.

Based on our conversation, a permit or permit modification is not needed to conduct the preliminary excavation as described. Citrus County will inform the Department of the schedule for this work once this becomes known. Please do not hesitate to call us if you have any questions.

Very truly yours,

John A. Banks, P.E.
Project Manager
SCS ENGINEERS

Raymond J. Dever, P.E., D.E.E
Vice President
SCS ENGINEERS

cc: Susan J. Metcalfe, P.G., Citrus County

LETTER OF TRANSMITTAL

Jones Edmunds & Associates, Inc.
CONSULTING ENGINEERS AND SCIENTISTS
JEA

TO:	Mr. Kim B. Ford, P.E. FL Dept of Environmental Protection Southwest District Solid Waste Section 3804 Coconut Palm Drive Tampa, FL 33619-8318	DATE	January 2, 2002
		JOB. NO.	03860-005-01-0800
		RE:	Citrus County

WE ARE SENDING YOU:

☒ Enclosed ☐ Under Separate Cover
☐ U.S. Mail ☒ UPS overnight ☐ Federal Express ☐ Other
☐ Shop Drawings ☐ Prints ☐ Plans ☐ Samples
☐ Specifications ☐ Copy of Letter ☐ Change Order
☐ Report ☐ Other:

# Copies	Date	Description
1	12/11/01	Figure 1, Well Locations and Leachate Sampling Locations, Citrus County Central Landfill

THESE ARE TRANSMITTED AS CHECKED BELOW:

☐ For Approval ☒ For Your Information
☐ For Your Use ☐ As Requested ☐ Other:

RECEIVED
JAN 03 2002
Department of Environmental Protection
BY SOUTHWEST DISTRICT

REMARKS:

COPY TO: David A. Keough SIGNED: Mickey Pollman

If enclosures are not as noted, kindly notify us at once.

730 NE Waldo Road, Bldg. A - Gainesville, FL 32641-5699 Telephone: (352) 377-5821 FAX: (352) 377-3166
H:\JMcGregor\AAOHMISC\transmittals\TRANSJEA.WPD

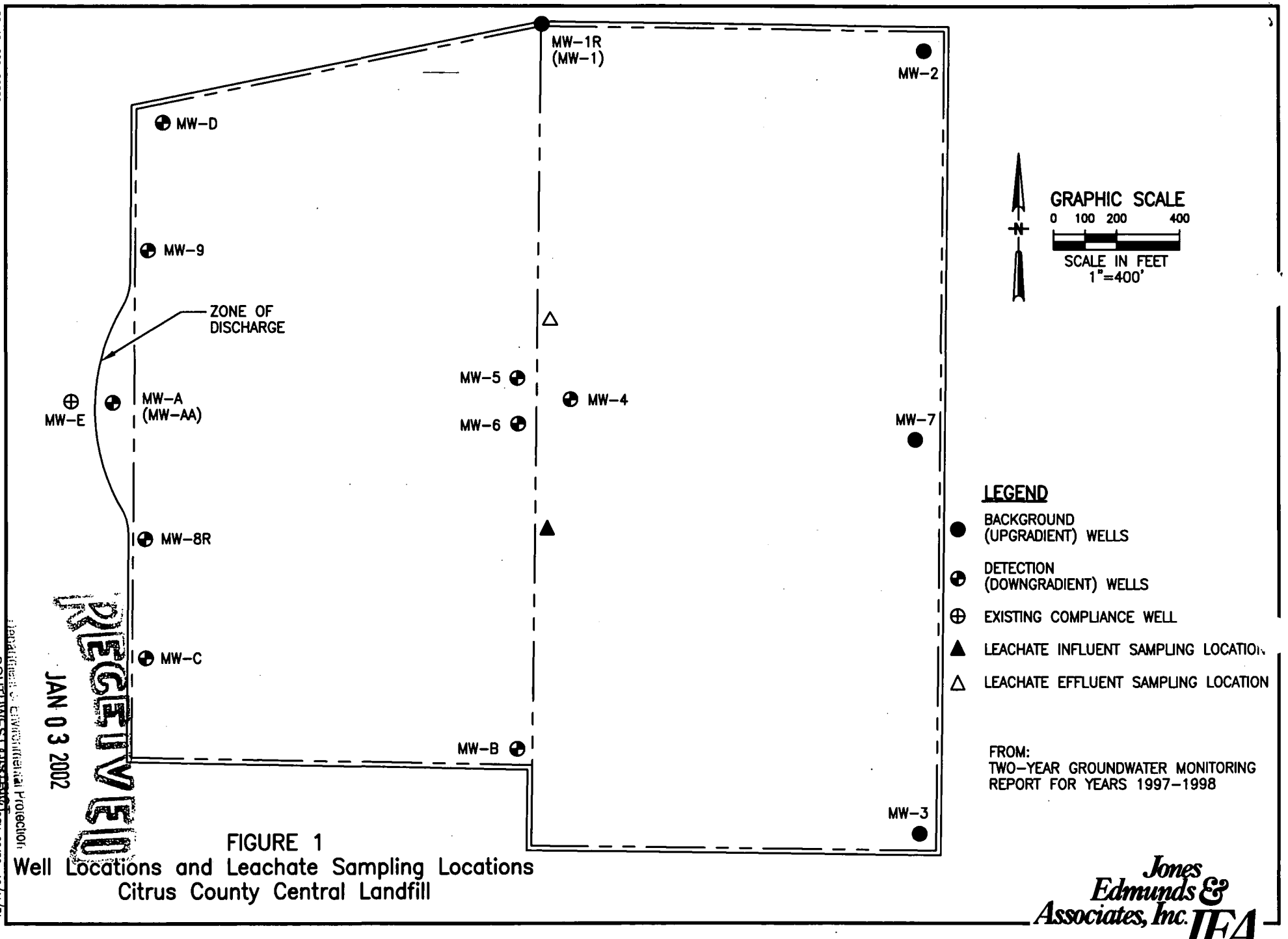


FIGURE 1
Well Locations and Leachate Sampling Locations
Citrus County Central Landfill

E ARD OF COUNTY COMM SSIONERS
DEPARTMENT OF PUBLIC WORKS
SOLID WASTE MANAGEMENT DIVISION

P.O. Box 340, Lecanto, Florida 34460
(352) 746-5000 FAX (352) 527-1204
Citrus Springs/Dunnellon area Toll Free # (352) 489-2120

December 27, 2001

RECEIVED
DEC 3 1 2001
Department of Environmental Protection
SOUTHWEST DISTRICT
BY _____

John Morris, P.G.
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

Re: Citrus County Central Landfill,
Draft Permit No. 21375-003-SO

Dear Mr. Morris:

This is to follow up on our conversation earlier today concerning the draft permit language for the Citrus County Central Landfill operating permit renewal. Specific Condition 34 as proposed requires groundwater samples to be unfiltered. I faxed the correspondence from our files back and forth between Allison Amram at FDEP and me during the period 1994-1996. That correspondence resulted in approval of using field-filtered samples for metals and radionuclides for wells at this site if the unfiltered turbidity is 5 NTU or greater. We are requesting that this approval be extended to the proposed permit as well.

In support of this request, we have several reasons to ask that this requirement be unchanged from the current permit.

1. We feel that changing the nature of the sample from filtered to unfiltered will disrupt the continuity of data when comparing time trends for the parameters included in the request.
2. We have seen reduced turbidity values since the time that all wells were fitted with dedicated bladder pumps, however despite this improvement, most wells at the site still exhibit turbidities in excess of 5 NTU when unfiltered.
3. Filtration will reduce the amount of dilution required for very turbid samples, thus allowing our contract laboratory to more easily attain the requirement for (method detection levels) MDL's to be less than the maximum contaminant levels (MCL) for those parameters.
4. The Floridan aquifer in this area is unconfined, producing water levels that are the same in unconsolidated sediments that overly the limestone in this area whether that water level is expressed in either lithology. Most of the wells at this site are finished in silty or clayey sands and often produce very turbid samples in this first water zone.

Please let me know if you have any questions or comments.

Sincerely,

Susan J. Metcalfe

Susan J. Metcalfe, P.G.
Director of Solid Waste Management

CC: Kenneth L. Frink, P.E., Director, Public Works Department
David A. Keough, P.E., Jones Edmunds & Associates

COPY

Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

October 30, 1996

Ms. Susan Metcalfe, P.G.
Director, Division of Solid Waste
Management, Citrus County
P.O. Box 340
Lecanto, Florida 34460

Subject: Field Filtering of Groundwater Approval for the Citrus County Central Landfill
Permit No. SO09-274381

Dear Ms. Metcalfe:

The Solid Waste Section of the Florida Department of Environmental Protection (FDEP) has reviewed your October 21, 1996 letter that contained the remaining requirements to demonstrate that field filtration of groundwater samples is appropriate at the site. Field filtration of groundwater samples from the site's monitoring wells is **APPROVED**.

Filtration must be done in accordance with the FDEP's January 1994 technical document Determining Representative Ground Water Samples, Filtered or Unfiltered. Filtering is appropriate for metals and radionuclide samples when the unfiltered turbidity is more than 5 NTUs for samples from unconsolidated aquifers. Filtering must be conducted in the field prior to sample preservation with in in-line molded and disposable 1.0 micron filter unit. Groundwater reports must record the unfiltered turbidity for the sample, and state the filter size.

If you have any questions, please contact me at 813/744-6100, ext. 336.

Sincerely,

Allison Amram

Allison Amram, P.G.
Solid Waste Section

cc: Gary Kuhl, Citrus County Director of Public Works, P.O. Box 167, Lecanto, FL 34460
Kim Ford, P.E., FDEP
Bob Butera, P.E., FDEP

Review of recent lab reports shows that reported turbidity may not be following guidelines; occasionally the filtered turbidity has been reported as unfiltered or vice versa, and occasionally the unfiltered result has not been reported. The lab has been reminded of the requirements.

Yours truly,

Susan J. Metcalfe

Susan J. Metcalfe, P.G.
Director

CC: Gary Kuhl, Director, Public Works Department
Robert Butera, FDEP, Tampa

Our initial request to allow filtration of metals and radionuclide samples was submitted as part of an annual report and summary of installation of new wells dated October 31, 1994. This was based on our understanding of the results of the filtered/unfiltered analyses from the July 1994 sampling event. Your letter of November 18, 1994 requested two additional pieces of information (QA procedures and well numbers). Our response of November 28, 1994 provided that information; we requested that all wells for both sites which met the >5NTU threshold be allowed to have filtered samples. We also provided excerpts from Orlando Laboratories (the County's new contract laboratory) QA plan. Your letter of March 10, 1995 indicated that field turbidity must be measured on unfiltered samples, that only samples for metals and radionuclides may be filtered and filtration must be done with a I micron filter. The latter was based on the Orlando Laboratories QA plan which indicated use of a .45 micron filter. We received revised pages from the lab on March 20, 1995 indicating that they would follow those procedures. We proceeded to implement field filtration of samples which exceed the 5 NTU value.

Over the next six sampling episodes, every well on both sites exhibited turbidity in excess of 5 NTU. None of the wells naturally meet the drinking water standard of 1 NTU. Wells B and C are the cleanest of the wells, with turbidity below 5 NTU on half or more of the sampling episodes. Both have dedicated pumps; all the rest of the wells are sampled by bailing.

Both the presence of turbidity and the sampling mechanism are a reflection of the nature of the geologic units being sampled and well construction. The first occurrence of water in the sediments is usually in a clayey sand/sandy clay at about 105 to 115 feet below land surface. This means that the screened section of the well is open to fine-grained material with low transmissivity; moving water into the well creates high velocities, which moves not only water but aquifer materials into the well. Fine grained material (turbidity) tends to stay suspended in the water that is removed. The depth to water and very low water production rate severely limit the use of sampling pumps, therefore bailers are the appropriate sampling mechanism. Bailers however tend to disturb the material accumulated inside the well and re-suspend it.

The low transmissivity also thwarts attempts to develop the wells. For example, after construction of Well R-1, and after the drilling contractor gave up on all methods he had tried, the County sent a laborer to bail the well. He worked daily for over a month and was able to remove one to two casing volumes each day; the well still produces water with turbidities in excess of the filtration threshold. The worst well onsite exhibited a turbidity of 192 NTU during the last sampling episode. When turbidities reach that level, the lab either cannot perform analyses at all, or has results with very high detection levels.

FILE COPY

Board of County Commissioners

Department of Public Works

REPLY TO:
Solid Waste Management
P.O. Box 340
Lecanto, Florida 34460-0340

October 18, 1996

Allison Amram, P.G.
Solid Waste Section
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

Re: Permit No. SO09-187229 and SF09-211030
Field filtration of groundwater samples

Dear Ms. Amram:

This submittal is to clarify and update Citrus County's request for DEP to allow field filtration of groundwater samples for metals and radionuclides from the wells covered under both listed permits. According to the 1994 DEP Technical Document Determining Representative Ground Water Samples, Filtered or Unfiltered, six criteria must be met in order to allow that procedure. In a recent phone conversation, you indicated that submission of analytical results comparing filtered and unfiltered samples (Criterion 6) would be required.

The County's contract lab (Savannah Laboratories) performed a comparison of filtered vs. unfiltered analyses for metals and radionuclides on the sample taken in July 1994 from wells 4, 5, 6, and AA. A significant difference was found between analyses for filtered vs. unfiltered Barium, Chromium, Lead, Aluminum, Iron , Zinc and Gross Alpha. Review of our submittals to DEP during that time period reveals that this comparison has not been previously submitted. Copies are attached.

The July 1994 sampling episode did not include wells 2 and 3 which are background wells for the site, nor did it include wells R-1, B, C, D or E. We can obtain such data, if required, at our next sampling event. Please indicate whether samples from only wells 2 and 3 or which of the others would be required. That sampling episode is currently scheduled for January 1997.

DEP FILE

Board of County Commissioners

Department of Public Works

REPLY TO: Solid Waste Management
P.O. Box 340
Lecanto, Florida 34460

July 30, 1996

Allison Amram, P.G.
Solid Waste Section
Department of Environmental Protection
3804 Coconut Palm Dr.
Tampa, Florida 33619

Re: Citrus County Central Landfill
Permit No. SO09-187229, SF09-211030, Pending Permit SO09-274381
Groundwater Monitoring

Dear Ms. Amram:

Citrus County has previously discussed with you the subject of field filtration of groundwater samples. Your August 15, 1995 comments on the pending permit indicated that filtration would need to be conducted according to the January 1994 Technical Document on the subject. We have provided the TD to our laboratory for inclusion in their sampling procedure.

No other requirements were indicated in your comments, therefore, according to my October 16, 1995 letter to you, we have proceeded with those methods to filter groundwater samples for metals analysis.

Please contact me if you have any questions.

Yours truly,

Susan J. Metcalfe

Susan J. Metcalfe, Director
Division of Solid Waste Management

cc: Gary Kuhl, Dir. Dept. of Public Works

Department of
Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

October 30, 1996

Ms. Susan Metcalfe, P.G.
Director, Division of Solid Waste
Management, Citrus County
P.O. Box 340
Lecanto, Florida 34460

Subject: Field Filtering of Groundwater Approval for the Citrus County Central Landfill
Permit No. SO09-274381

Dear Ms. Metcalfe:

The Solid Waste Section of the Florida Department of Environmental Protection (FDEP) has reviewed your October 21, 1996 letter that contained the remaining requirements to demonstrate that field filtration of groundwater samples is appropriate at the site. Field filtration of groundwater samples from the site's monitoring wells is **APPROVED**.

Filtration must be done in accordance with the FDEP's January 1994 technical document Determining Representative Ground Water Samples, Filtered or Unfiltered. Filtering is appropriate for metals and radionuclide samples when the unfiltered turbidity is more than 5 NTUs for samples from unconsolidated aquifers. Filtering must be conducted in the field prior to sample preservation with in in-line molded and disposable 1.0 micron filter unit. Groundwater reports must record the unfiltered turbidity for the sample, and state the filter size.

If you have any questions, please contact me at 813/744-6100, ext. 336.

Sincerely,

Allison Amram

Allison Amram, P.G.
Solid Waste Section

cc: Gary Kuhl, Citrus County Director of Public Works, P.O. Box 167, Lecanto, FL 34460
Kim Ford, P.E., FDEP
Bob Butera, P.E., FDEP

Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

March 10, 1995

Ms. Susan Metcalfe, P.G.
Citrus County
Department of Public Works,
Division of Solid Waste Management
P.O. Box 340
Lecanto, Florida 34460-0340

Subject: Field Filtering of Groundwater Samples
Permit No. SO09-187229

Dear Susan:

The Department has reviewed your November 28, 1994 letter requesting analysis of field filtered groundwater samples from monitoring wells MW-R1, MW-3, MW-4, MW-5, MW-6 and MW-AA.

Collection of field filtered samples must follow the implementation conditions listed in the Department's Technical Document, Determining Representative Ground Water Samples, Filtered or Unfiltered, dated January 1994. If you do not have a copy of this document, please call me and I will send it to you. These conditions include:

1) Measurement of turbidity in the field, from unfiltered samples. If the turbidity exceeds 5 NTU, the groundwater sample may be filtered.

2) Filtering must be conducted with a 1.0 micron filter.

3) Only samples for metals and radionuclide analysis may be field filtered.

Please note that the Quality Assurance Plan for Orlando Laboratories states that a 0.45 micron filter will be used. This is not acceptable; a 1 micron filter must be used for all samples. Orlando Laboratories should contact the Quality Assurance Section of the FDEP at 904/488-2796 to determine if their QA plan should be revised to change the filter size.

Should you have any comments, please contact me at (813) 744-6100, ext. 336.

Sincerely,

Allison Amram

Allison Amram, P.G.
Solid Waste Section

cc: Gary W. Kuhl, P.E., Director of Public Works, Citrus County
R. Alan Doughty, Ph.D., Orlando Laboratories
Sylvia Labie, FDEP/Quality Assurance
Kim Ford, P.E., FDEP/Solid Waste

DEPARTMENT OF PUBLIC WORKS
DIVISION OF SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway • P.O. Box 340
Lecanto, Florida 34460-0340
(904) 746-5000 • FAX (904) 527-1204

FILE COPY

November 28, 1994

Allison Amram, P. G.
Solid Waste Section
Dept. of Environmental Protection
3804 Coconut Palm Drive
Tampa, FL 33619

RE: Citrus County Central Landfill
Field Filtering of Groundwater Samples
Permit #'s SO09-187229 and SF09-211030

Dear Ms. Amram:

Review of previous analyses on groundwater samples from the Citrus County landfill shows all wells have exceeded standards for turbidity. Those which exhibit the highest levels are R-1, 3, 4, 5, 6, and AA. This is to request that, if turbidity standards are to be strictly enforced for compliance, we be allowed to field filter samples from all wells for both permits at this site. Copies of the applicable pages from Orlando Laboratories' Comprehensive QA plan (pages 2 and 3 of 90 from Section 6) are attached as requested. The approval page for their plan is also attached.

Our next scheduled sampling event is in the first week of January, 1995. We will need to inform the laboratory by December 20 if the proposed change to field filtration is to be effective for that sampling event. Thank you for your prompt response to our request.

Sincerely,

Susan J. Metcalfe

Susan J. Metcalfe,
Director

SJM:cms

cc: Gary W. Kuhl, P.E., Dir. Dept. Public Works
Cathy Winter, Solid Waste Technician II

Department of Environmental Protection

FILE COPY

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

November 18, 1994

Susan J. Metcalfe, P.G.
Director: Division of Waste Management
P.O. Box 340
Lecanto, FL 34460-0340

RE: **Citrus County Central Landfill**
Field Filtering of Groundwater Samples

Dear Ms. Metcalfe:

The Department has received and reviewed the Annual Groundwater Monitoring Report for Citrus Central Landfill. The report has fulfilled the Department's requirements for annual groundwater monitoring plan evaluation. However, in response to your request on field filtering of groundwater samples; the Department needs the following information:

1. **Please specify each well to be included in the field filtering request**
2. **Include field filtering lab Quality Assurance (QA) procedures**

For your reference, I have attached a copy of the Department's technical document for **Determining Representative Groundwater Samples, Filtered or Unfiltered**. If you should have any questions, please feel free to contact me at (813) 744-6100 x336.

Sincerely,

Allison Amram

Allison Amram, P.G.
Solid Waste Section

Attachment

WASTE MGT TAMPA SWD ax:8137446125

** Transmit Conf.Report **

P.1

Dec 27 2001 12:00

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FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
3804 COCONUT PALM DRIVE
TAMPA, FL 33619-8318

FAX

Date: 12/27/01

Number of pages including cover sheet: 7

TO: SUSAN METCALFE

FROM: Ken Ford

PHONE: (352) 746 5000

PHONE: (813) 744-6100, x 382

FAX #: (352) 527 1204

FAX #: (813) 744-6125

CC:

REMARKS: ☐ Urgent ☑ For your review ☐ Reply ASAP ☐ Please comment

EPA Document

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
3804 COCONUT PALM DRIVE
TAMPA, FL 33619-8318

FAX

Date: 12/27/01
Number of pages including cover sheet: 7

TO: SUSAN METCALFE	FROM: Kim Ford
PHONE: (352) 746 5000	PHONE: (813) 744-6100, x 382
FAX #: (352) 527 1204	FAX #: (813) 744-6125
CC:	

REMARKS: ☐ Urgent ☑ For your review ☐ Reply ASAP ☐ Please comment

EPA Document

To: Mark Swyka 3462

Wednesday
January 29, 1992

Federal Register

Part II

Environmental Protection Agency

40 CFR Parts 260, 264, 265, 270, and 271
Liners and Leak Detection Systems for Hazardous Waste Land Disposal Units; Final Rule

ALR BACKGROUND DOCUMENT

PB 92-128-214

703 477 4650

controlled by the bottom-liner and drainage system.

Many commenters maintained that EPA was proposing too many leakage rates without a clear distinction between them as to the differences in response associated with the leakage. These commenters claimed that some of the responses actions discussed by EPA in the preamble seemed to be redundant for different leakage rates, and that EPA's requirements were confusing, burdensome, and provided no additional benefit. As an example, the commenters cited that flow rates above the proposed action leakage rate (5–20 gpad) would trigger many of the same responses that exceedance of other leakage rates, such as the rapid and extremely large leakage rate (an example in the preamble showed a RLL of 3000 gpad) or significant change in leakage rate, would mandate. Some of these commenters stated that leakage rates less than the rapid and extremely large rate did not necessarily indicate a failure of the top liner, and that leakage would still be contained within the unit by the bottom liner. Therefore, they felt that the Agency should not stipulate excessive and redundant responses on the part of owners or operators for leakage rates that do not pose environmental concerns.

EPA requested and received field data on actual leakage rates from commenters on the proposed rule, and obtained additional data from more recent studies of leakage rates through top liners at land disposal units. However, these data are limited and furthermore, indicate that a portion of units (>25%) with CQA could exceed 20 gpad, the highest end of the proposed range for action leakage rates. Therefore, the Agency agrees with commenters that existing field data do not support establishment of an action leakage rate within the proposed range of 5–20 gpad for all units.

In response to EPA's request for comments on the appropriateness of the proposed range for surface impoundments, commenters argued that it was inappropriate for the Agency to set the same action leakage rate for landfills and surface impoundments and that the Agency should take into account the type, size, and operation of the unit when establishing an action leakage rate. EPA agrees with the commenters that the size, type, and operation of the unit should be accounted for in establishing a leakage rate that will trigger a response by the owner or operator, and that a standard leakage rate value for all units is not appropriate at this time.

In addition, EPA acknowledges commenters' concerns about the proposed number of leakage rates triggering a response by the owner or operator, and the lack of distinction among them for purposes of implementation. To simplify the final rule, EPA has chosen to establish one leakage rate that will trigger a response by the owner or operator, account for the site-specific design of the unit, and indicate significant evidence that there is problematic leakage through the top liner that mandates a response. EPA is requiring owners or operators to propose an action leakage rate for each unit subject to today's rule based on an approach that is similar to the proposed definition of the rapid and extremely large leakage rate. That is, owners or operators must calculate an action leakage rate based on the maximum design leakage rate that the leak detection system can remove without the fluid head on the bottom liner exceeding one foot. This leakage rate must account for an adequate margin of safety for uncertainties in design, construction, and operation of the leak detection system. The action leakage rate must not be greater than the flow capacity of the drainage layer in order to assure detection of leaks (e.g., if the ALR is 500 gpad and the flow capacity is 400 gpad then the ALR would never be exceeded no matter how large the leak). The action leakage rate should always be less than or equal to the pumping capacity of the leak detection sump since the pumping capacity is required to be greater than the maximum leak detection system flow rate under which gravity flow conditions prevail (i.e., to prevent liquids from backing up into the drainage layer). If the owner or operator determines that the action leakage rate is exceeded, the owner or operator must implement the procedures contained in the response action plan.

EPA believes that flow rates in excess of the action leakage rate indicate a major localized or general failure of the top liner, thus increasing the potential for a buildup of head on the bottom liner and increasing the potential for migration of hazardous constituents into the bottom liner. For this reason, it is necessary to maintain leak detection flow rates below the action leakage rate and for the owner or operator to take response actions for leaks greater than the action leakage rate.

Under today's rule, as in the May 29, 1987 proposal, the owner or operator must propose an action leakage rate based on calculations of the maximum flow capacity of the leak detection system design so as not to exceed one foot head on the bottom liner (called rapid and extremely large leak in the proposal). The proposal background document "Liner and Leak Detection Rule Background Document", (EPA/530-SW-87-015, May 1987) presented a number of mathematical models for making such a determination. All of these models are based on Darcy's Law for non-turbulent flow through saturated media. Of these models, the Agency finds that the following formula for flow originating through a hole in the liner is the most likely leak scenario for a geomembrane liner:

$$Q = k.h.\tan\alpha.B$$

where

Q = flow rate in the leak detection system (drainage layer),
h = head on the bottom liner,
k = hydraulic conductivity of the drainage medium,
α = slope of the leak detection system,
B = width of the flow in the leak detection system, perpendicular to the flow.

Using this formula, the Agency calculated the maximum flow rates using the minimum specifications in today's rule: 1% slope, and 1×10^{-1} cm/sec hydraulic conductivity for surface impoundments and 1×10^{-2} cm/sec hydraulic conductivity for landfills and waste piles. Assuming that the head is 1 foot and the width of flow (B) is 100 feet, the results show maximum flow rates of 2,100 gpad for surface impoundments and 210 gpad for landfills and waste piles. Using a safety factor of two, as suggested in the proposed rule preamble, yields about 1,000 gpad for surface impoundments and 100 gpad for landfills and waste piles as the Agency recommended action leakage rates. Because this calculation used the minimum technical requirements and other design assumptions to maximize potential head on the bottom liner, the Agency believes that the units meeting the minimum technical requirements would not require action leakage rates below 100 gpad for landfills and waste piles and 1000 gpad for surface impoundments. The final background document on action leakage rates ("Action Leakage Rates for Leak Detection Systems," January 1992) provides further discussion and background on these recommended action leakage rates. As discussed earlier in the preamble, this document is available from the docket for this rule or from NTIS, U.S. Department of Commerce.

While EPA recommends the above action leakage rates for the minimum design specifications, the Agency recognizes that a number of site-specific

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Agency

Technology Transfer EPA/625/4-89/022

EPA

Seminar Publication

Requirements for Hazardous Waste Landfill Design, Construction, and Closure

10. LEAK RESPONSE ACTION PLANS

This final chapter reviews proposed requirements for Response Action Plans, or RAPs, that are contained in the proposed leak detection rule issued in May, 1987. It focuses on the concepts behind the RAPs and the preliminary, technical calculations used in developing them. The main topics of discussion will be the technical basis for the two response action triggers, action leakage rate (ALR) and rapid and large leakage (RLL) rate; the RAPs themselves; and the RAP submittal process.

Background

In the Hazardous and Solid Waste Amendments (HSWA) of 1984, Congress required that leaks from new land disposal facilities be detected at the earliest practical time. However, HSWA did not require or specify actions to be taken once a leak is detected in the leak detection system. Therefore, EPA proposed requirements for response action plans to deal with leaks detected in the leak detection system between the two liners. EPA realizes that even with a good construction quality assurance plan, flexible membrane liners (FMLs) will allow some liquid transmission either through water vapor permeation of an intact FML, or through small pinholes or tears in a slightly flawed FML. Leakage rates resulting from these mechanisms can range from less than 1 to 300 gallons per acre per day (gal/acre/day). If unchecked, these leak rates may result in increased hydraulic heads acting on the bottom liner and potential subsequent damage to the liner system.

The idea behind the RAP is to be prepared for any leaks or clogging of the drainage layer in the leak detection system that may occur during the active life or post-closure care period of a waste facility. The first step is to identify the top liner leak rates that would require response actions. Therefore, in the proposed leak detection rule of May 29, 1987, EPA established two triggers for response actions: the Action Leakage Rate (ALR) and the Rapid and Large Leakage (RLL) rate. The ALR is a low-level leak rate that would indicate the presence of a small hole or defect in the top liner. The RLL is indicative of a severe breach or large tear in the top liner. A different level of responsiveness would be required for leakage rates above these two triggers. RAPs developed by owners or operators may have more than two triggers as appropriate to cover the range of leak rates expected for a landfill unit. In addition to triggers, the proposed rule also defines the elements of a RAP, gives an example of one, and discusses the procedures for submitting and reviewing a RAP.

Action Leakage Rate (ALR)

EPA has historically used the term de minimus leakage when referring to leaks resulting from permeation of an intact FML. Action leakage rate (ALR) was developed to distinguish leak rates due to holes from mere permeation of an intact FML, and to initiate early interaction between the owner/operator of the unit and the Agency. The ALR essentially defines top liner leakage in a landfill, and the proposed value is based on calculated leak rates through a 1 to 2 mm hole in a FML subject to low hydraulic heads on the order of 1 inch. The proposed ALR, therefore, is representative of well-designed and operated landfills, although, as proposed, it would also apply to surface impoundments and waste piles.

Because EPA is considering setting a single ALR value applicable to landfills, surface impoundments, and waste piles, the Agency calculated top liner leak rates for different sizes of holes and for different hydraulic heads. In addition, EPA compared leak rates for a FML top liner with that for a composite top liner, since many new facilities have double composite liner systems. Table 10-1 shows the results of these calculations for FML and composite top liners. Even for FMLs with very small holes (i.e., 1 to 2 mm in diameter), leak rates can be significant depending on the hydraulic head acting on the top liner. The addition of the compacted low permeability soil layer to the FML significantly reduces these leak rates to less than 10 gal/acre/day, even for large hydraulic heads that are common in surface impoundments. These results indicate that,

at least for deep surface impoundments with large hydraulic heads, double composite liner systems may be the key to reducing the leak rates to de minimus levels that are below the proposed ALR.

Table 10-1. Calculated Leakage Rates through FML and Composite Liners (gal/acre/day)

FML Alone

Leakage Mechanism	Hydraulic Head, ft 0.1	1	10
Small Hole (1-2 mm)	30	100	300
Standard Hole (1 cm²)	300	1,000	3,000

Composite Liner (good contact)

Leakage Mechanism	Hydraulic Head, ft 0.1	1	10
Small Hole (1-2 mm)	0.01	0.1	2
Standard Hole (1 cm²)	0.01	0.2	3

Source: U.S. EPA. 1987. Background document on proposed liner and leak detection rule. EPA/530-SW-87-015.

EPA's proposed rule sets the ALR at 5 to 20 gal/acre/day, a difficult range to achieve with a primary FML alone (especially for surface impoundments). The proposed rule also enables the owner/operator to use a site-specific ALR value that would take into account meteorological and hydrogeological factors, as well as design factors that might result in leak rates that would frequently exceed the ALR value. Using these factors, a surface impoundment that meets the minimum technological requirements of a FML top liner could conceivably apply for a site-specific ALR value.

Daily leakage rates through top liners can vary by 10 to 20 percent or more, even in the absence of major precipitation events. Because of these variations, EPA may allow the landfill owner/operator to average daily readings over a 30-day period, as long as the leakage rate does not exceed 50 gal/acre/day on any 1 day. If the average daily leak rate does not exceed the ALR, then the owner/operator does not have to implement a RAP.

Rapid and Large Leakage (RLL)

The Rapid and Large Leakage (RLL) rate is the high-level trigger that indicates a serious malfunction of system components in the double-lined unit and that warrants immediate action. In developing the proposed rule, EPA defined the RLL as the maximum design leakage rate that the leak detection system can accept. In other words, the RLL is exceeded when the fluid head is greater than the thickness of the secondary leachate collection and removal system (LCRS) drainage layer. The visible expression of RLL leakage in surface impoundments is the creation of bubbles, or "whales," as the FML is lifted up under the fluid pressure. See Chapter Three for further discussion of "whales".

Because the RLL is highly dependent on the design of the leak detection system, EPA's proposed rule requires that owners/operators calculate their own site-specific RLL values. EPA also proposes to require that owners/operators submit a RAP for leakage rates exceeding that value prior to beginning operation of a unit. The EPA Regional Administrator must approve the RAP before a facility can receive wastes.

The following equations represent EPA's preliminary attempt to define a range of potential RLL values for a hypothetical leak detection system, which consists of a 1-foot granular drainage layer with 1 cm/sec hydraulic conductivity. These calculations are for two-dimensional rather than three-dimensional flow. In addition, the equations apply to flow from a single defect in the FML, rather than multiple defects. Therefore, results from this analysis are only preliminary ones, and the EPA will develop guidance on calculating RLL values in the near future.

RLL values can be calculated using the following equation:

$$h = (Q_d/B)/(k_d \tan\beta) \qquad (1)$$

where:
- h = hydraulic head
- Q_d = flow rate entering into the drainage layer
- B = width of the drainage layer
- k_d = hydraulic conductivity of the drainage layer
- β = slope of the drainage layer perpendicular to, and in the plane of, flow toward the collection pipe

When the value for h exceeds the thickness of the drainage layer (1 foot in this example), the leakage rate is greater than the RLL value for the unit.

In reality, a leak from an isolated source, i.e., a tear or a hole in the FML, results in a discreet zone of saturation as the liquids flow toward the collection pipe (see Figure 10-1). The appropriate variable representing the width of flow, then, is not really B, the entire width of the drainage layer perpendicular to flow, but b, the width of saturated flow perpendicular to the flow direction. If b were known, the equation could be solved. But to date, the data has

not been available to quantify b for all drainage layers and leakage scenarios.

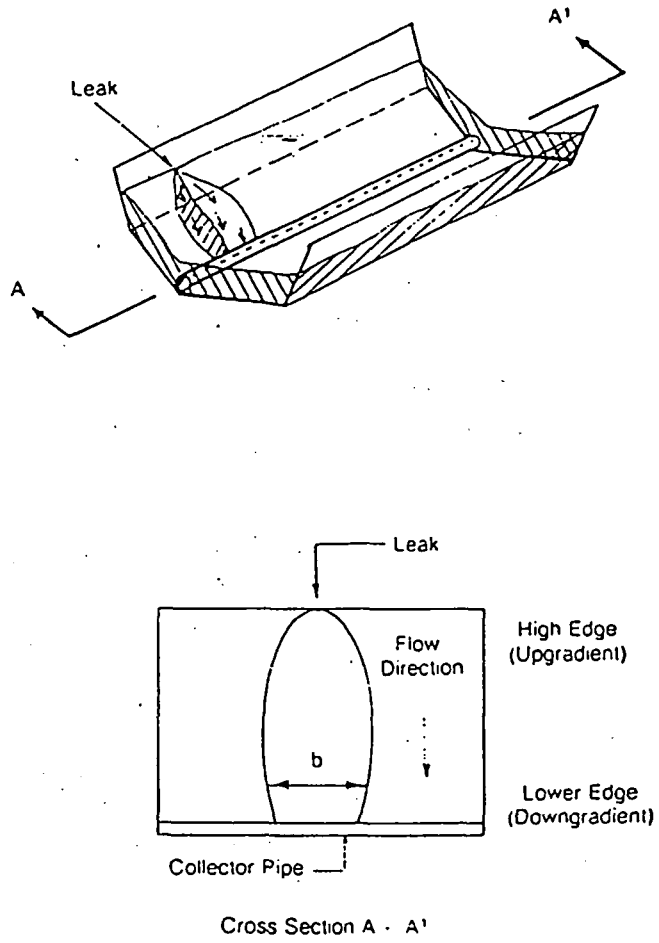

Figure 10-1. Plan view of a leak detection system with a large leak flowing over a width b.

From Equation 1, one can make substitutions for variables B and Q_d and give values for the other variables k_d and tanβ. If N represents the frequency of leaks in a well-designed and installed unit, then Q, the flow rate in the drainage layer (m^3/s) is directly related to q, the leakage rate per unit area (m/sec):

$$Q = NQ \text{ or } Q = q/N \qquad (2)$$

Combining Equations 1 and 2 and substituting b for B, and q for Q:

$$h = q/(Nbk_d\tan\beta) \qquad (3)$$

Equation 3 now can be used to define the leakage rate (q) that exceeds the leak detection system capacity. All that is needed are the values for the other variables (N, k_d, tanβ). For a well-designed and installed unit, the frequency of leaks (N) is 1 hole per acre, or in units of m^2; $N = 1/4{,}000m^2$. Substituting this value into Equation 3:

$$h = 4000q/(bk_d\tan\beta) \qquad (4)$$

Where q is in units of liters/1,000 m^2/day (Ltd), Equation 4 can be written as follows:

$$h = 4.6 \times 10^{-8}q/(bk_d\tan\beta) \qquad (5)$$

The proposed rule requires leak detection systems to have a minimum bottom slope of 2 percent (tanβ) and minimum hydraulic conductivity of 10^{-2} m/sec (kd). Substituting these values into Equation 5:

$$h = 2.3 \times 10^{-4}\, q/b \qquad (6)$$

where h is in units of m, q is in units of Ltd, and b is in units of m. For the purposes of these calculations, it is assumed that Ltd is equivalent to about 1 gal/acre/day. The final results were derived by using three different values for b (the unknown variable) and determining what values of q between 100 and 10,000 gal/acre/day (Ltd) result in hydraulic heads exceeding the 1-foot thickness of the drainage layer (h).

Table 10-2 shows the results of these preliminary calculations. For values of q between 100 and 10,000 gal/acre/day and values of b between 3 and 6 foot, the hydraulic head exceeds 1 foot when leak rates are in the range of 2,000 to 10,000 gal/acre/day. Therefore, RLL values for leak detection systems consisting of granular drainage layer are expected to be in the range of 2,000 to 10,000 gal/acre/day. Clogging of the drainage layer would decrease the design capacity of the leak detection system, and hence the RLL value, over time. With respect to the variables described above, clogging of the drainage layer could be represented using smaller values for b, the width of saturated flow, since clogging would result in a reduced width of saturated flow. As shown in Table 10-2, smaller values of b reduce the minimum leakage rate, q, needed to generate heads exceeding the 1-foot thickness. EPA plans to issue guidance on estimating the effect of clogging on RLL values.

Table 10-2. Results of Preliminary Studies Defining Ranges of RLL Values

Width (b) ft	Flow (q) gal/acre/day
3.3	1,000 - 2,000
5.0	2,000 - 5,000
6.6	5,000 - 10,000

Morris, John R.

From: Susan Metcalfe [Susan.Metcalfe@bocc.citrus.fl.us]
Sent: Thursday, December 27, 2001 3:58 PM
To: John Morris <john.morris@dep.state.fl.us
Subject: Try again

Morris122701gwturb.DOC

Please clarify if I have the format for your e-mail (and the rest of the folks there) correct. My previous attempt came back.

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS
SOLID WASTE MANAGEMENT DIVISION
P.O. Box 340, Lecanto, Florida 34460
(352) 746-5000 FAX (352) 527-1204
Citrus Springs/Dunnellon area Toll Free # (352) 489-2120

December 27, 2001

John Morris, P.G.
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

Re: Citrus County Central Landfill,
Draft Permit No. 21375-003-SO

Dear Mr. Morris:

This is to follow up on our conversation earlier today concerning the draft permit language for the Citrus County Central Landfill operating permit renewal. Specific Condition 34 as proposed requires groundwater samples to be unfiltered. I faxed the correspondence from our files back and forth between Allison Amram at FDEP and me during the period 1994-1996. That correspondence resulted in approval of using field-filtered samples for metals and radionuclides for wells at this site if the unfiltered turbidity is 5 NTU or greater. We are requesting that this approval be extended to the proposed permit as well.

In support of this request, we have several reasons to ask that this requirement be unchanged from the current permit.

1. We feel that changing the nature of the sample from filtered to unfiltered will disrupt the continuity of data when comparing time trends for the parameters included in the request.
2. We have seen reduced turbidity values since the time that all wells were fitted with dedicated bladder pumps, however despite this improvement, most wells at the site still exhibit turbidities in excess of 5 NTU when unfiltered.
3. Filtration will reduce the amount of dilution required for very turbid samples, thus allowing our contract laboratory to more easily attain the requirement for (method detection levels) MDL's to be less than the maximum contaminant levels (MCL) for those parameters.
4. The Floridan aquifer in this area is unconfined, producing water levels that are the same in unconsolidated sediments that overly the limestone in this area whether that water level is expressed in either lithology. Most of the wells at this site are finished in silty or clayey sands and often produce very turbid samples in this first water zone.

Please let me know if you have any questions or comments.

Sincerely,

Susan J. Metcalfe, P.G.
Director of Solid Waste Management

CC: Kenneth L. Frink, P.E., Director, Public Works Department
David A. Keough, P.E., Jones Edmunds & Associates

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
3804 COCONUT PALM DRIVE
TAMPA, FL 33619-8318

FAXED

FAX

Date: DEC. 27, 2001
Number of pages including cover sheet: 1

TO: SUSAN METCALFE	FROM: JOHN MORRIS
CITRUS COUNTY	
PHONE:	PHONE: (813) 744-6100, EXT. 336
FAX #: 352-527-1204	FAX #: (813) 744-6125
CC:	

REMARKS: ☐ Urgent ☐ For your review ☐ Reply ASAP ☐ Please comment

SUSIE -

COULDN'T GET PAST THE TELEPHONE RECORDING AFTER 4:30 PM SO I'M FAXING MY E-MAIL ADDRESS!

JOHN.R.MORRIS @ DEP.STATE.FL.US

ALL THE PUNCTUATIONS ARE DOTS

Best Available Copy

WASTE MGT TAMPA SWD ax:8137446125

** Transmit Conf.Report **

P.1 Dec 27 2001 17:13

Telephone Number	Mode	Start	Time	Pages	Result	Note
813525271204	S-FINE	27,17:12	1'04"	1	* O K	

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
3804 COCONUT PALM DRIVE
TAMPA, FL 33619-8318

FAX

Date: DEC. 27, 2001

Number of pages including cover sheet: 1

TO: SUSAN METCALFE	FROM: JOHN MORRIS
CITRUS COUNTY	
PHONE:	PHONE: (813) 744-6100, EXT. 336
FAX #: 352-527-1204	FAX #: (813) 744-6125
CC:	

REMARKS: ☐ Urgent ☐ For your review ☐ Reply ASAP ☐ Please comment

SUSIE -

COULDN'T GET PAST THE TELEPHONE RECORDING AFTER

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS
SOLID WASTE MANAGEMENT DIVISION
P.O. Box 340, Lecanto, Florida 34460
(352) 746-5000 FAX (352) 527-1204
Citrus Springs/Dunnellon area Toll Free # (352) 489-2120

TELECOPIER MESSAGE

DATE: 12/27/2001

TIME: 3pm

NO. OF PAGES 10 INCLUDING COVER SHEET:

TO: John Morris
DEP-Tampa 813-744-6125

FROM:
Susie Metcalfe

SUBJECT:
Background info on groundwater sampling /filtration

MESSAGE:

COPY

Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

October 30, 1996

Ms. Susan Metcalfe, P.G.
Director, Division of Solid Waste
Management, Citrus County
P.O. Box 340
Lecanto, Florida 34460

Subject: Field Filtering of Groundwater Approval for the Citrus County Central Landfill
Permit No. SO09-274381

Dear Ms. Metcalfe:

The Solid Waste Section of the Florida Department of Environmental Protection (FDEP) has reviewed your October 21, 1996 letter that contained the remaining requirements to demonstrate that field filtration of groundwater samples is appropriate at the site. Field filtration of groundwater samples from the site's monitoring wells is **APPROVED**.

Filtration must be done in accordance with the FDEP's January 1994 technical document Determining Representative Ground Water Samples, Filtered or Unfiltered. Filtering is appropriate for metals and radionuclide samples when the unfiltered turbidity is more than 5 NTUs for samples from unconsolidated aquifers. Filtering must be conducted in the field prior to sample preservation with in in-line molded and disposable 1.0 micron filter unit. Groundwater reports must record the unfiltered turbidity for the sample, and state the filter size.

If you have any questions, please contact me at 813/744-6100, ext. 336.

Sincerely,

Allison Amram

Allison Amram, P.G.
Solid Waste Section

cc: Gary Kuhl, Citrus County Director of Public Works, P.O. Box 167, Lecanto, FL 34460
Kim Ford, P.E., FDEP
Bob Butera, P.E., FDEP

FILE COPY

Board of County Commissioners

Department of Public Works

REPLY TO:
Solid Waste Management
P.O. Box 340
Lecanto, Florida 34460-0340

October 18, 1996

Allison Amram, P.G.
Solid Waste Section
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

Re: Permit No. SO09-187229 and SF09-211030
Field filtration of groundwater samples

Dear Ms. Amram:

This submittal is to clarify and update Citrus County's request for DEP to allow field filtration of groundwater samples for metals and radionuclides from the wells covered under both listed permits. According to the 1994 DEP Technical Document Determining Representative Ground Water Samples, Filtered or Unfiltered, six criteria must be met in order to allow that procedure. In a recent phone conversation, you indicated that submission of analytical results comparing filtered and unfiltered samples (Criterion 6) would be required.

The County's contract lab (Savannah Laboratories) performed a comparison of filtered vs. unfiltered analyses for metals and radionuclides on the sample taken in July 1994 from wells 4, 5, 6, and AA. A significant difference was found between analyses for filtered vs. unfiltered Barium, Chromium, Lead, Aluminum, Iron , Zinc and Gross Alpha. Review of our submittals to DEP during that time period reveals that this comparison has not been previously submitted. Copies are attached.

The July 1994 sampling episode did not include wells 2 and 3 which are background wells for the site, nor did it include wells R-1, B, C, D or E. We can obtain such data, if required, at our next sampling event. Please indicate whether samples from only wells 2 and 3 or which of the others would be required. That sampling episode is currently scheduled for January 1997.

Our initial request to allow filtration of metals and radionuclide samples was submitted as part of an annual report and summary of installation of new wells dated October 31, 1994. This was based on our understanding of the results of the filtered/unfiltered analyses from the July 1994 sampling event. Your letter of November 18, 1994 requested two additional pieces of information (QA procedures and well numbers). Our response of November 28, 1994 provided that information; we requested that all wells for both sites which met the >5NTU threshold be allowed to have filtered samples. We also provided excerpts from Orlando Laboratories (the County's new contract laboratory) QA plan. Your letter of March 10, 1995 indicated that field turbidity must be measured on unfiltered samples, that only samples for metals and radionuclides may be filtered and filtration must be done with a 1 micron filter. The latter was based on the Orlando Laboratories QA plan which indicated use of a .45 micron filter. We received revised pages from the lab on March 20, 1995 indicating that they would follow those procedures. We proceeded to implement field filtration of samples which exceed the 5 NTU value.

Over the next six sampling episodes, every well on both sites exhibited turbidity in excess of 5 NTU. None of the wells naturally meet the drinking water standard of 1 NTU. Wells B and C are the cleanest of the wells, with turbidity below 5 NTU on half or more of the sampling episodes. Both have dedicated pumps; all the rest of the wells are sampled by bailing.

Both the presence of turbidity and the sampling mechanism are a reflection of the nature of the geologic units being sampled and well construction. The first occurrence of water in the sediments is usually in a clayey sand/sandy clay at about 105 to 115 feet below land surface. This means that the screened section of the well is open to fine-grained material with low transmissivity; moving water into the well creates high velocities, which moves not only water but aquifer materials into the well. Fine grained material (turbidity) tends to stay suspended in the water that is removed. The depth to water and very low water production rate severely limit the use of sampling pumps, therefore bailers are the appropriate sampling mechanism. Bailers however tend to disturb the material accumulated inside the well and re-suspend it.

The low transmissivity also thwarts attempts to develop the wells. For example, after construction of Well R-1, and after the drilling contractor gave up on all methods he had tried, the County sent a laborer to bail the well. He worked daily for over a month and was able to remove one to two casing volumes each day; the well still produces water with turbidities in excess of the filtration threshold. The worst well onsite exhibited a turbidity of 192 NTU during the last sampling episode. When turbidities reach that level, the lab either cannot perform analyses at all, or has results with very high detection levels.

Review of recent lab reports shows that reported turbidity may not be following guidelines; occasionally the filtered turbidity has been reported as unfiltered or vice versa, and occasionally the unfiltered result has not been reported. The lab has been reminded of the requirements.

Yours truly,

Susan J. Metcalfe

Susan J. Metcalfe, P.G.
Director

CC: Gary Kuhl, Director, Public Works Department
Robert Butera, FDEP, Tampa

DEP FILE

Board of County Commissioners

Department of Public Works

REPLY TO: Solid Waste Management
P.O. Box 340
Lecanto, Florida 34460

July 30, 1996

Allison Amram, P.G.
Solid Waste Section
Department of Environmental Protection
3804 Coconut Palm Dr.
Tampa, Florida 33619

Re: Citrus County Central Landfill
Permit No. SO09-187229, SF09-211030, Pending Permit SO09-274381
Groundwater Monitoring

Dear Ms. Amram:

Citrus County has previously discussed with you the subject of field filtration of groundwater samples. Your August 15, 1995 comments on the pending permit indicated that filtration would need to be conducted according to the January 1994 Technical Document on the subject. We have provided the TD to our laboratory for inclusion in their sampling procedure.

No other requirements were indicated in your comments, therefore, according to my October 16, 1995 letter to you, we have proceeded with those methods to filter groundwater samples for metals analysis.

Please contact me if you have any questions.

Yours truly, .

Susan J. Metcalfe

Susan J. Metcalfe, Director
Division of Solid Waste Management

cc: Gary Kuhl, Dir. Dept. of Public Works

Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

October 30, 1996

Ms. Susan Metcalfe, P.G.
Director, Division of Solid Waste
Management, Citrus County
P.O. Box 340
Lecanto, Florida 34460

Subject: Field Filtering of Groundwater Approval for the Citrus County Central Landfill
Permit No. SO09-274381

Dear Ms. Metcalfe:

The Solid Waste Section of the Florida Department of Environmental Protection (FDEP) has reviewed your October 21, 1996 letter that contained the remaining requirements to demonstrate that field filtration of groundwater samples is appropriate at the site. Field filtration of groundwater samples from the site's monitoring wells is **APPROVED**.

Filtration must be done in accordance with the FDEP's January 1994 technical document Determining Representative Ground Water Samples, Filtered or Unfiltered. Filtering is appropriate for metals and radionuclide samples when the unfiltered turbidity is more than 5 NTUs for samples from unconsolidated aquifers. Filtering must be conducted in the field prior to sample preservation with in in-line molded and disposable 1.0 micron filter unit. Groundwater reports must record the unfiltered turbidity for the sample, and state the filter size.

If you have any questions, please contact me at 813/744-6100, ext. 336.

Sincerely,

Allison Amram

Allison Amram, P.G.
Solid Waste Section

cc: Gary Kuhl, Citrus County Director of Public Works, P.O. Box 187, Lecanto, FL 34460
Kim Ford, P.E., FDEP
Bob Butera, P.E., FDEP

Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

March 10, 1995

Ms. Susan Metcalfe, P.G.
Citrus County
Department of Public Works,
Division of Solid Waste Management
P.O. Box 340
Lecanto, Florida 34460-0340

Subject: Field Filtering of Groundwater Samples
Permit No. SO09-187229

Dear Susan:

The Department has reviewed your November 28, 1994 letter requesting analysis of field filtered groundwater samples from monitoring wells MW-R1, MW-3, MW-4, MW-5, MW-6 and MW-AA.

Collection of field filtered samples must follow the implementation conditions listed in the Department's Technical Document, Determining Representative Ground Water Samples, Filtered or Unfiltered, dated January 1994. If you do not have a copy of this document, please call me and I will send it to you. These conditions include:

1) Measurement of turbidity in the field, from unfiltered samples. If the turbidity exceeds 5 NTU, the groundwater sample may be filtered.

2) Filtering must be conducted with a 1.0 micron filter.

3) Only samples for metals and radionuclide analysis may be field filtered.

Please note that the Quality Assurance Plan for Orlando Laboratories states that a 0.45 micron filter will be used. This is not acceptable; a 1 micron filter must be used for all samples. Orlando Laboratories should contact the Quality Assurance Section of the FDEP at 904/488-2796 to determine if their QA plan should be revised to change the filter size.

Should you have any comments, please contact me at (813) 744-6100, ext. 336.

Sincerely,

Allison Amram

Allison Amram, P.G.
Solid Waste Section

cc: Gary W. Kuhl, P.E., Director of Public Works, Citrus County
R. Alan Doughty, Ph.D., Orlando Laboratories
Sylvia Labie, FDEP/Quality Assurance
Kim Ford, P.E., FDEP/Solid Waste

FILE COPY

DEPARTMENT OF PUBLIC WORKS
DIVISION OF SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway • P.O. Box 340
Lecanto, Florida 34460-0340
(904) 746-5000 • FAX (904) 527-1204

November 28, 1994

Allison Amram, P. G.
Solid Waste Section
Dept. of Environmental Protection
3804 Coconut Palm Drive
Tampa, FL 33619

RE: Citrus County Central Landfill
Field Filtering of Groundwater Samples
Permit #'s SO09-187229 and SF09-211030

Dear Ms. Amram:

Review of previous analyses on groundwater samples from the Citrus County landfill shows all wells have exceeded standards for turbidity. Those which exhibit the highest levels are R-1, 3, 4, 5, 6, and AA. This is to request that, if turbidity standards are to be strictly enforced for compliance, we be allowed to field filter samples from all wells for both permits at this site. Copies of the applicable pages from Orlando Laboratories' Comprehensive QA plan (pages 2 and 3 of 90 from Section 6) are attached as requested. The approval page for their plan is also attached.

Our next scheduled sampling event is in the first week of January, 1995. We will need to inform the laboratory by December 20 if the proposed change to field filtration is to be effective for that sampling event. Thank you for your prompt response to our request.

Sincerely,

Susan J. Metcalfe

Susan J. Metcalfe,
Director

SJM:cms

cc: Gary W. Kuhl, P.E., Dir. Dept. Public Works
Cathy Winter, Solid Waste Technician II

FILE COPY

Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

November 18, 1994

Susan J. Metcalfe, P.G.
Director: Division of Waste Management
P.O. Box 340
Lecanto, FL 34460-0340

RE: **Citrus County Central Landfill**
Field Filtering of Groundwater Samples

Dear Ms. Metcalfe:

The Department has received and reviewed the Annual Groundwater Monitoring Report for Citrus Central Landfill. The report has fulfilled the Department's requirements for annual groundwater monitoring plan evaluation. However, in response to your request on field filtering of groundwater samples; the Department needs the following information:

1. **Please specify each well to be included in the field filtering request**
2. **Include field filtering lab Quality Assurance (QA) procedures**

For your reference, I have attached a copy of the Department's technical document for **Determining Representative Groundwater Samples, Filtered or Unfiltered**. If you should have any questions, please feel free to contact me at (813) 744-6100 x336.

Sincerely,

Allison Amram

Allison Amram, P.G.
Solid Waste Section

Attachment

RECEIVED
NOV 21 1994
CITRUS COUNTY DPW
WASTE MANAGEMENT

WASTE MGT TAMPA SWD ax:8137446125

** Transmit Conf.Report **

P.1 Dec 14 2001 9:31

Telephone Number	Mode	Start	Time	Pages	Result	Note
813525271204	NORMAL	14, 9:22	8'33"	22	* O K	

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
3804 COCONUT PALM DRIVE
TAMPA, FL 33619-8318

FAX

Date: 12/14/01
Number of pages including cover sheet: 22

TO: SUSAN METCALFE
FROM: Tim Ford

PHONE: (352) 7465000
PHONE: (813) 744-6100, x 382

FAX #: (352) 527 1204
FAX #: (813) 744-6125

CC:

REMARKS: ☐ Urgent ☑ For your review ☑ Reply ASAP ☐ Please comment

DRAFT Landfill eps permit renewal
please review and comment -
If ok to issue please call.

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
3804 COCONUT PALM DRIVE
TAMPA, FL 33619-8318

FAX

Date: 12/14/01
Number of pages including cover sheet: 22

TO: SUSAN METCALFE	FROM: Tim Ford
PHONE: (352) 7465000	PHONE: (813) 744-6100, x 382
FAX #: (352) 527 1204	FAX #: (813) 744-6125
CC:	

REMARKS: ☐ Urgent ☑ For your review ☑ Reply ASAP ☐ Please comment

DRAFT Lansdell ops permit renewal
please review and comment -
If ok to issue please call.
Thank you
Tim

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS
SOLID WASTE MANAGEMENT DIVISION
P.O. Box 340, Lecanto, Florida 34460
(352) 746-5000 FAX (352) 527-1204
Citrus Springs/Dunnellon area Toll Free # (352) 489-2120

D.E.P.
DEC 05 2001
Southwest District Tampa

Bob 1/14/02

December 1, 2001

Kim B. Ford, P.E.
Solid Waste Section
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

Re: Citrus County Central Landfill
Permit No. SO09-274381
Permit No. 126601-002 SF

Dear Mr. Ford:

During our discussions related to renewal of the operating permit for this facility, we mentioned the issue of a separate long-term care permit for the 60-acre closed site adjacent to our active landfill. As it currently stands, we have two permits, SO09-274381, an operating permit for the active landfill and 126601-002 SF for the closed site. However, all environmental monitoring for both sites is included in the operating permit. We evaluated three options; keeping the permits "as is", separating the sites and their permits, or combining the permits.

The preference for Citrus County is to combine these permits. We suggest, since the County has a complete application to FDEP for renewal of the operating permit, but the document has not been issued as yet, that we resolve the issue as follows.

- Issue the operating permit for a period of three years (the expected time frame for filling the remaining permitted volume in Phase 1 and 1A).
- Include the specific conditions currently in the long-term care permit in the specific conditions for the new operating permit.
- Allow the County to surrender the long-term care permit as a separate document.
- Allow the County to apply for a minor modification of the operating permit to extend the operating permit period at the time Phase 2 construction is complete.

Sincerely,

Susan J Metcalfe

Susan Metcalfe, Director
Solid Waste Management

CC: Kenneth L. Frink, P.E., Director, Public Works Department
David Keough, Jones, Edmunds and Associates

B^ARD OF COUNTY COMM^SSIONERS
DEPARTMENT OF PUBLIC WORKS
SOLID WASTE MANAGEMENT DIVISION
P.O. Box 340, Lecanto, Florida 34460
(352) 746-5000 FAX (352) 527-1204
Citrus Springs/Dunnellon area Toll Free # (352) 489-2120

COPY
✓ Bob Butera

December 1, 2001

Kim B. Ford, P.E.
Solid Waste Section
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

D.E.P.
DEC 0 5 2001
Southwest District Tampa

Re: Citrus County Central Landfill
Permit No. SO09-274381

Dear Mr. Ford:

This is to inform you that David Chamblin is no longer employed by Citrus County. His replacement has not been hired. In the interim, Henry Kaminski, Heavy Equipment Operator whose normal assignment is not as a supervisor, will occasionally be assigned to act as the trained operator onsite. He will be the official operator only if Susan Metcalfe or Prime DeVaughn are not on duty.

In addition, the monthly material summary report for October and November 2001 have not been prepared or transmitted to Mr. Lee in Tallahassee. Specific Condition 11 requires that such records be compiled monthly and be made available to the Department on request. Please clarify in the new permit language whether the transmittal to Mr. Lee is still required.

If you have any questions, please contact me.

Sincerely,
Susan J Metcalfe
Susan Metcalfe, Director
Solid Waste Management

CC: Kenneth L. Frink, P.E., Director, Public Works Department

B ARD OF COUNTY COMM SIONERS
DEPARTMENT OF PUBLIC WORKS
SOLID WASTE MANAGEMENT DIVISION
P.O. Box 340, Lecanto, Florida 34460
(352) 746-5000 FAX (352) 527-1204
Citrus Springs/Dunnellon area Toll Free # (352) 489-2120

D.E.P.
DEC 05 2001
Southwest District Tampa

Bob

December 1, 2001

Kim B. Ford, P.E.
Solid Waste Section
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

Re: Citrus County Central Landfill
Permit No. SO09-274381
Permit No. 126601-002 SF

Dear Mr. Ford:

During our discussions related to renewal of the operating permit for this facility, we mentioned the issue of a separate long-term care permit for the 60-acre closed site adjacent to our active landfill. As it currently stands, we have two permits; SO09-274381, an operating permit for the active landfill and 126601-002 SF for the closed site. However, all environmental monitoring for both sites is included in the operating permit. We evaluated three options; keeping the permits "as is", separating the sites and their permits, or combining the permits.

The preference for Citrus County is to combine these permits. We suggest, since the County has a complete application to FDEP for renewal of the operating permit, but the document has not been issued as yet, that we resolve the issue as follows.

- Issue the operating permit for a period of three years (the expected time frame for filling the remaining permitted volume in Phase 1 and 1A).
- Include the specific conditions currently in the long-term care permit in the specific conditions for the new operating permit.
- Allow the County to surrender the long-term care permit as a separate document.
- Allow the County to apply for a minor modification of the operating permit to extend the operating permit period at the time Phase 2 construction is complete.

Sincerely,

Susan J Metcalfe

Susan Metcalfe, Director
Solid Waste Management

CC: Kenneth L. Frink, P.E., Director, Public Works Department
David Keough, Jones, Edmunds and Associates

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS
SOLID WASTE MANAGEMENT DIVISION

P.O. Box 340, Lecanto, Florida 34460
(352) 746-5000 FAX (352) 527-1204
Citrus Springs/Dunnellon area Toll Free # (352) 489-2120

SIS
SM
JRM

D.E.P.
DEC 05 2001
Southwest District Tampa

Bob
Susan

December 1, 2001

Kim B. Ford, P.E.
Solid Waste Section
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

Re: Citrus County Central Landfill
Permit No. SO09-274381

Dear Mr. Ford:

This is to inform you that David Chamblin is no longer employed by Citrus County. His replacement has not been hired. In the interim, Henry Kaminski, Heavy Equipment Operator whose normal assignment is not as a supervisor, will occasionally be assigned to act as the trained operator onsite. He will be the official operator only if Susan Metcalfe or Prime DeVaughn are not on duty.

In addition, the monthly material summary report for October and November 2001 have not been prepared or transmitted to Mr. Lee in Tallahassee. Specific Condition 11 requires that such records be compiled monthly and be made available to the Department on request. Please clarify in the new permit language whether the transmittal to Mr. Lee is still required.

If you have any questions, please contact me.

Sincerely,

Susan J. Metcalfe

Susan Metcalfe, Director
Solid Waste Management

CC: Kenneth L. Frink, P.E., Director, Public Works Department

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

Ms. Susan J. Metcalfe, P.G., Director
Citrus County Solid Waste Division
PO Box 340
Lecanto, Fl. 34460-0340

November 21, 2001

RE: Citrus County Landfill Financial Assurance Cost Estimates
Pending Permit No.: 21375-003-SO, Class I, Phases 1 & 1A

Dear Ms. Metcalfe:

This letter is to acknowledge receipt of the revised cost estimates prepared by Jones, Edmunds & Associates, Inc., dated October 30, 2001 (received October 31, 2001), for closing and long-term care of the Citrus County Landfill (Phases 1, 1A and old closed 60 acres). The cost estimates received October 31, 2001 (closing $2,363,996 and long-term care $227,666/year x 30 years=$6,829,977), are **APPROVED for 2001**. The next annual update (revised or inflation-adjusted estimates) is due no later than **September 1, 2002**. The estimates submitted are approved. However, please note that it has been the Department's experience that leachate generation may not decrease linearly to 28,000 gallons per year for this size site in only three years. Department files indicate that a similarly lined and closed Class I landfill (approximately 14 acres) in the Southwest District generated approximately 140,000 gallons of leachate in 2000, 5 years after final closure. Please review this item and revise as appropriate for the next annual update.

A copy of these estimates will be forwarded to Mr. Fred Wick, Solid Waste Section, FDEP, 2600 Blair Stone Road, Tallahassee, Florida 32399-2407. Please work with him directly to assess the facility's compliance with the funding mechanism requirements of Rule 62-701.630, F.A.C. If you have any questions, you may contact me at (813) 744-6100 ext. 386.

Sincerely,

Susan J. Pelz, P.E.
Solid Waste Section
Southwest District

sjp
cc: David A. Keogh, P.E., JEA, 730 NE Waldo Road, Bldg. A., Gainesville, Fl. 32641
Fred Wick, FDEP, Tallahassee, w/attachment
Robert Butera, P.E., FDEP Tampa
Kim Ford, P.E., FDEP Tampa

Environmental Consultants

3012 U.S. Highway 301 No.
Suite 700
Tampa, FL 33619-2242

813 621-0080
FAX 813 623-6757

SCS ENGINEERS

November 19, 2001
File No. 09199056.02

Bob comments?
tm

RECEIVED
NOV 19 2001
Department of Environmental Protection
SOUTHWEST DISTRICT
BY _____

Mr. Kim Ford, P.E.
Solid Waste Permitting
Florida Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, FL 33619

Subject: Citrus County Central Landfill - Phase 2 Expansion

Dear Kim:

On behalf of Citrus County, SCS Engineers (SCS) is pleased to provide this letter to summarize the key design issues for the proposed Phase 2 waste disposal cell. This is provided in advance of our meeting with the Department on November 20, 2001, in order to facilitate discussion on relevant issues to the design and operational elements of the Phase 2 cell.

The key issues include the following:

LANDFILL GEOTECHNICAL INVESTIGATION

SCS has proposed a geotechnical investigation of the proposed Phase 2 cell area that meets the intent of the regulations. However, SCS is aware of the limitations of conventional drilling programs and the difficulties that were experienced when a limestone boulder was unexpectedly encountered in the construction of the liner in the Phase 1 cell.

As a result, SCS and the County have discussed options for effectively managing a similar occurrence in Phase 2. SCS proposes to address this potential problem through the assessment of the results of the geotechnical investigation and use of specific provisions in the construction specifications that address this type of situation, including supplemental pricing for dealing with unsuitable site conditions including discovery of rock. The remedy shall, in general, include over-excavation of the rock and backfilling and compacting with appropriate soil type.

STEEPNESS OF LANDFILL SIDE SLOPES

SCS is aware of the previous failure of the primary HDPE cell liner in Phase 1 and the probable cause, which points to a significant manufacturing defect in the liner. This incident notwithstanding, SCS anticipates that a side slope of 2:1 will likely result in satisfactory performance of the proposed HDPE liner system in Phase 2.

A comprehensive geotechnical investigation was conducted in the area of the proposed Phase 2 cell and will be used to characterize soils and key strength properties, confirm appropriate

cell side slopes, slope breaks if necessary, and related design features of the liner system. A slope stability analysis will be conducted using the site specific information as well as the proposed geosynthetic materials profile. Our preliminary analysis indicate that a satisfactory factor of safety can be achieved with the 2:1 side slopes.

SCS will work with the County on a plan for placement of protective cover soil, construction of refuse buttress, and placement and compaction of refuse on the side slopes so that the risk of a slope failure is minimized.

CAPACITY AND LIFE EXPECTANCY OF PHASE 2 CELL

The proposed approximate capacity of the Phase 2 cell is 1,000,000 tons at an intermediate elevation of 195.0. Based on an annual waste volume of approximately 82,000 tons in 2001 and a growth rate of 4 percent, the cell should provide more than five years of capacity.

LANDFILL LINER SYSTEM AND LEACHATE COLLECTION SYSTEM

The proposed preliminary bottom liner system will consist of a primary liner constructed of 60-mil HDPE, overlain by a drainage net. The drainage net will have a geotextile cover on the top side to prevent the overlying sand layer from clogging the net. The net will be overlain with 2 feet of coarse sand to protect it from the first lift of refuse.

Beneath the primary liner will be a leachate detection zone consisting of a drainage net. The net will lie on top of the secondary liner. The secondary liner will consist of a 60-mil HDPE liner laid directly on a 6-inch thick, prepared soil sub-base, which has been compacted to achieve a permeability of equal to or less than 1×10^{-5} cm/sec.

The proposed lining system design is contingent on the results of the geotechnical investigation and may be modified based on those findings and recommendations. Landfill sideslope lining will be as described below in the next section.

A sump, separate from Cells and 1A will be provided in the Phase 2 cell for collection of leachate from the primary leachate collection system and the leachate detection system. The sump will be equipped with submersible pumps that will discharge leachate into the existing leachate force main connected to the existing leachate storage tanks.

LANDFILL SIDE SLOPE SUBBASE DESIGN EXEMPTION

The County wishes to propose an exemption to Rule 62-701.400(3)c (i.e. provisions for at least a 6-inch thick lining sub-base with a maximum hydraulic conductivity of 1×10^{-5} cm/sec.) for the landfill side slopes. The exemption request would be similar to that reviewed and accepted by the FDEP for the Phase 1 A cell and would include a demonstration with

appropriate back-up that an alternate design consisting of a primary and secondary HDPE liner system laid directly on prepared, naturally-occurring soil will provide equivalent performance to that required by Rule.

PRIMARY LINER EXPOSURE

Significant sections of HDPE bottom liner will be exposed to the elements and will not receive waste for several years. SCS is assessing the need to protect the primary liner from the effects of weathering, primarily UV exposure, until it is covered with waste.

REFUSE VEHICLE ACCESS TO CELL

Initial filling of the Phase 2 cell is expected to be from the south with solid waste vehicles crossing over the existing Phase 1 and 1A cells to reach the tipping area. Filling of the cell will be from top to bottom. Later, as filling progresses, an additional access road will be constructed from the north to provide access to the fill from the bottom to top of the cell.

LEACHATE RECIRCULATION

Citrus County is considering the feasibility of recirculating collected leachate through the refuse in the proposed Phase 2 cell, as well as existing Phase 1 and Phase 1A lined cells. The goal would be to construct the necessary design features and operate the cells so that a reduction of the volume of leachate that ultimately must be treated is achieved.

LEACHATE TREATMENT PLANT FLOWS

Currently, the leachate treatment plant is operating at up to 30 percent capacity. The County has on its Landfill staff an experienced operator who oversees the plant's daily operation and maintenance needs.

A preliminary estimate of leachate flow from the Phase 2 cell, based on operating records for Phases 1 and 1A, is anticipated to bring the plant flows up to approximately 45 percent of capacity.

STORM WATER RUNOFF MANAGEMENT

Provisions will be made to collect and properly dispose of clean storm water runoff from waste-filled areas of the proposed cell that receive proper cover. The County will construct a temporary, un-lined basin adjacent to the Phase 2 cell that will be used for this purpose until the next cell comes on-line. The basin will be equipped with dual pumps that will discharge the water to the main drainage ditch on the east side of the landfill. This ditch drains to the main retention pond on the south end of the 80-acre site.

Once the surface of the waste and cover soil is higher than the perimeter ditch, some of the clean runoff from the cell will be diverted with cut-off berms and ditches directly to the main east and west ditches.

STORM WATER MANAGEMENT WITHIN CELL

During the placement of the initial lift of refuse, the proposed Phase 2 cell will be sectioned-off to maximize segregation of clean runoff from areas where refuse has not been placed, and leachate from areas that have had refuse deposited. The clean runoff will be discharged from the cell through a temporary sump pump and pipeline and into the east ditch for disposal. The leachate will be directed to the cell for transmission to the leachate treatment plant.

SCS is working with the County on various options for segregating the cell as waste is deposited including placing a temporary raintarp over a portion of the cell.

INTERMEDIATE AND FINAL CELL ELEVATIONS

The proposed intermediate height of the Phase 2 cell is approximately elevation 195.0, which is about 75 feet above natural land surface. The final elevation is predicated on the construction of the Phase 3 cell and is elevation 220.0, or about 100 feet above natural land surface. Both intermediate and final closure elevations will be achieved with maximum landfill side slopes of 3:1.

We look forward to meeting with the Department and discussing the County's proposed landfill expansion. Please call us if you have any questions.

Very truly yours,

John A. Banks, P.E.
Project Manager
SCS ENGINEERS

Raymond J. Dever, P.E., D.E.E
Vice President
SCS ENGINEERS

cc: Susan J. Metcalfe, P.G., Citrus County

Ford, Kim

From: Butera, Robert
Sent: Wednesday, November 14, 2001 3:10 PM
To: Ford, Kim; Morris, John R.; Pelz, Susan
Subject: RE: Pending Permit Applications to be deemed "COMPLETE"

Kim, I believe JM has provided you with the conditions for the Citrus County OPS Renewal. I will send an e-mail to CM on Mc Kay Bay but do brief me on what may be needed from staff for Pembroke that I do not know about.

-----Original Message-----
From: Ford, Kim
Sent: Wednesday, November 14, 2001 2:19 PM
To: Butera, Robert; Morris, John R.; Pelz, Susan
Subject: Pending Permit Applications to be deemed "COMPLETE"

Listed below are 3 applications to be deemed complete:

1. Citrus County operation permit renewal - draft permit provided to John Morris- awaiting GW conditions.
2. McKay Bay Refuse to Energy Operation permit modification- revised conditions faxed to Chris McGuire on November 6th due to ojections to draft permit permit by Dan Strobridge of CDM- awaiting reponse from Chris McGuire.
3. Pembroke Class III asbestos LF Closure Permit application.

I am satisfied that I have everything I need to issue these permits and do not intend to request any additional information. Any objections?

Ford, Kim

From: Morris, John R.
Sent: Wednesday, November 14, 2001 2:21 PM
To: Ford, Kim; Butera, Robert; Pelz, Susan
Subject: RE: Pending Permit Applications to be deemed "COMPLETE"

No objections from my perspective.

-----Original Message-----
From: Ford, Kim
Sent: Wednesday, November 14, 2001 2:19 PM
To: Butera, Robert; Morris, John R.; Pelz, Susan
Subject: Pending Permit Applications to be deemed "COMPLETE"

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I am satisfied that I have everything I need to issue these permits and do not intend to request any additional information. Any objections?

Jones Edmunds & Associates, Inc.
CONSULTING ENGINEERS AND SCIENTISTS
JEA

RECEIVED
OCT 17 2001
Department of Environmental Protection
SOUTHWEST DISTRICT
BY _____

October 16, 2001

Mr. Kim B. Ford, P.E.
Solid Waste Section
Division of Solid Waste Management
Florida Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619-8318

RE: Citrus County Landfill
JEA Project No.: 03860-005-01

Dear Mr. Ford:

This letter is in response to your letter to Ms. Susan Metcalfe dated October 8, 2001 and the memorandum to you from Mr. John R. Morris, P.G. dated October 5, 2001. Attached is the revised Section 3.2 of the *Groundwater and Leachate Monitoring Plan Review*, as requested by Mr. John Morris. Also attached to this letter are the revised sections of the *Citrus County Central Class I Landfill Operations Plan*, as requested by Mr. Kim Ford, P.E. These sections include Section 2.0, Section 7.1 (page 7-1), Figure 7-1, and Section 9.0.

If you have any questions, please call me (352/377-5821, ext. 1257) or Mickey Pollman (ext. 1292).

Sincerely,

David Keough, P.E.
Vice President
P.E. No.: 33164

DAVID A. KEOUGH
CERTIFICATE
NO. 33164
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Attachments: Letter dated October 8, 2001
Sections of the *Citrus County Central Class I Landfill Operations Plan*
Memorandum dated October 5, 2001
Section 3.2 of the *Groundwater and Leachate Monitoring Plan Review*

xc: Susan Metcalfe, P.G., Citrus County
Mickey Pollman, JEA

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Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

October 8, 2001

RECEIVED
OCT 17 2001
Department of Environmental Protection
BY SOUTHWEST DISTRICT

Ms. Susan Metcalfe, P.G.
Citrus County
Solid Waste Management
PO Box 340
Lecanto, FL 34460

Re: Citrus County Central Landfill
Pending Permit No.: #21375-003-SO, Citrus County

Dear Ms. Metcalfe:

This is to acknowledge receipt of additional information in support of your permit renewal application, received September 10, 2001 for operation of the Citrus County Central Landfill.

This letter constitutes notice that a permit will be required for your project pursuant to Chapter(s) 403, Florida Statutes.

Your permit application remains incomplete. This is the Department's 3rd request for additional information. Please provide the information listed below promptly. Evaluation of your proposed project will be delayed until all requested information has been received.

The following information is needed in support of the solid waste applications [Chapters 62-701, Florida Administrative Code (F.A.C.)]. Please provide:

1. **62-701.500(2)(g).** Revision to Section 7.1 of the Operations Plan is requested to delete reference to a 10-ton compactor. Equipment specifications indicate the compactor weight is more than 35 tons.

2. **62-701.500(7)(c).** Figure 7-1 should be revised to show no steeper than 3 to 1 slopes for the previously placed daily cover over the working face.

3. **62-701.500(9).** Revisions to Sections 9.0, 9.1, and 9.2 of the Operations Plan are requested to correctly reference the current LFG Monitoring Plan and delete unclear and conflict descriptions, or to provide a new plan. If the LFG Monitoring Program by CH2M Hill that was received by the Department on October 22, 1996 is still valid, then Section 9.0 may simply reference this plan and attach it as an appendix to the Operations Plan.

Ms. Susan Metcalfe, P.G.
Citrus County

October 8, 2001
Page 2

4. 62-701.510. A response to Mr. John Morris' October 5, 2001 memorandum (attached). You may call Mr. Morris at (813) 744-6100, extension 336 to discuss this item.

Please provide all responses that relate to engineering required for design and operation, signed and sealed by a professional engineer. All descriptions of operational procedures provided as part of responses should be included as revisions to the Operations Plan and provided on replacement pages with the date of revision.

"NOTICE! Pursuant to the provisions of Section 120.60, F.S., if the Department does not receive a response to this request for information within 90 days of the date of this letter, the Department may issue a final order denying your application. You need to respond within 30 days after you receive this letter, responding to as many of the information requests as possible and indicating when a response to any unanswered questions will be submitted. If the response will require longer than 30 days to develop, you should develop a specific time table for the submission of the requested information for Department review and consideration. Failure to comply with a time table accepted by the Department will be grounds for the Department to issue a Final Order of Denial for lack of timely response. A denial for lack of information or response will be unbiased as to the merits of the application. The applicant can reapply as soon as the requested information is available."

Please submit your response to this letter as one complete package. On all future correspondence, please include Robert Butera on distribution. If you have any questions you may call me at (813) 744-6100, extension 382.

Sincerely,

Kim B. Ford, P.E.
Solid Waste Section
Division of Waste Management

KBF/ab
Attachment

cc: David A. Keough, P.E, Jones, Edmunds & Associates
Robert Butera, P.E., FDEP Tampa
John Morris, P.G., FDEP Tampa

Florida Department of
Environmental Protection

Memorandum

TO:	Kim Ford, P.E.
FROM:	John R. Morris, P.G. JRM
DATE:	October 5, 2001
SUBJECT:	Citrus County Central Class I Landfill Permit Renewal Pending Permit No. 21375-003-SO Hydrogeologic and Monitoring Review Comments
cc:	Robert Butera, P.E.

I have reviewed the following document that was submitted in response to the Department's request for additional information in support of the operating permit renewal application for the referenced facility:

- *Citrus County Class I Landfill, Operation Permit Renewal, Response to FDEP RAI #2,* prepared by Jones, Edmunds & Associates, Inc. (JEA), dated September 2001, received September 10, 2001

My review focused on the hydrogeologic and monitoring aspects of the permit renewal. Responses were provided to review comment Nos. 14, 15.a., and 15.e., as requested in my previous memorandum dated August 16, 2001. The submitted revisions adequately address the review comments and meet the requirements of Rule 62-701.510, F.A.C.

However, it is noted that Attachment 2.1 of the submittal (Section 3.2 of the document entitled *Groundwater and Leachate Monitoring Plan Review Revisions*) appears to have deleted the text that described the fourth proposed change to the leachate effluent monitoring (chlorine residual). Based on my telephone conversation with Susan Metcalfe, Section 3.2 will be revised to include the inadvertently omitted text and the revised pages will be submitted by facsimile. Provided that this revision to Section 3.2 is received, I have no additional comments that must be addressed by the applicant.

jrm

Site Background Wells	Detection Wells	Intermediate Wells	Compliance Wells
MW-1R	MW-8	MW-6	MW-E
MW-2	MW-9		
MW-3	MW-AA	Piezometers	
MW-7	MW-B	MW-4	
	MW-C	MW-5	
	MW-D		

The second proposed modification is that groundwater samples collected from monitoring well MW-6 be analyzed for THM and fecal coliform on a semiannual basis in addition to the current parameters listed in Table 2.

Groundwater monitoring will be continued on a semiannual basis with reports submitted to DEP.

3.2 LEACHATE

One modification to the existing Leachate influent monitoring scheme is proposed at this time. Per pending revisions to Rule 62-701.510(6)(c), F.A.C., leachate influent shall be sampled on an annual basis for the parameters listed in Rule 62-701.510(8)(c) and (8)(d) with reports submitted to DEP.

Several modifications to the existing Leachate effluent monitoring scheme are proposed at this time. The first proposed modification is that the analysis of Total Trihalomethanes (THM) within the leachage effluent be changed from the quarterly to semiannual. In addition to semiannual THM monitoring of the leachate effluent, monitoring of THM will be added to the semiannual groundwater analyses performed on samples collected from MW-6, as discussed in Section 3.1. The semiannual sampling of leachate effluent and MW-6 for THM should be performed on the same schedule to allow for comparison. Based on the horizontal distance between the infiltration ponds and the edge of the zone of discharge (approximately 1,200 feet) and the vertical distance between land surface and the water table surface (approximately 100 feet of sands) monitoring of THM within MW-6 should be adequate to detect any potential impacts to groundwater quality. The second proposed modification is that the weekly fecal coliform sampling be removed from the leachate effluent requirements. As discussed in Section 3.1, monitoring of fecal coliforms will be added to the semiannual analyses performed on samples collected from MW-6. Monitoring of fecal coliforms within MW-6 should be adequate to detect any potential impacts to groundwater quality. The third proposed modification is that the quarterly requirement to analyze for metals (Arsenic, Barium, Cadmium, Chromium, Iron, Mercury, Lead, Selenium, and Silver) be reduced to annual. These metals are monitored on a semiannual basis within groundwater samples collected from all on-site monitoring wells, which provides adequate data to evaluate potential impacts to groundwater quality. The fourth proposed modification is that the daily requirement to sample for chlorine residual be removed from the leachate effluent monitoring requirements. This parameter is applicable to sources that may be expected to contain fecal matter associated with human activity. The leachate effluent is not excepted to contain such material; therefore, sampling for chlorine residual is not warranted.

The final proposed modification is that the annual requirement to analyze Leachate effluent for the parameters listed in 40 CFR Part 258 Appendix II be changed to Appendix I. Within 180 days of the permit expiration, leachate effluent will be sampled and analyzed for the parameters listed in 40 CFR Part 258 Appendix II. No other modifications to the existing Leachate effluent monitoring scheme are proposed at this time.

Jones Edmunds & Associates, Inc.
CONSULTING ENGINEERS AND SCIENTISTS
JEA

RECEIVED
OCT 17 2001
Department of Environmental Protection
SOUTHWEST DISTRICT
BY _____

October 16, 2001

Mr. Kim B. Ford, P.E.
Solid Waste Section
Division of Solid Waste Management
Florida Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619-8318

RE: Citrus County Landfill
JEA Project No.: 03860-005-01

Dear Mr. Ford:

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If you have any questions, please call me (352/377-5821, ext. 1257) or Mickey Pollman (ext. 1292).

Sincerely,

David Keough, P.E.
Vice President
P.E. No.: 33164

Attachments: Letter dated October 8, 2001
Sections of the *Citrus County Central Class I Landfill Operations Plan*
Memorandum dated October 5, 2001
Section 3.2 of the *Groundwater and Leachate Monitoring Plan Review*

xc: Susan Metcalfe, P.G., Citrus County
Mickey Pollman, JEA

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730 NE Waldo Road, Bldg. A • Gainesville, Florida 32641 • Telephone (352) 377-5821 • FAX (352) 377-3166

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

October 8, 2001

RECEIVED
OCT 17 2001
Department of Environmental Protection
BY SOUTHWEST DISTRICT

Ms. Susan Metcalfe, P.G.
Citrus County
Solid Waste Management
PO Box 340
Lecanto, FL 34460

Re: Citrus County Central Landfill
Pending Permit No.: #21375-003-SO, Citrus County

Dear Ms. Metcalfe:

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2. 62-701.500(7)(c). Figure 7-1 should be revised to show no steeper than 3 to 1 slopes for the previously placed daily cover over the working face.

3. 62-701.500(9). Revisions to Sections 9.0, 9.1, and 9.2 of the Operations Plan are requested to correctly reference the current LFG Monitoring Plan and delete unclear and conflict descriptions, or to provide a new plan. If the LFG Monitoring Program by CH2M Hill that was received by the Department on October 22, 1996 is still valid, then Section 9.0 may simply reference this plan and attach it as an appendix to the Operations Plan.

4. 62-701.510. A response to Mr. John Morris' October 5, 2001 memorandum (attached). You may call Mr. Morris at (813) 744-6100, extension 336 to discuss this item.

Please provide all responses that relate to engineering required for design and operation, signed and sealed by a professional engineer. All descriptions of operational procedures provided as part of responses should be included as revisions to the Operations Plan and provided on replacement pages with the date of revision.

"NOTICE! Pursuant to the provisions of Section 120.60, F.S., if the Department does not receive a response to this request for information within 90 days of the date of this letter, the Department may issue a final order denying your application. You need to respond within 30 days after you receive this letter, responding to as many of the information requests as possible and indicating when a response to any unanswered questions will be submitted. If the response will require longer than 30 days to develop, you should develop a specific time table for the submission of the requested information for Department review and consideration. Failure to comply with a time table accepted by the Department will be grounds for the Department to issue a Final Order of Denial for lack of timely response. A denial for lack of information or response will be unbiased as to the merits of the application. The applicant can reapply as soon as the requested information is available."

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Sincerely,

Kim B. Ford, P.E.
Solid Waste Section
Division of Waste Management

KBF/ab
Attachment

cc: David A. Keough, P.E, Jones, Edmunds & Associates
Robert Butera, P.E., FDEP Tampa
John Morris, P.G., FDEP Tampa

2.6 METHOD AND SEQUENCING OF FILLING WASTES (62-701.500(2)(f), FAC)

Historical and projected waste volumes are summarized in Table 2-2. Historical volumes are consistent with the known waste volumes in the Citrus County Central Landfill, projected volumes have been estimated using the most recent population projections.

Table 2-2 Summary of Filling Sequences for Phase 1 and 1A

Time Interval	Population Projection*	Volume (tons)†	Volume (cy)‡	Volume Remaining (cy)§
0	--			758,477
97-'98	111,068	58,325	89,731	668,746
98-'99	113,358	75,030	115,431	643,046
99-'00	115,608	80,803	124,312	544,434
00-'01	118,085	81,242	124,988	419,445
01-'02	120,388	82,827	127,426	292,019
02-'03	122,691	84,411	129,864	162,156
03-'04	124,994	85,996	132,301	29,854
04-'05	127,297	87,580	134,739	0

* Based on BEBR medium population projections May 2001, except 2000-2001 – based on actual census (www.floridacensus.com).

† Based on actual measured values until 2000-2001. Then based on population projections and 0.688 tons/year per capita trash production.

‡ Based on average trash density of 1300 pounds/cubic yard.

§ Based on volume of Phase 1 and 1A of 758,477 cubic yards.

2.7 WASTE COMPACTION AND APPLICATION OF COVER (62-701.500(2)(g), FAC)

2.7.1 Method of Filling Wastes/Compaction

The procedure for filling and compacting of the initial waste lifts over the remaining areas of exposed liner will be as follows:

- To protect the integrity of the leachate collection system and liner, driving vehicles directly over the liner will be prohibited.
- The liner will be covered with a minimum of two (2) feet of protective soil at least one week prior to the placement of waste.
- The protective soil layer is carefully placed on the liner using low ground pressed tracked dozer approximately 1 week prior to the placement of waste. The equipment operator is directed by a spotter to ensure that the soil is placed correctly and that the equipment does not come in contact with the liner. The 2-foot minimum in-place thickness of the protective soil layer is verified by the landfill operator.

- The landfill spotter directs equipment away from the side slope liner during normal operations.
- The initial lift of waste will be 4 feet thick and selected for material that will not cause damage to the liner. The initial lift of waste will be spread with equipment that will preserve the integrity of the liner system.

The procedures for filling and compacting all waste will be as follows:

- Waste will be placed against the working face of the previous day's waste, so that the first row will act as a means of access and a berm to guide the placement of waste material for the remaining rows.
- The waste will be spread and completed in 2-foot lifts and compacted to approximately 1 foot in thickness by a minimum of five passes using a landfill compactor.

2.7.2 Daily and Intermediate Cover

Cover material will be utilized to minimize vector breeding, animal attraction, and fire potential, as well as to prevent blowing litter and control odors. The intermediate cover will comprise soil from the on-site stockpile and 4 to 8 inches of mulch for erosion control and slope stabilization. Daily cover will be composed of soil from the on-site stockpile or synthetic materials such as tarps and geomembranes. Daily soil cover will be placed and compacted to a minimum thickness of 6 inches. The intermediate soil cover will be placed and compacted to a minimum thickness of 12 inches. Mulch is from on-site recycled yard waste.

2.7.3 Final Cover

The final cover system will be designed in accordance with Rule 62-701.600(5), FAC. The final cover will be placed on the intermediate cover as phases of the facility are closed. The conceptual final cover system for landfill closure, from top to bottom includes the following:

- 4-inch layer of top soil material with surface vegetation
- 20-inch soil layer
- Composite drainage net layer (geosynthetic filter fabric with drainage net)
- 40-mil textured geomembrane

2.8 OPERATION OF GAS, LEACHATE, AND STORMWATER CONTROLS (62-701.500(2)(h), FAC)

2.8.1 Landfill Gas Controls

Passive gas vents will be installed as part of final closure for the landfill. The operations plan will be updated at that time to provide operation and maintenance of the landfill gas controls.

2.8.2 Leachate Controls

Leachate is collected by a leachate collection and transfer system. The leachate is conveyed by gravity to a leachate sump located as shown in the Citrus County Central Landfill Phase 1 and 1A Expansion Construction Plan Sets. Collected leachate is pumped from the leachate sump in the landfill to a wet well and then pumped to an existing leachate storage tank. Additional information is provided in Section 8.0 of this operations plan.

Leachate generation will be minimized by only operating a single working face and keeping the working face as small as possible. Daily and/or intermediate cover will be placed with slopes to promote stormwater runoff. The mixing of stormwater with leachate will be minimized by grading the daily and/or intermediate cover away from the working face and by using soil berms to direct stormwater run off away. Gutters and lined conveyance ditches will also be used to collect and transport stormwater to stormwater management facilities.

2.8.3 Stormwater Controls

Operation of the existing stormwater system is discussed in Section 10.0 of this operations plan. The stormwater system will be managed as required by 62-701.500(10) FAC to meet applicable standards for 62-302 FAC and 62-330 FAC. The system shall minimize stormwater from entering waste filled areas and avoid the mixing of stormwater with leachate. All stormwater conveyances shall be inspected at least weekly to verify adequate performance. Conveyances not performing adequately will be repaired within three (3) working days. Documentation of all inspections and repairs will be kept on file at the landfill office.

2.9 WATER QUALITY MONITORING (62-701.500(2)(i), FAC)

Groundwater, surface water, and leachate monitoring will be conducted as described in the Citrus County Central Landfill Phase 1 and 1A Groundwater and Leachate Monitoring Plan Review, which is kept in the landfill office.

2.10 MAINTAINING AND CLEANING THE LEACHATE COLLECTION SYSTEM (62-701.500(2)(j), FAC)

The leachate system at the landfill consists of collection, storage, treatment, and disposal facilities for the closed portion and the Phase I and IA active portion of the landfill. Maintenance of the leachate system facilities is performed as specified in the manufacturer's manuals kept on file in the landfill office. See Section 8.2 for a description of the operation and maintenance procedures. Inspection and cleaning of the system will be performed every 5 years. Inspection of storage and treatment tanks will be performed every 3 years.

7.0 WASTE HANDLING REQUIREMENTS (62-701.500(7), FAC

The following description represents waste handling requirements as required by Chapter 62-701.500(7). Citrus County will meet or exceed the requirements at all times to minimize the potential adverse impacts to employees or public health or safety.

7.1 WASTE THICKNESS AND COMPACTION FREQUENCIES (62-701.500(7)(a), FAC)

The waste material will be spread in layers of approximately two feet in thickness and compacted to approximately one foot in thickness by a minimum of 5 passes using a landfill compactor before the next layer is applied.

7.2 FIRST LAYER (62-701.500(7)(b), FAC

The liner is characterized by a relatively flat bottom area; side slopes at approximately a 2 horizontal to 1 vertical slope, and a northern berm at approximately a 3 horizontal to 1 vertical slope (reference the Phase 1 and 1A Expansion Construction Plans). Prior to placing waste on the landfill side slopes and interior of the northern berm, a minimum of two feet of protective soil material will be placed on the liner. Required material properties are included in the Phase 1 and 1A Expansion Technical Specifications. In addition, the geomembrane stormwater diversion sheet on the side slopes of the landfill must be removed and raised as protective soil material is placed on the side slopes. The protective soil material must be placed directly on the underlying geogrid (reference the liner section in the Phase 1 and 1A Expansion Construction Plans). The raised geomembrane stormwater diversion sheet will be used to form lined stormwater conveyance ditches.

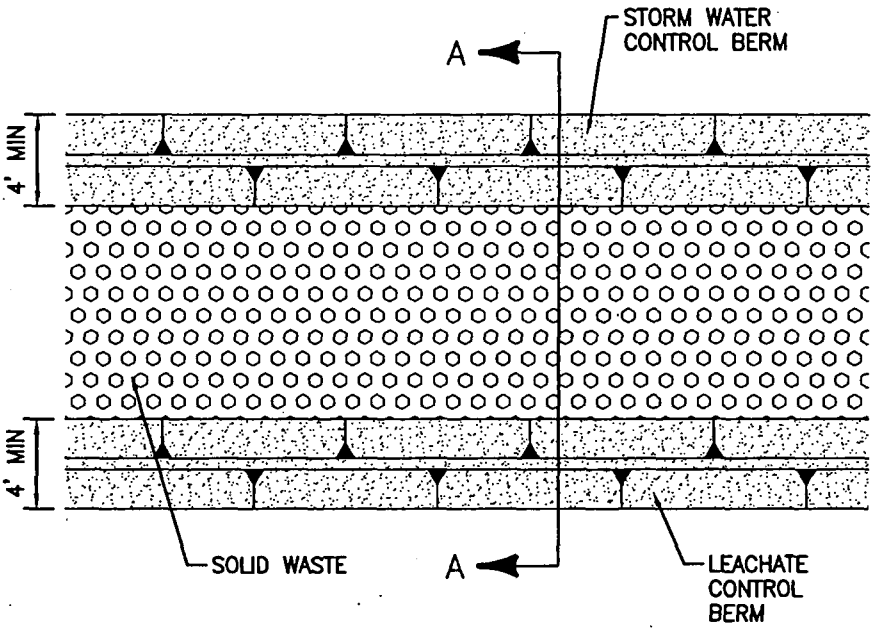
The first lift of material placed above the liner and leachate collection system will be a minimum of four feet in thickness before conventional compacting and heavy equipment are used. Waste loads in this first lift will be screened for any materials that would damage the liner.

7.3 SLOPES OF WORKING FACE (62-701.500(7)(c), FAC)

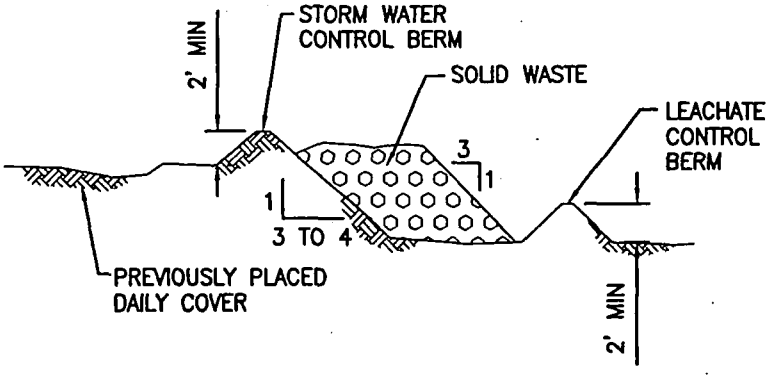
The working face will be sloped at a maximum of 3 feet horizontal to one-foot vertical rise. The lift depth will be a minimum of 10 feet. A plan and cross-section of a typical working face is shown on Figure 7-1.

7.4 WIDTH OF WORKING FACE (62-701.500(7)(d), FAC)

The working face will be wide enough to safely accommodate vehicles, unloading materials, and compacting equipment. Since the waste requires daily cover, the width of the working face will be minimized.



PLAN
NTS



SECTION A–A
NTS

Figure 7–1
Typical Working Face

9.0 LANDFILL GAS MONITORING (62-701.500(9), FAC

This landfill gas (LFG) monitoring program for the Citrus County Central Landfill has been prepared in accordance with the provision of Rule 62-701.530, FAC. This plan includes measures of comprehensive monitoring of LFG from the existing landfill (Phase 1/1A) and the closed 60-acre landfill (located adjacent to and west of the existing landfill).

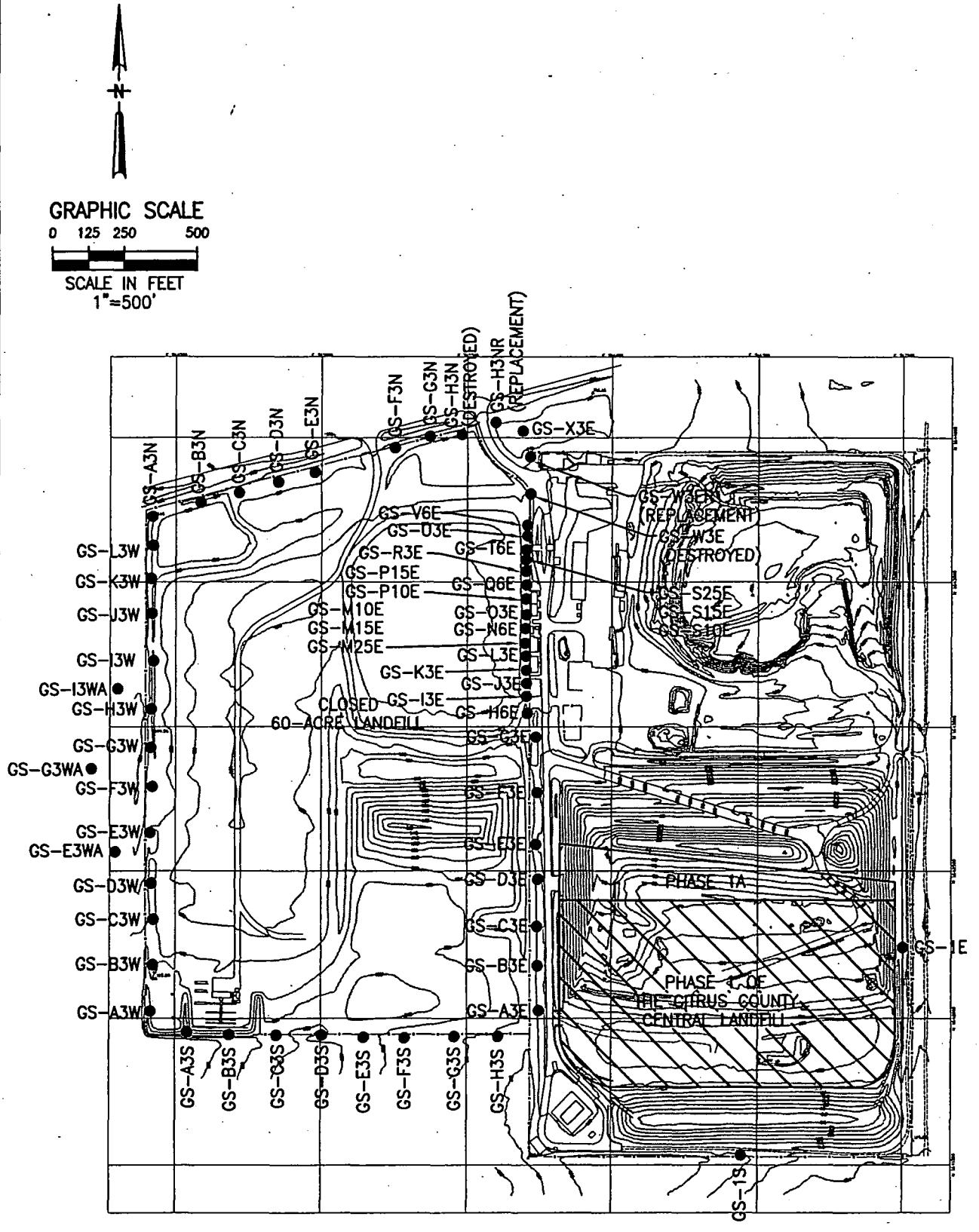
The Phase 1/1A landfill has a geomembrane bottom liner. The bottom depth of refuse in the existing landfill is approximately 80 feet below ground surface. Groundwater is approximately 100 feet from the surface. The soil at the site is primarily silty and clayey sand. Based on experience with other landfills, the geomembrane liner can be expected to serve as an effective barrier and prevent LFG from migrating into the adjacent soils. Therefore, LFG migration is not anticipated from the existing landfill.

The closed 60-acre landfill is unlined. This landfill has been closed and capped with a geosynthetic membrane and protective soil cover. During operation, solid waste was placed in excavations up to approximately 40 feet below ground surface. Subsurface gas migration has been detected in shallow landfill gas monitoring probes to the west and south of the closed landfill, as well as to the east of the closed landfill where the phase 1/1A landfill currently exists.

Landfill gas has also been detected in several buildings at the facility. Historically, gas migration in buildings has been most prevalent along the eastern boundary of the closed landfill adjacent to the scale building and treatment plant. Landfill gas has the potential to enter these structures through underground electrical conduits. Since December 1992, LFG levels have been monitored in several of the facility structures, and preventive measures have been implemented to minimize the risk of explosion and risk to human health and the environment.

9.1 LANDFILL GAS MONITORING PROBES

Permanent LFG monitoring probes around the perimeter of the closed landfill and around Phase 1 of the active landfill are shown in Figure 9-1. A probe is not installed on the west side of Phase 1 and 1A because the closed 60-acre landfill is located between the Phase 1A landfill and the west property boundary. A probe is not installed on the north side because the north property boundary is approximately 1,700 feet from Phase 1 and 1A, and future landfill expansion is planned in this area. The probes along the eastern and southern boundary of the Phase 1/1A landfill are installed in borings drilled to a depth that approximates the depth of the refuse (80 feet). The other probes are constructed to a depth that varies from 3 feet to 25 feet below ground surface (Table 9-1).



LEGEND

● GAS MONITORING SAMPLING POINT

Figure 9-1
Gas Monitoring Probes

Jones Edmunds & Associates, Inc. JEA

Table 9-1 Landfill Gas Monitoring Probes	
Depth (feet)	Gas Monitoring Probe Designation
3	GS-A3S, GS-B3S, GS-C3S, GS-D3S, GS-E3S, GS-F3S, GS-G3S, GS-H3S, GS-A3E, GS-B3E, GS-C3E, GS-D3E, GS-E3E, GS-F3E, GS-G3E, GS-I3E, GS-J3E, GS-K3E, GS-L3E, GS-O3E, GS-R3E, GS-U3E, GS-W3ER, GS-X3E, GS-A3N, GS-B3N, GS-C3N, GS-D3N, GS-E3N, GS-F3N, GS-G3N, GS-H3NR, GS-A3W, GS-B3W, GS-C3W, GS-D3W, GS-E3WA, GS-E3W, GS-F3W, GS-G3WA, GS-G3W, GS-H3W, GS-I3WA, GS-I3W, GS-J3W, GS-K3W, GS-L3W
6	GS-H6E, GS-N6E, GS-Q6E, GS-T6E, GS-V6E,
10	GS-M10E, GS-P10E, GS-S10E
15	GS-M15E, GS-P15E, GS-S15E
25	GS-M25E, GS-P25E, GS-S25E
80	GS-1S, GS-1E

The GS-1E and GS-1S (80 feet deep) probes are constructed as shown in Figure 9-2. The annular space in the slotted zones is filled with pea gravel, and the remaining boring is filled with soil. A bentonite seal is installed above the gravel above each zone and at the surface. A vault box is installed at the surface of each probe to protect the PVC sampling pipes. Labcock sampling valves are installed at the top of each PVC pipe to allow for a direct connection to the instruments.

9.2 GAS PROBE MONITORING

The probes are monitored for concentrations of methane. Methane concentration is monitored using an instrument with a percent by volume scale and a lower explosive limit (LEL) scale. The percent scale measures from 1 to 100 percent by volume, and the LEL scale measures from 1 to 5 percent by volume (5 percent by volume is equal to 100 percent LEL).

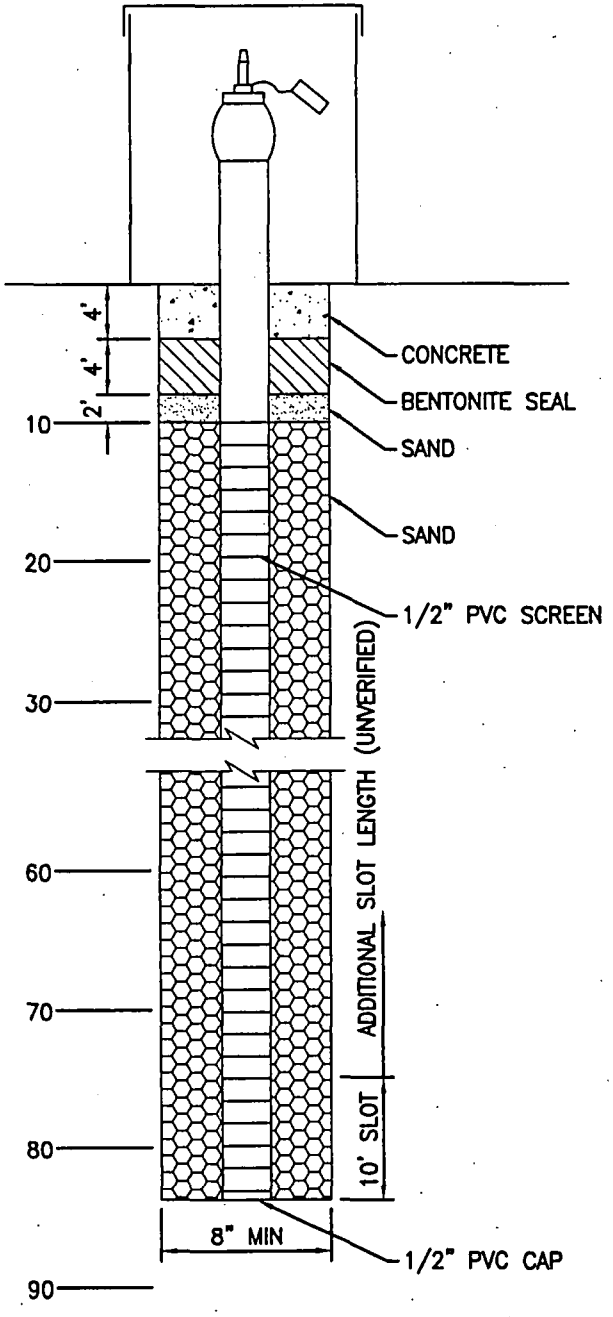
The gas instrument is calibrated with calibration gas each day before monitoring is performed.

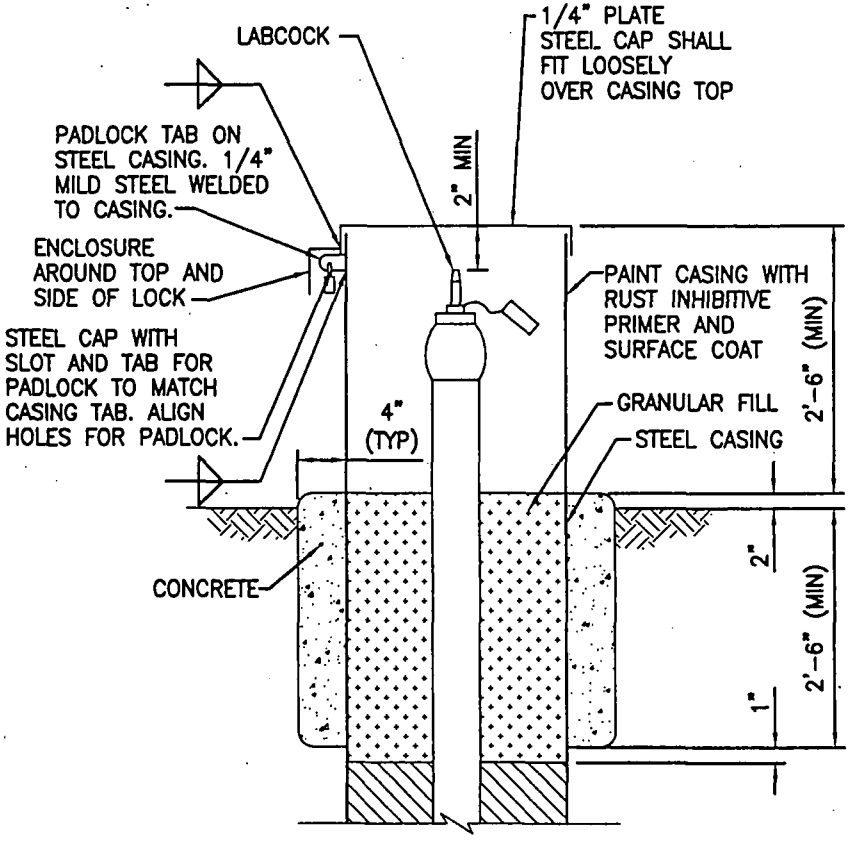
Pressure is measured prior to the other parameters. The procedure is outlined below. The valve is kept closed when an instrument is not attached.

1. Attach hose to labcock valve.

2. Connect pressure meter to hose.

3. Open valve.





NOTE:
LABEL STEEL CAP WITH PROBE NUMBER USING WELD BEAD.

DETAIL

NOTE:
ACTUAL DIMENSIONS WILL DEPEND ON ACTUAL HYDROGEOLOGY ENCOUNTERED DURING DRILLING AND THE CORRESPONDING ELEVATIONS OF CASING AND SCREEN PLACEMENT.

Figure 9-2
Gas Probe Detail
GS-1E and GS-1S

Jones Edmunds & Associates, Inc. JEA

4. Measure pressure.

5. Close valve.

6. Connect gas instrument to hose.

7. Open valve.

8. Measure gas concentrations.

9. Close valve.

10. Remove instrument and hose.

In addition to gas parameters, the time-of-day measurements are taken, and the barometric pressure at the beginning and end of the monitoring round is recorded. The measurement of barometric pressure is important, and an accurate, calibrated gauge is used. Barometric pressures are measured at the site; readings from remote weather stations are not acceptable.

Any problems encountered during monitoring, observations, or other pertinent information that could impact the interpretation of the data are recorded. For example, if a probe is full of groundwater or suspected of being so, the comments should be noted for the monitoring round.

9.3 GAS MONITORING IN STRUCTURES

The following gas monitoring will be performed in structures at the facility:

- Natural gas alarms located in the scalehouse building and leachate treatment plant electrical room will provide continuous monitoring. These monitors are designed to sound an alarm when methane concentrations exceed 25 percent LEL. The signal remains on as long as gas is present, and a red alarm light stays on after an alarm to alert personnel that methane was detected during their absence. Log sheets will be kept as each location to record when the alarm has been triggered, and each alarm will be calibrated on a quarterly basis.

- The bathroom floor drain and electrical connections for the scale meter in the scalehouse building will be monitored using a combustible gas meter on a monthly basis. The monitoring locations in the scalehouse building are shown on Figure 9-3.

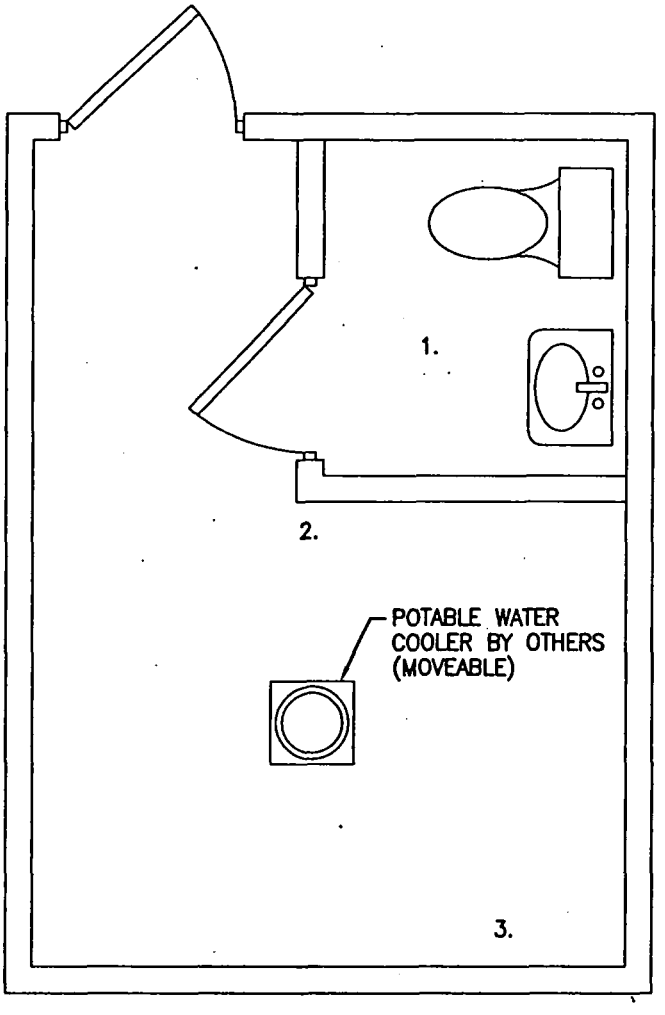
- Continuous monitoring of methane gas levels in the cabinets under the sinks in the administrative office.

- Potential gas entry within facility structures that have been sealed should be tested annually and resealed, if necessary.

The inside of all structures at the site is monitored for methane using the percent scale and the LEL scale. The sampling hose of the instrument is held above the floor and inserted into any conduit spaces or cracks that could act as conduits for LFG to enter into the structure. All monitoring is reported to the FDEP.

9.4 REPORTING

All monitoring is reported quarterly to FDEP. Any odor complaints due to landfill gas at or beyond the property boundary are recorded and submitted in the quarterly reports. If methane gas is measured above 25 percent LEL in the structures, Citrus County will take all necessary steps to ensure protection of human health. Exceedances will be included in the quarterly reports to FDEP. The report will also include a description of the nature and extent of the exceedances and measures implemented in response to the exceedances.



1. BATHROOM FLOOR DRAIN.
2. ELECTRIC CONNECTIONS FOR SCALE METER – WEST SIDE.
3. ELECTRIC CONNECTIONS FOR SCALE METER – EAST SIDE.

Figure 9–3
Scalehouse Gas Monitoring Points.

Florida Department of
Environmental Protection

Memorandum

TO: Kim Ford, P.E.
FROM: John R. Morris, P.G. JRM
DATE: October 5, 2001
SUBJECT: Citrus County Central Class I Landfill Permit Renewal
Pending Permit No. 21375-003-SO
Hydrogeologic and Monitoring Review Comments
cc: Robert Butera, P.E.

I have reviewed the following document that was submitted in response to the Department's request for additional information in support of the operating permit renewal application for the referenced facility:

- *Citrus County Class I Landfill, Operation Permit Renewal, Response to FDEP RAI #2,* prepared by Jones, Edmunds & Associates, Inc. (JEA), dated September 2001, received September 10, 2001

My review focused on the hydrogeologic and monitoring aspects of the permit renewal. Responses were provided to review comment Nos. 14, 15.a., and 15.e., as requested in my previous memorandum dated August 16, 2001. The submitted revisions adequately address the review comments and meet the requirements of Rule 62-701.510, F.A.C.

However, it is noted that Attachment 2.1 of the submittal (Section 3.2 of the document entitled *Groundwater and Leachate Monitoring Plan Review Revisions*) appears to have deleted the text that described the fourth proposed change to the leachate effluent monitoring (chlorine residual). Based on my telephone conversation with Susan Metcalfe, Section 3.2 will be revised to include the inadvertently omitted text and the revised pages will be submitted by facsimile. Provided that this revision to Section 3.2 is received, I have no additional comments that must be addressed by the applicant.

jrm

Site Background Wells	Detection Wells	Intermediate Wells	Compliance Wells
MW-1R	MW-8	MW-6	MW-E
MW-2	MW-9		
MW-3	MW-AA	Piezometers	
MW-7	MW-B	MW-4	
	MW-C	MW-5	
	MW-D		

The second proposed modification is that groundwater samples collected from monitoring well MW-6 be analyzed for THM and fecal coliform on a semiannual basis in addition to the current parameters listed in Table 2.

Groundwater monitoring will be continued on a semiannual basis with reports submitted to DEP.

3.2 LEACHATE

One modification to the existing Leachate influent monitoring scheme is proposed at this time. Per pending revisions to Rule 62-701.510(6)(c), F.A.C., leachate influent shall be sampled on an annual basis for the parameters listed in Rule 62-701.510(8)(c) and (8)(d) with reports submitted to DEP.

Several modifications to the existing Leachate effluent monitoring scheme are proposed at this time. The first proposed modification is that the analysis of Total Trihalomethanes (THM) within the leachage effluent be changed from the quarterly to semiannual. In addition to semiannual THM monitoring of the leachate effluent, monitoring of THM will be added to the semiannual groundwater analyses performed on samples collected from MW-6, as discussed in Section 3.1. The semiannual sampling of leachate effluent and MW-6 for THM should be performed on the same schedule to allow for comparison. Based on the horizontal distance between the infiltration ponds and the edge of the zone of discharge (approximately 1,200 feet) and the vertical distance between land surface and the water table surface (approximately 100 feet of sands) monitoring of THM within MW-6 should be adequate to detect any potential impacts to groundwater quality. The second proposed modification is that the weekly fecal coliform sampling be removed from the leachate effluent requirements. As discussed in Section 3.1, monitoring of fecal coliforms will be added to the semiannual analyses performed on samples collected from MW-6. Monitoring of fecal coliforms within MW-6 should be adequate to detect any potential impacts to groundwater quality. The third proposed modification is that the quarterly requirement to analyze for metals (Arsenic, Barium, Cadmium, Chromium, Iron, Mercury, Lead, Selenium, and Silver) be reduced to annual. These metals are monitored on a semiannual basis within groundwater samples collected from all on-site monitoring wells, which provides adequate data to evaluate potential impacts to groundwater quality. The fourth proposed modification is that the daily requirement to sample for chlorine residual be removed from the leachate effluent monitoring requirements. This parameter is applicable to sources that may be expected to contain fecal matter associated with human activity. The leachate effluent is not excepted to contain such material; therefore, sampling for chlorine residual is not warranted.

The final proposed modification is that the annual requirement to analyze Leachate effluent for the parameters listed in 40 CFR Part 258 Appendix II be changed to Appendix I. Within 180 days of the permit expiration, leachate effluent will be sampled and analyzed for the parameters listed in 40 CFR Part 258 Appendix II. No other modifications to the existing Leachate effluent monitoring scheme are proposed at this time.

D.E.P.
OCT 1 1 2001
Southwest District Tampa

LETTER OF TRANSMITTAL

Jones Edmunds & Associates, Inc.
CONSULTING ENGINEERS AND SCIENTISTS
JEA

TO:	John Morris, P.G. FL Dept of Environmental Protection Southwest District 3804 Coconut Palm Drive Tampa, FL 33619	DATE	October 3, 2001
		JOB. NO.	03860-005-01
		RE:	Citrus County Central Landfill

WE ARE SENDING YOU:

- ☒ Enclosed
- ☒ U.S. Mail
- ☐ Shop Drawings
- ☐ Specifications
- ☐ Report
- ☐ Under Separate Cover
- ☐ UPS overnight
- ☐ Prints
- ☐ Copy of Letter
- ☐ Other:
- ☐ Federal Express
- ☐ Plans
- ☐ Change Order
- ☐ Other
- ☐ Samples

# Copies	Date	Description
1	10/8/01	Groundwater and leachate monitoring plan review - Pages 3-2 and 3-3

THESE ARE TRANSMITTED AS CHECKED BELOW:

- ☐ For Approval
- ☐ For Your Use
- ☐ For Your Information
- ☒ As Requested
- ☐ Other:

10/12/01

KIM –

THE REQUESTED CHANGE WAS INCLUDED IN THE ATTACHED HARD COPY.

John

REMARKS:

COPY TO: _____ SIGNED: _____
Mickey E. Pollman

If enclosures are not as noted, kindly notify us at once.

730 NE Waldo Road, Bldg. A - Gainesville, FL 32641-5699 Telephone: (352) 377-5821 FAX: (352) 377-3166
H:\JMcGregor\AAOHMISC\transmittals\TRANSJEA.WPD

Site Background Wells	Detection Wells	Intermediate Wells	Compliance Wells
MW-1R	MW-8	MW-6	MW-E
MW-2	MW-9		
MW-3	MW-AA	Piezometers	
MW-7	MW-B	MW-4	
	MW-C	MW-5	
	MW-D		

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WASTE MGT TAMPA SWD :8137446125

** Transmit Conf.Report **

P.1 Oct 11 2001 12:15

Telephone Number	Mode	Start	Time	Pages	Result	Note
813525271204	NORMAL	11,12:13	1'21"	4	* O K	

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
3804 COCONUT PALM DRIVE
TAMPA, FL 33619-8318

FAX

Date: 10/11/01
Number of pages including cover sheet: 4

TO: Susan Metcalfe
FROM: Ken Ford

PHONE: 352 7465000
PHONE: (813) 744-6100, x 382

FAX #: 352 5271204
FAX #: (813) 744-6125

CC:

REMARKS: ☐ Urgent ☐ For your review ☑ Reply ASAP ☐ Please comment

DEP's Comments

Thx

Ken

WASTE MGT TAMPA SWD :8137446125

** Transmit Conf.Report **

P.1 Oct 11 2001 12:16

Telephone Number	Mode	Start	Time	Pages	Result	Note
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FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
3804 COCONUT PALM DRIVE
TAMPA, FL 33619-8318

FAX

Date: 10/11/01

Number of pages including cover sheet: 4

TO: Mickey Pollman J.E

FROM: Tim Ford

PHONE: 352 377 5821

PHONE: (813) 744-6100, x 382

FAX #: 352-377 3166

FAX #: (813) 744-6125

CC:

REMARKS: ☐ Urgent ☐ For your review ☑ Reply ASAP ☐ Please comment

DEP's letter

Tim

Tim

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
3804 COCONUT PALM DRIVE
TAMPA, FL 33619-8318

FAX

Date: 10/11/01
Number of pages including cover sheet: 4

TO:	Susan Metcalfe	FROM:	Ken Ford
PHONE:	352 7465000	PHONE:	(813) 744-6100, x 382
FAX #:	352 5271204	FAX #:	(813) 744-6125
CC:			

REMARKS: ☐ Urgent ☐ For your review ☑ Reply ASAP ☐ Please comment

DEP's Comm

Thx

Ken

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
3804 COCONUT PALM DRIVE
TAMPA, FL 33619-8318

FAX

Date: 10/11/01

Number of pages including cover sheet: 4

TO: Mickey Pollman J.E	FROM: Tim Ford
PHONE: 352 377 5821	PHONE: (813) 744-6100, x 382
FAX #: 352-377 3166	FAX #: (813) 744-6125
CC:	

REMARKS: ☐ Urgent ☐ For your review ☑ Reply ASAP ☐ Please comment

DEP's letter

Thx

Tim

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

October 8, 2001

Ms. Susan Metcalfe, P.G.
Citrus County
Solid Waste Management
PO Box 340
Lecanto, FL 34460

Re: Citrus County Central Landfill
Pending Permit No.: #21375-003-SO, Citrus County

Dear Ms. Metcalfe:

This is to acknowledge receipt of additional information in support of your permit renewal application, received September 10, 2001 for operation of the Citrus County Central Landfill.

This letter constitutes notice that a permit will be required for your project pursuant to Chapter(s) 403, Florida Statutes.

Your permit application remains incomplete. This is the Department's 3rd request for additional information. Please provide the information listed below promptly. Evaluation of your proposed project will be delayed until all requested information has been received.

The following information is needed in support of the solid waste applications [Chapters 62-701, Florida Administrative Code (F.A.C.)]. Please provide:

1. **62-701.500(2)(g).** Revision to Section 7.1 of the Operations Plan is requested to delete reference to a 10-ton compactor. Equipment specifications indicate the compactor weight is more than 35 tons.

2. **62-701.500(7)(c).** Figure 7-1 should be revised to show no steeper than 3 to 1 slopes for the previously placed daily cover over the working face.

3. **62-701.500(9).** Revisions to Sections 9.0, 9.1, and 9.2 of the Operations Plan are requested to correctly reference the current LFG Monitoring Plan and delete unclear and conflict descriptions, or to provide a new plan. If the LFG Monitoring Program by CH2M Hill that was received by the Department on October 22, 1996 is still valid, then Section 9.0 may simply reference this plan and attach it as an appendix to the Operations Plan.

4. **62-701.510**. A response to Mr. John Morris' October 5, 2001 memorandum (attached). You may call Mr. Morris at (813) 744-6100, extension 336 to discuss this item.

Please provide all responses that relate to engineering required for design and operation, signed and sealed by a professional engineer. All descriptions of operational procedures provided as part of responses should be included as revisions to the Operations Plan and provided on replacement pages with the date of revision.

"NOTICE! Pursuant to the provisions of Section 120.60, F.S., if the Department does not receive a response to this request for information within 90 days of the date of this letter, the Department may issue a final order denying your application. You need to respond within 30 days after you receive this letter, responding to as many of the information requests as possible and indicating when a response to any unanswered questions will be submitted. If the response will require longer than 30 days to develop, you should develop a specific time table for the submission of the requested information for Department review and consideration. Failure to comply with a time table accepted by the Department will be grounds for the Department to issue a Final Order of Denial for lack of timely response. A denial for lack of information or response will be unbiased as to the merits of the application. The applicant can reapply as soon as the requested information is available."

Please submit your response to this letter as one complete package. On all future correspondence, please include Robert Butera on distribution. If you have any questions you may call me at (813) 744-6100, extension 382.

Sincerely,

Kim B. Ford, P.E.
Solid Waste Section
Division of Waste Management

KBF/ab
Attachment

cc: David A. Keough, P.E, Jones, Edmunds & Associates
Robert Butera, P.E., FDEP Tampa
John Morris, P.G., FDEP Tampa

Florida Department of

Memorandum

Environmental Protection

TO:	Kim Ford, P.E.
FROM:	John R. Morris, P.G. JRM
DATE:	October 5, 2001
SUBJECT:	Citrus County Central Class I Landfill Permit Renewal Pending Permit No. 21375-003-SO Hydrogeologic and Monitoring Review Comments
cc:	Robert Butera, P.E.

I have reviewed the following document that was submitted in response to the Department's request for additional information in support of the operating permit renewal application for the referenced facility:

- *Citrus County Class I Landfill, Operation Permit Renewal, Response to FDEP RAI #2,* prepared by Jones, Edmunds & Associates, Inc. (JEA), dated September 2001, received September 10, 2001

My review focused on the hydrogeologic and monitoring aspects of the permit renewal. Responses were provided to review comment Nos. 14, 15.a., and 15.e., as requested in my previous memorandum dated August 16, 2001. The submitted revisions adequately address the review comments and meet the requirements of Rule 62-701.510, F.A.C.

However, it is noted that Attachment 2.1 of the submittal (Section 3.2 of the document entitled *Groundwater and Leachate Monitoring Plan Review Revisions*) appears to have deleted the text that described the fourth proposed change to the leachate effluent monitoring (chlorine residual). Based on my telephone conversation with Susan Metcalfe, Section 3.2 will be revised to include the inadvertently omitted text and the revised pages will be submitted by facsimile. Provided that this revision to Section 3.2 is received, I have no additional comments that must be addressed by the applicant.

jrm

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

October 8, 2001

Ms. Susan Metcalfe, P.G.
Citrus County
Solid Waste Management
PO Box 340
Lecanto, FL 34460

Re: Citrus County Central Landfill
Pending Permit No.: #21375-003-SO, Citrus County

Dear Ms. Metcalfe:

This is to acknowledge on in support
of your permit renewal 10, 2001 for
operation of the Citru

This letter constitute quired for
your project pursuant es.

Your permit application e
Department's 3rd reques lease provide
the information listed ur proposed
project will be delayed has been
received.

The following informatic lid waste
applications [Chapters 6 de
(F.A.C.)]. Please provi

1. **62-701.500(2)(g).** of the Operations Plan is requested to delete reference to a 10-ton compactor. Equipment specifications indicate the compactor weight is more than 35 tons.

2. **62-701.500(7)(c).** Figure 7-1 should be revised to show no steeper than 3 to 1 slopes for the previously placed daily cover over the working face.

3. **62-701.500(9).** Revisions to Sections 9.0, 9.1, and 9.2 of the Operations Plan are requested to correctly reference the current LFG Monitoring Plan and delete unclear and conflict descriptions, or to provide a new plan. If the LFG Monitoring Program by CH2M Hill that was received by the Department on October 22, 1996 is still valid, then Section 9.0 may simply reference this plan and attach it as an appendix to the Operations Plan.

Jones Edmunds & Associates, Inc.
CONSULTING ENGINEERS AND SCIENTISTS
JEA

Original to Follow by Mail:
Fax Copy Only: X

FAX TRANSMITTAL SHEET

TO	John Morris, P.G. FDEP
FROM	Mickey Pollman
NUMBER OF PAGES (including cover sheet)	3
DATE	Monday, October 08, 2001
FAX NUMBER	1-813-744-6125
PROJECT NUMBER	0386000501

If you do not receive all pages, please contact Mickey Pollman at (352) 377-5821, Ext. 1292

COMMENTS:

John,
Here are the corrected pages from the Citrus County Groundwater and Leachate Monitoring Plan Review.
If you have any questions please feel free to call anytime.

Thank you,

10/8/01

Mickey

Kim –
REVISIONS TO SECTION 3.2 OF THE GW & LEACHATE MONITORING PLAN AS REQUESTED. LOOKS OK.
I REQUESTED A HARD COPY BE PLACED IN THE MAIL TO MAKE THE SHADED TEXT MORE LEGIBLE.

John

730 NE Waldo Road, Building 1, Gainesville, FL 32641-5699 □ Telephone (352) 377-5821 □ Fax (352) 377-3166
www.jonesedmunds.com

Site Background Wells	Detection Wells	Intermediate Wells	Compliance Wells
MW-1R	MW-8	MW-6	MW-E
MW-2	MW-9		
MW-3	MW-AA	Piezometers	
MW-7	MW-B	MW-4	
	MW-C	MW-5	
	MW-D		

The second proposed modification is that groundwater samples collected from monitoring well MW-6 be analyzed for THM and fecal coliform on a semiannual basis in addition to the current parameters listed in Table 2.

Groundwater monitoring will be continued on a semiannual basis with reports submitted to DEP.

3.2 LEACHATE

One modification to the existing Leachate influent monitoring scheme is proposed at this time. Per pending revisions to Rule 62-701.510(6)(c), F.A.C., leachate influent shall be sampled on an annual basis for the parameters listed in Rule 62-701.510(8)(c) and (8)(d) with reports submitted to DEP.

Several modifications to the existing Leachate effluent monitoring scheme are proposed at this time. The first proposed modification is that the analysis of Total Trihalomethanes (THM) within the leachage effluent be changed from the quarterly to semiannual. In addition to semiannual THM monitoring of the leachate effluent, monitoring of THM will be added to the semiannual groundwater analyses performed on samples collected from MW-6, as discussed in Section 3.1. The semiannual sampling of leachate effluent and MW-6 for THM should be performed on the same schedule to allow for comparison. Based on the horizontal distance between the infiltration ponds and the edge of the zone of discharge (approximately 1,200 feet) and the vertical distance between land surface and the water table surface (approximately 100 feet of sands) monitoring of THM within MW-6 should be adequate to detect any potential impacts to groundwater quality. The second proposed modification is that the weekly fecal coliform sampling be removed from the leachate effluent requirements. As discussed in Section 3.1, monitoring of fecal coliforms will be added to the semiannual analyses performed on samples collected from MW-6. Monitoring of fecal coliforms within MW-6 should be adequate to detect any potential impacts to groundwater quality. The third proposed modification is that the quarterly requirement to analyze for metals (Arsenic, Barium, Cadmium, Chromium, Iron, Mercury, Lead, Selenium, and Silver) be reduced to annual. These metals are monitored on a semiannual basis within groundwater samples collected from all on-site monitoring wells, which provides adequate data to evaluate potential impacts to groundwater quality. The fourth proposed modification is that the daily requirement to sample for chlorine residual be removed from the leachate effluent monitoring requirements. This parameter is applicable to sources that may be expected to contain fecal matter associated with human activity. The leachate effluent is not excepted to contain such material; therefore, sampling for chlorine residual is not warranted.

The final proposed modification is that the annual requirement to analyze Leachate effluent for the parameters listed in 40 CFR Part 258 Appendix II be changed to Appendix I. Within 180 days of the permit expiration, leachate effluent will be sampled and analyzed for the parameters listed in 40 CFR Part 258 Appendix II. No other modifications to the existing Leachate effluent monitoring scheme are proposed at this time.

Ford, Kim

From: Pelz, Susan
Sent: Friday, October 05, 2001 4:37 PM
To: Ford, Kim
Cc: Butera, Robert
Subject: citrus cost ests

Sensitivity: Confidential

I approved their ests for Phase 1 & 1A, but am still working on getting old closed 60 acre approved. I called JEA on 9/26 & am waiting on info from them.

The old 60 acre costs shouldn't hold up your operation renewal.

Florida Department of

Memorandum

Environmental Protection

TO:	Kim Ford, P.E.
FROM:	John R. Morris, P.G. JRM
DATE:	October 5, 2001
SUBJECT:	Citrus County Central Class I Landfill Permit Renewal Pending Permit No. 21375-003-SO Hydrogeologic and Monitoring Review Comments
cc:	Robert Butera, P.E.

I have reviewed the following document that was submitted in response to the Department's request for additional information in support of the operating permit renewal application for the referenced facility:

- *Citrus County Class I Landfill, Operation Permit Renewal, Response to FDEP RAI #2,* prepared by Jones, Edmunds & Associates, Inc. (JEA), dated September 2001, received September 10, 2001

My review focused on the hydrogeologic and monitoring aspects of the permit renewal. Responses were provided to review comment Nos. 14, 15.a., and 15.e., as requested in my previous memorandum dated August 16, 2001. The submitted revisions adequately address the review comments and meet the requirements of Rule 62-701.510, F.A.C.

However, it is noted that Attachment 2.1 of the submittal (Section 3.2 of the document entitled *Groundwater and Leachate Monitoring Plan Review Revisions*) appears to have deleted the text that described the fourth proposed change to the leachate effluent monitoring (chlorine residual). Based on my telephone conversation with Susan Metcalfe, Section 3.2 will be revised to include the inadvertently omitted text and the revised pages will be submitted by facsimile. Provided that this revision to Section 3.2 is received, I have no additional comments that must be addressed by the applicant.

jrm

WASTE MANAGEMENT TECHNICAL SUPPORT
ROUTING FORM

PERMITTED FACILITIES

To: John

From: Em

Date: 9/11/01

Subject: CITRUS Ops PERMIT RENEWAL

Document Name: _____

Revision Number 2 County: CITRUS

Facility Name: _____

Type of Facility: SLF

Permit Number: _____ Issue Date: _____

Copy of Permit attached: _____

Document submitted in compliance with permit condition. _____

Document subject to permit timeclock. YES

Day 1: 9/10/01

Day 30: 10/9/01

PATS sheet attached: _____

Enforcement Case/CO/NOV/ associated with this site: _____

Files and related documents can be found ATTACHED / in Files

Please review and comment on the technical aspects of the attached document as you deem appropriate. In order to maintain progress with the permit review, please provide comments within 30 days or by OCT 5.

Comments: _____

Module _____

Attachments

WASTE MANAGEMENT TECHNICAL SUPPORT
ROUTING FORM

PERMITTED FACILITIES

To: Susan

From: [illegible]

Date: Sept 11

Subject: Citrus Ops perm renewal

Document Name: _____

Revision Number 2 County: Citrus

Facility Name: _____

Type of Facility: CSLF

Permit Number: _____ Issue Date: _____

Copy of Permit attached: _____

Document submitted in compliance with permit condition. _____

Document subject to permit timeclock. 4/5

Day 1: 9/10/01

Day 30: 10/9/01

PATS sheet attached: _____

Enforcement Case/CO/NOV/ associated with this site: _____

Files and related documents can be found ~~[illegible]~~ in files

Please review and comment on the technical aspects of the attached document as you deem appropriate. In order to maintain progress with the permit review, please provide comments within 30 days or by Oct 5.

Comments: _____

Module _____

Attachments

CITRUS COUNTY
CLASS I LANDFILL
OPERATION PERMIT RENEWAL
RESPONSE TO FDEP RAI#2

Prepared for:

CITRUS COUNTY BOARD OF COUNTY COMMISSIONERS
P.O. Box 340
Lecanto, Florida 34460

Prepared by:

JONES, EDMUNDS & ASSOCIATES, INC.
730 NE Waldo Road, Building A
Gainesville, FL 32641

September 2001

David A. Keough, P.E.
P.E. #33164

LETTER OF TRANSMITTAL

Jones Edmunds & Associates, Inc.
CONSULTING ENGINEERS AND SCIENTISTS
JEA

TO:	Kim B. Ford, P. E. Solid Waste Section Division of Waste Management Department of Environmental Protection, Southwest District 3804 Coconut Palm Dr. Tampa, Fl 33619	DATE	September 7, 2001
		JOB NO.	03860-005-01
		RE	Citrus County Class I Landfill

D.E.P.
SEP 10 2001
Southwest District Tampa

WE ARE SENDING YOU:

- ☒ Enclosed
- ☐ U.S. Mail
- ☐ Federal Express
- ☒ UPS Ground
- ☐ Separate Cover
- ☐ Report
- ☐ Specifications
- ☐ Plans
- ☐ Copy of Letter
- ☐ Shop Drawings
- ☐ Samples
- ☐ Change Order
- ☐ Other: _____

# Copies	Date	Description
4	9/7/01	Citrus County Class I Landfill Operation Permit Renewal Response to FDEP RAI#2

THESE ARE TRANSMITTED AS CHECKED BELOW:

- ☐ For Approval
- ☒ For Your Use
- ☐ As Requested
- ☐ For Your Information
- ☐ For Review and Comment
- ☐ Other:

REMARKS: Kim, please distribute one to Robert Butera, P.E., FDEP Tampa
John Morris, P.G., FDEP Tampa and Susan Pelz, P.E., FDEP Tampa.

COPY TO: _____ SIGNED: M Pollman
Michele Pollman

If enclosures are not as noted, kindly notify us at once.

H:\DAlberico\Aemp\JHorvath\KFordCitrustrans.wpd

730 NE Waldo Road, Bldg. A - Gainesville, FL 32641-5699 • Telephone: (352) 377-5821 • FAX: (352) 377-3166

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

August 17, 2001

Ms. Susan Metcalfe, P.G.
Citrus County
Solid Waste Management
PO Box 340
Lecanto, FL 34460

Re: Citrus County Central Landfill
Pending Permit No.: #21375-003-SO, Citrus County

Dear Ms. Metcalfe:

This is to acknowledge receipt of additional information in support of your permit renewal application, received July 20, 2001 for operation of the Citrus County Central Landfill.

This letter constitutes notice that a permit will be required for your project pursuant to Chapter(s) 403, Florida Statutes.

Your permit application remains incomplete. This is the Department's 2nd request for additional information. Please provide the information listed below promptly. Evaluation of your proposed project will be delayed until all requested information has been received.

The following information is needed in support of the solid waste applications [Chapters 62-701, Florida Administrative Code (F.A.C.)]. Please provide:

1. **62-701.330(3)(d).** One set of full-sized site plans referenced in Jones Edmunds' response dated July 2001 were not provided. The one sheet entitled Site Plan needs to be signed and sealed.

2. **62-701.500(2)(g).** The actual and recommended minimum weight for the landfill compactor is requested.

3. **62-701.500(7).** 1) Description of methods procedures used for placement of the 2 feet protective layer to prevent damage to the liner are requested. The description should include timeframes for placement, height of each increment, and equipment used for placement. 2) A description of special precautions taken during normal operations for protection of the sideslope liner is requested.

4. **62-701.500(7)(c).** The actual maximum slope of the working face is requested. Figure 7-1 should be revised to show no steeper than 3 to 1 slopes for the working face.

5. **62-701.500(8)(h).** Clarification is requested for the conclusion that the leachate collection system is in good working condition. The clarification should address such comments as "impassable" and "crushed pipe" as described in Florida Jet Clean's February 2001 video log.

6. **62-701.500(9).** 1) Clarification is requested for the reference to "this" LFG Monitoring Program. Is "this" program the one received in October of 1996? 2) Revisions are needed to correctly describe the construction and depth of the gas probes. According to previous descriptions, not all probes are 3 feet or 80 feet deep. 3) Is Figure 9-2 the construction detail for all probes or GS-1S and GS-1E only? 4) Does the gas measurement device provide direct reading in % LEL, or is a calculation required for conversion to % LEL?

7. **62-701.510.** A response to Mr. John Morris' August 16, 2001 memorandum (attached). You may call Mr. Morris at (813) 744-6100, extension 336 to discuss this item.

8. **62-701.630.** Cost estimates for long-term care of the old closed 60 acre landfill and proof of financial assurance for the site. A response to Ms. Susan Pelz's August 17, 2001 letter (attached) is required. You may call Ms. Pelz at (813) 744-6100, extension 386.

Please provide all responses that relate to engineering required for design and operation, signed and sealed by a professional engineer. All descriptions of operational procedures provided as part of responses should be included as revisions to the Operations Plan.

"NOTICE! Pursuant to the provisions of Section 120.60, F.S., if the Department does not receive a response to this request for information within 90 days of the date of this letter, the Department may issue a final order denying your application. You need to respond within 30 days after you receive this letter, responding to as many of the information requests as possible and indicating when a response to any unanswered questions will be submitted. If the response will require longer than 30 days to develop, you should develop a specific time table for the submission of the requested information for Department review and consideration. Failure to comply with a time table accepted by the Department will be grounds for the Department to issue a Final Order of Denial for lack of timely response. A denial for lack of information or response will be unbiased as to the merits of the application. The applicant can reapply as soon as the requested information is available."

Please submit your response to this letter as one complete package. On all future correspondence, please include Robert Butera on distribution. If you have any questions you may call me at (813) 744-6100, extension 382.

Sincerely,

Kim B. Ford, P.E.
Solid Waste Section
Division of Waste Management

KBF/ab
Attachments

cc: David A. Keough, P.E, Jones, Edmunds & Associates
Robert Butera, P.E., FDEP Tampa
John Morris, P.G., FDEP Tampa
Susan Pelz, P.E., FDEP Tampa

Florida Department of

Memorandum

Environmental Protection

TO:	Kim Ford, P.E.
FROM:	John R. Morris, P.G. JRM
DATE:	August 16, 2001
SUBJECT:	Citrus County Central Class I Landfill Permit Renewal Pending Permit No. 21375-003-SO Hydrogeologic and Monitoring Review Comments
cc:	Robert Butera, P.E.

I have reviewed the following documents that were submitted in response to the Department's request for additional information in support of the operating permit renewal application for the referenced facility:

- *Citrus County Class I Landfill, Operation Permit Renewal, Response to FDEP RAI,* prepared by Jones, Edmunds & Associates, Inc. (JEA), dated July 2001, received July 20, 2001; (Document 1)
- *Citrus County Central Class I Landfill, Operations Plan,* prepared by JEA, dated July 2001, received July 20, 2001; (Document 2) and,
- *Groundwater and Leachate Monitoring Plan Review, Class I Central Landfill, Citrus County, Florida,* prepared by JEA, dated July 2001, received July 20, 2001. (Document 3)

My review focused on the hydrogeologic and monitoring aspects of the permit renewal. Additional information is needed to evaluate the adequacy of the monitoring plan. Please have the applicant address the following comments that refer to the permit application.

PART L - WATER QUALITY AND LEACHATE MONITORING (RULE 62-701.510, F.A.C.)

1. L.1.c.(4) - Location Information for Each Monitoring Well
   L.1.c.(5) - Well Spacing...
   L.1.c.(6) - Well Screen Locations Properly Selected
   L.1.c.(7) - Procedures for Properly Abandoning Monitoring Wells
   L.1.d.(1) - Location and Justification...
   L.1.d.(2) - Each Monitoring Location...
   L.1.f.(4) - Compliance Well Sampling...
   L.1.f.(5) - Surface Water Sampling...
   L.1.g. - Describe Procedures for...
   L.1.h.(1) - Semi-annual Report Requirements
   L.1.h.(2) - Bi-annual Report Requirements...

The revised references in the listed sections of the application form provided in Attachment 1.13 of Document 1 are noted. **No additional information is requested.**

2. L.1.e. - Leachate Sampling Locations Proposed - The clarifications regarding the leachate influent and effluent sampling locations provided in Section 2.2 of Document 3 are noted. **No additional information is requested.**

3. L.1.f.(1) – Background Ground Water...
L.1.f.(3) – Detection Well Semi-annual...
The revised references in the listed sections of the application form provided in Attachment 1.13 of Document 1 are noted. **No additional information is requested.**

GROUNDWATER AND LEACHATE MONITORING PLAN REVIEW FOR CITRUS COUNTY CLASS I CENTRAL LANDFILL, PREPARED BY JEA, APRIL 2001
(Rule 62-701.510(9)(b), F.A.C.)

4. The signed and sealed cover page provided with Document 3 is noted. **No additional information is requested.**

Section 1.1 – Site Information

5. The revisions to Table 1 in Document 3 that provide the requested elevations and lithologic description are noted. **No additional information is requested.**

Section 2.1.1 – Ground Water Quality

6. The revisions to Section 2.1.1 and Appendix C of Document 3 regarding benzene concentrations are noted. **No additional information is requested.**

7. The revisions to Section 2.1.1 of Document 3 regarding iron concentrations are noted. **No additional information is requested.**

8. The revisions to Appendix C of Document 3 regarding nitrate concentrations are noted. **No additional information is requested.**

Section 2.1.2 – Groundwater Flow

9. The revision to Section 2.1.2 of Document 3 that uses a hydraulic gradient value of 0.0028 ft/ft in the calculation of ground water velocity appears to be conservative estimate of wet season conditions. **No additional information is requested.**

Section 2.2 -- Leachate

10. The revisions to Section 2.2 of Document 3 regarding the identification of those parameters that are used for process control rather than for regulatory compliance are noted. **No additional information is requested.**

11. The revisions to Section 2.2 of Document 3 regarding the occurrence of total trihalomethanes in the leachate effluent samples are noted. **No additional information is requested.**

Section 3.1 – Ground Water

12. The revision of Section 3.1 of Document 3 regarding the location of well MW-B is noted. **No additional information is requested.**

13. The revision of Section 3.1 of Document 3 regarding the lithology that is monitored at each monitor well is noted. **No additional information is requested.**

Section 3.2 -- Leachate

14. The response to this review comment provided in Part 2 of Document 1 appears to be inconsistent with the revision to Section 3.2 of Document 3. Please submit a revised page 3-2 that is consistent with Rule 62-701.510(6)(c)1, F.A..C., and that indicates the annual sample of the leachate influent will be analyzed for the parameters listed in Rule 62-701.510(8)(c) and (8)(d), F.A.C.

15. The revisions to Section 3.2 of Document 3 regarding sampling parameters and sampling frequency of the leachate effluent are noted. The following comments are provided for the five proposed modifications:

a. Analysis of total trihalomethanes: Based on the results of quarterly analyses of total trihalomethanes provided for the leachate effluent for the last three years, the Department does not support the proposed reduction from quarterly to annual analysis for these parameters. Please note that it is the Department's intention to prepare a permit condition that requires the leachate effluent be analyzed for total trihalomethanes at a semi-annual frequency rather than at the annual frequency indicated in Section 3.2 of Document 3. It is also intended that samples of leachate effluent and ground water from well MW-6 be submitted for analysis for total trihalomethanes on the same schedule to allow comparison. Please submit a revised page 3-2 that reflects this change to the leachate effluent sampling.
b. Analysis of fecal coliform: Based on the results of weekly analyses for fecal coliform provided for the leachate effluent for the last three years and the proposed semi-annual analysis of fecal coliform from ground water collected at well MW-6, the Department does not object to the deletion of this parameter for the leachate effluent. **No additional information is requested.**
c. Analysis of metals: Based on the results of the quarterly analyses of the required metals provided for the leachate effluent for the last three years, the Department does not object to reducing the frequency of analysis of the leachate effluent from quarterly to annually. **No additional information is requested.**
d. Analysis of residual chlorine: Based on the indication in Section 2.2 of Document 3 that the results of residual chlorine are used for process control purposes, the Department does not object to the deletion of this parameter for the leachate effluent. **No additional information is requested.**
e. Analysis of Appendix II parameters listed in 40 CFR Part 258: Based on the results of annual analyses for the Appendix II parameters provided for the leachate effluent for the last three years, the Department does not object to the substitution of annual analysis of the Appendix I parameters. However, it is the Department's intention to prepare a permit condition that requires one leachate effluent sampling event be completed prior to permit renewal that includes the analysis of the Appendix II parameters. Please submit a revised page 3-3 that reflects this change to the leachate effluent sampling.

Please have the applicant contact me at (813) 744-6100, extension 336, to discuss these comments if there are any questions.

jrm

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

Ms. Susan J. Metcalfe, P.G., Director
Citrus County Solid Waste Division
PO Box 340
Lecanto, Fl. 34460-0340

August 17, 2001

RE: Citrus County Landfill Financial Assurance Cost Estimates
Pending Permit No.: 21375-003-SO, Class I, Phases 1 & 1A

Dear Ms. Metcalfe:

This letter is to acknowledge receipt of the revised cost estimates prepared by Jones, Edmunds & Associates, Inc., dated July 2001 (received July 20, 2001), for closing and long-term care of the Citrus County Landfill (Phase 1, 1A). The cost estimates received July 20, 2001 (closing $2,363,996 and long-term care $210,946/year x 30 years=$6,328,377), are **APPROVED for 2001**. The next annual update (revised or inflation-adjusted estimates) is due no later than **September 1, 2002**. The estimates submitted are approved. However, please note that it has been the Department's experience that leachate generation may not decrease linearly to 28,000 gallons per year for this size site in only three years. Department files indicate that a similarly lined and closed Class I landfill (approximately 14 acres) in the Southwest District generated approximately 140,000 gallons of leachate in 2000, 5 years after final closure.

Additionally, please be advised that since these estimates did not include the long-term care for the old closed 60-acre site (permit 126601-002-SF), estimates for the continued long-term care of the old closed 60-acre site are due no later than September 2001.

A copy of these estimates will be forwarded to Mr. Fred Wick, Solid Waste Section, FDEP, 2600 Blair Stone Road, Tallahassee, Florida 32399-2407. Please work with him directly to assess the facility's compliance with the funding mechanism requirements of Rule 62-701.630, F.A.C. If you have any questions, you may contact me at (813) 744-6100 ext. 386.

Sincerely,

Susan J. Pelz, P.E.
Solid Waste Section
Southwest District

sjp
cc: David A. Keogh, P.E., JEA, 730 NE Waldo Road, Bldg. A., Gainesville, Fl. 32641
Fred Wick, FDEP, Tallahassee, w/attachment
Robert Butera, P.E., FDEP Tampa
Kim Ford, P.E., FDEP Tampa

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

Ms. Susan J. Metcalfe, P.G., Director
Citrus County Solid Waste Division
PO Box 340
Lecanto, Fl. 34460-0340

August 17, 2001

RE: Citrus County Landfill Financial Assurance Cost Estimates
Pending Permit No.: 21375-003-SO, Class I, Phases 1 & 1A

Dear Ms. Metcalfe:

This letter is to acknowledge receipt of the revised cost estimates prepared by Jones, Edmunds & Associates, Inc., dated July 2001 (received July 20, 2001), for closing and long-term care of the Citrus County Landfill (Phase 1, 1A). The cost estimates received July 20, 2001 (closing $2,363,996 and long-term care $210,946/year x 30 years=$6,328,377), are **APPROVED for 2001**. The next annual update (revised or inflation-adjusted estimates) is due no later than **September 1, 2002**. The estimates submitted are approved. However, please note that it has been the Department's experience that leachate generation may not decrease linearly to 28,000 gallons per year for this size site in only three years. Department files indicate that a similarly lined and closed Class I landfill (approximately 14 acres) in the Southwest District generated approximately 140,000 gallons of leachate in 2000, 5 years after final closure.

Additionally, please be advised that since these estimates did not include the long-term care for the old closed 60-acre site (permit 126601-002-SF), estimates for the continued long-term care of the old closed 60-acre site are due no later than September 2001.

A copy of these estimates will be forwarded to Mr. Fred Wick, Solid Waste Section, FDEP, 2600 Blair Stone Road, Tallahassee, Florida 32399-2407. Please work with him directly to assess the facility's compliance with the funding mechanism requirements of Rule 62-701.630, F.A.C. If you have any questions, you may contact me at (813) 744-6100 ext. 386.

Sincerely,

Susan J. Pelz, P.E.
Solid Waste Section
Southwest District

sjp
cc: David A. Keogh, P.E., JEA, 730 NE Waldo Road, Bldg. A., Gainesville, Fl. 32641
Fred Wick, FDEP, Tallahassee, w/attachment
Robert Butera, P.E., FDEP Tampa
Kim Ford, P.E., FDEP Tampa

Florida Department of

Memorandum

Environmental Protection

TO:	Kim Ford, P.E.
FROM:	John R. Morris, P.G. JRM
DATE:	August 16, 2001
SUBJECT:	Citrus County Central Class I Landfill Permit Renewal Pending Permit No. 21375-003-SO Hydrogeologic and Monitoring Review Comments
cc:	Robert Butera, P.E.

I have reviewed the following documents that were submitted in response to the Department's request for additional information in support of the operating permit renewal application for the referenced facility:

- *Citrus County Class I Landfill, Operation Permit Renewal, Response to FDEP RAI,* prepared by Jones, Edmunds & Associates, Inc. (JEA), dated July 2001, received July 20, 2001; (Document 1)
- *Citrus County Central Class I Landfill, Operations Plan,* prepared by JEA, dated July 2001, received July 20, 2001; (Document 2) and,
- *Groundwater and Leachate Monitoring Plan Review, Class I Central Landfill, Citrus County, Florida,* prepared by JEA, dated July 2001, received July 20, 2001. (Document 3)

My review focused on the hydrogeologic and monitoring aspects of the permit renewal. Additional information is needed to evaluate the adequacy of the monitoring plan. Please have the applicant address the following comments that refer to the permit application.

PART L - WATER QUALITY AND LEACHATE MONITORING (RULE 62-701.510, F.A.C.)

1. L.1.c.(4) - Location Information for Each Monitoring Well
   L.1.c.(5) - Well Spacing...
   L.1.c.(6) - Well Screen Locations Properly Selected
   L.1.c.(7) - Procedures for Properly Abandoning Monitoring Wells
   L.1.d.(1) - Location and Justification...
   L.1.d.(2) - Each Monitoring Location...
   L.1.f.(4) - Compliance Well Sampling...
   L.1.f.(5) - Surface Water Sampling...
   L.1.g. - Describe Procedures for...
   L.1.h.(1) - Semi-annual Report Requirements
   L.1.h.(2) - Bi-annual Report Requirements...

The revised references in the listed sections of the application form provided in Attachment 1.13 of Document 1 are noted. **No additional information is requested.**

2. L.1.e. - Leachate Sampling Locations Proposed - The clarifications regarding the leachate influent and effluent sampling locations provided in Section 2.2 of Document 3 are noted. **No additional information is requested.**

3. L.1.f.(1) - Background Ground Water...
   L.1.f.(3) - Detection Well Semi-annual...

The revised references in the listed sections of the application form provided in Attachment 1.13 of Document 1 are noted. **No additional information is requested.**

GROUNDWATER AND LEACHATE MONITORING PLAN REVIEW FOR CITRUS COUNTY CLASS I CENTRAL LANDFILL, PREPARED BY JEA, APRIL 2001
(Rule 62-701.510(9)(b), F.A.C.)

4. The signed and sealed cover page provided with Document 3 is noted. **No additional information is requested.**

Section 1.1 - Site Information

5. The revisions to Table 1 in Document 3 that provide the requested elevations and lithologic description are noted. **No additional information is requested.**

Section 2.1.1 - Ground Water Quality

6. The revisions to Section 2.1.1 and Appendix C of Document 3 regarding benzene concentrations are noted. **No additional information is requested.**

7. The revisions to Section 2.1.1 of Document 3 regarding iron concentrations are noted. **No additional information is requested.**

8. The revisions to Appendix C of Document 3 regarding nitrate concentrations are noted. **No additional information is requested.**

Section 2.1.2 - Groundwater Flow

9. The revision to Section 2.1.2 of Document 3 that uses a hydraulic gradient value of 0.0028 ft/ft in the calculation of ground water velocity appears to be conservative estimate of wet season conditions. **No additional information is requested.**

Section 2.2 -- Leachate

10. The revisions to Section 2.2 of Document 3 regarding the identification of those parameters that are used for process control rather than for regulatory compliance are noted. **No additional information is requested.**

11. The revisions to Section 2.2 of Document 3 regarding the occurrence of total trihalomethanes in the leachate effluent samples are noted. **No additional information is requested.**

Section 3.1 - Ground Water

12. The revision of Section 3.1 of Document 3 regarding the location of well MW-B is noted. **No additional information is requested.**

13. The revision of Section 3.1 of Document 3 regarding the lithology that is monitored at each monitor well is noted. **No additional information is requested.**

Section 3.2 -- Leachate

14. The response to this review comment provided in Part 2 of Document 1 appears to be inconsistent with the revision to Section 3.2 of Document 3. Please submit a revised page 3-2 that is consistent with Rule 62-701.510(6)(c)1, F.A..C., and that indicates the annual sample of the leachate influent will be analyzed for the parameters listed in Rule 62-701.510(8)(c) and (8)(d), F.A.C.

15. The revisions to Section 3.2 of Document 3 regarding sampling parameters and sampling frequency of the leachate effluent are noted. The following comments are provided for the five proposed modifications:

a. Analysis of total trihalomethanes: Based on the results of quarterly analyses of total trihalomethanes provided for the leachate effluent for the last three years, the Department does not support the proposed reduction from quarterly to annual analysis for these parameters. Please note that it is the Department's intention to prepare a permit condition that requires the leachate effluent be analyzed for total trihalomethanes at a semi-annual frequency rather than at the annual frequency indicated in Section 3.2 of Document 3. It is also intended that samples of leachate effluent and ground water from well MW-6 be submitted for analysis for total trihalomethanes on the same schedule to allow comparison. Please submit a revised page 3-2 that reflects this change to the leachate effluent sampling.
b. Analysis of fecal coliform: Based on the results of weekly analyses for fecal coliform provided for the leachate effluent for the last three years and the proposed semi-annual analysis of fecal coliform from ground water collected at well MW-6, the Department does not object to the deletion of this parameter for the leachate effluent. **No additional information is requested.**
c. Analysis of metals: Based on the results of the quarterly analyses of the required metals provided for the leachate effluent for the last three years, the Department does not object to reducing the frequency of analysis of the leachate effluent from quarterly to annually. **No additional information is requested.**
d. Analysis of residual chlorine: Based on the indication in Section 2.2 of Document 3 that the results of residual chlorine are used for process control purposes, the Department does not object to the deletion of this parameter for the leachate effluent. **No additional information is requested.**
e. Analysis of Appendix II parameters listed in 40 CFR Part 258: Based on the results of annual analyses for the Appendix II parameters provided for the leachate effluent for the last three years, the Department does not object to the substitution of annual analysis of the Appendix I parameters. However, it is the Department's intention to prepare a permit condition that requires one leachate effluent sampling event be completed prior to permit renewal that includes the analysis of the Appendix II parameters. Please submit a revised page 3-3 that reflects this change to the leachate effluent sampling.

Please have the applicant contact me at (813) 744-6100, extension 336, to discuss these comments if there are any questions.

jrm

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS
SOLID WASTE MANAGEMENT DIVISION
P.O. Box 340, Lecanto, Florida 34460
(352) 746-5000 FAX (352) 527-1204
Citrus Springs/Dunnellon area Toll Free # (352) 489-2120

D.E.P.
AUG 13 2001
Southwest District Tampa

Susan
Sparta

August 9, 2001

Kim B. Ford, P.E.
Solid Waste Section
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

Re: Citrus County Central Landfill,
Permit No. 274381

Dear Mr. Ford:

On Sunday August 5, our location received 4 inches of rainfall in a few hours. Combined with the fact that we have had regular rains for the month of July, thus bringing the soil to near-saturated conditions, that event caused erosion in the intermediate and daily cover at several places. All of those locations have been repaired. However during the storm event, waste was exposed and was transported into the stormwater system. The only items that were carried with stormwater were small lightweight pieces. We are in the process of removing that material from the north DRA.

Please let me know if you have any questions or comments.

Sincerely,

Susan J Metcalfe

Susan Metcalfe
Director of Solid Waste Management

CONT STORMWATER RELEASE 8/5/01

CC: Ken Frink, Interim Director, Public Works Department

WASTE MANAGEMENT TECHNICAL SUPPORT
ROUTING FORM

PERMITTED FACILITIES

To: John M

From: Ken F

Date: 7/24/01

Subject: Citrus Ops Permit Renewal

Document Name: _____

Revision Number 1

County: Citrus

Facility Name: _____

Type of Facility: Lt Lf

Permit Number: _____

Issue Date: _____

Copies of Permit attached: _____

Document submitted in compliance with permit condition. _____

Document subject to permit timeclock. Yes

Day 1: 7/20/01

Day 30: 8/19/01

PATS sheet attached: _____

Enforcement Case/CO/NOV/ associated with this site: _____

Files and related documents can be found Attention in Filer

Please review and comment on the technical aspects of the attached document as you deem appropriate. In order to maintain progress with the permit review, please provide comments within 30 days or by August 10.

Comments: _____

Module _____

Attachments

WASTE MANAGEMENT TECHNICAL SUPPORT
ROUTING FORM

PERMITTED FACILITIES

To: Susan P.

From: Ken F

Date: 7/24/01

Subject: Citrus Ops permit Renewal

Document Name: _____

Revision Number 1 County: Citrus

Facility Name: _____

Type of Facility: LI LF

Permit Number: _____ Issue Date: _____

Copy of Permit attached: _____

Document submitted in compliance with permit condition. _____

Document subject to permit timeclock. Yes

Day 1: 7/20

Day 30: 8/19

PATS sheet attached: _____

Enforcement Case/CO/NOV/ associated with this site: _____

Files and related documents can be found Attached in file

Please review and comment on the technical aspects of the attached document as you deem appropriate. In order to maintain progress with the permit review, please provide comments within 30 days or by August 10.

Comments: _____

Module _____

Attachments

CITRUS COUNTY
CLASS I LANDFILL
OPERATION PERMIT RENEWAL
RESPONSE TO FDEP RAI

Jones Edmunds & Associates, Inc.
CONSULTING ENGINEERS AND SCIENTISTS
JEA

Gainesville • Jacksonville • Tampa • Destin • Titusville

LETTER OF TRANSMITTAL

Jones Edmunds & Associates, Inc.
CONSULTING ENGINEERS AND SCIENTISTS
JEA

TO:	Mr. Kim B. Ford, P.E. FL Dept of Environmental Protection Southwest District Solid Waste Section 3804 Coconut Palm Drive Tampa, FL 33619-8318 Tel: 813/744-6100	DATE	July 19, 2001
		JOB. NO.	03860-005-01-0100
		RE:	Citrus County Class I Landfill

WE ARE SENDING YOU:

☒ Enclosed ☐ Under Separate Cover
☐ U.S. Mail ☒ UPS ☐ Federal Express ☐ Other
☐ Shop Drawings ☐ Prints ☐ Plans ☐ Samples
☐ Specifications ☐ Copy of Letter ☐ Change Order
☐ Report ☐ Other:

# Copies	Date	Description
4	Jul 2001	Citrus County Central Class I Landfill Operations Plan
4	Jul 2001	Groundwater and Leachate Monitoring Plan Review, Class I Central Landfill, Citrus County, Signed and Sealed
4	Jul 2001	Citrus County Central Class I Landfill Operations Permit Renewal Response to FDEP RAI of May 24, 2001, Signed and Sealed
1	Jul 2001	Citrus County Central Landfill Site Plan

THESE ARE TRANSMITTED AS CHECKED BELOW:

☒ For Approval ☐ For Your Information
☐ For Your Use ☐ As Requested ☐ Other:

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
JUL 20 2001
SOUTHWEST DISTRICT TAMPA

REMARKS:

COPY TO: Susan Metcalfe, P.G. SIGNED: David A. Keough, P.E.

If enclosures are not as noted, kindly notify us at once.

730 NE Waldo Road, Bldg. A - Gainesville, FL 32641-5699 Telephone: (352) 377-5821 FAX: (352) 377-3166
H:\JMcGregor\AAOHMISC\transmittals\TRANSJEA.WPD

Ford, Kim

From: Ford, Kim
Sent: Monday, August 06, 2001 10:45 AM
To: Pelz, Susan
Subject: FW: Citrus County landfill

-----Original Message-----
From: Pelz, Susan
Sent: Thursday, August 02, 2001 4:03 PM
To: 'Reynolds'
Cc: Ford, Kim
Subject: RE: Citrus County landfill

I will answer the questions, I can, and Kim will respond to the others.
1. Recyclables are not knowingly separated and then disposed of separately. If recyclables are not removed prior to disposal at the landfill, then they are disposed along with all the other waste. If they are removed prior to disposal, they are recycled.

2. After the landfill site is closed, the County is responsible for maintaining and monitoring the site for a minimum of 30 years.

Kim, please respond to the following:
Maximum tons/day?
Bottom liner system?
The landfill currently accepts about 200 tons per day.There are two different bottom liners under the active landfill. These liners were installed about 10 years apart but are connected. The first section of 15 acres was built with a single liner and the next section of 4 acres was built with a double liner system. Each liner is 60 mils thick and covered with a series of pipes to collect the contaminated water the infiltrates through the waste.

> -----Original Message-----
> From: Reynolds [mailto:sunsplashing@yahoo.com]
> Sent: Thursday, August 02, 2001 2:19 PM
> To: Pelz, Susan
> Subject: RE: Reynolds-landfill
>
>
> Hi Susan. This is my last as I have to get my fingers
> in gear and write this up. More questions:
> What is the maximum tons a day that will be accepted?
> Are recyclables held in a different cell?
> What kind of liner is at the bottom?
> Who will be responsible for the landfill when it is
> closed and how long will they have to take care of it?
> I am sorry for all the questions but when you have a
> tough teacher you need one heck of a term paper.
> Thanks for all your help!
>
> _____
> Do You Yahoo!?
> Make international calls for as low as $.04/minute with
> Yahoo! Messenger
> http://phonecard.yahoo.com/
>

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS
SOLID WASTE MANAGEMENT DIVISION
P.O. Box 340, Lecanto, Florida 34460
(352) 746-5000 FAX (352) 527-1204
Citrus Springs/Dunnellon area Toll Free # (352) 489-2120

D.E.P.
JUN 25 2001
Southwest District Tampa

June 21, 2001

Kim B. Ford, P.E.
Solid Waste Section
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

Re: Citrus County Central Landfill,
Permit No. 274381 Renewal

Dear Mr. Ford:

Enclosed please find the proof of publication of the required advertisement for the referenced permit renewal.

If you have any questions, please contact me.

Sincerely,

Susan J Metcalfe

Susan Metcalfe
Director of Solid Waste Management

CC: Ken Frink, Interim Director, Public Works Department
David Keough, JEA, Gainesville

Proof of Publication

from the

CITRUS COUNTY CHRONICLE

Crystal River, Citrus County, Florida

PUBLISHED DAILY

STATE OF FLORIDA

COUNTY OF CITRUS

Before the undersigned authority personally appeared

Felicia Satchell

Of the Citrus County Chronicle, a newspaper published daily at Crystal River, in Citrus County, Florida, that the attached copy of advertisement being a public notice in the matter of the

Citrus County Division of Solid Waste Notice of Application Display Advertisement

Court, was published in said newspaper in the issues of June 17, 2001

Affiant further says that the Citrus County Chronicle is a Newspaper published at Crystal River in said Citrus County, Florida, and that the said newspaper has heretofore been continuously published in Citrus County, Florida, each week and has been entered as second class mail matter at the post office in Inverness in said Citrus County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he/she 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.

Felicia J. Satchell

The forgoing instrument was acknowledged before me

This 17th day of June, 2001

By: Felicia Satchell

who is personally known to me and who did take an oath.

Jeanette A Schmidt

Notary Public

Jeanette A Schmidt
Notary Public, State of Florida
Commission No. CC 669909
My Commission Exp. 08/16/2001
1-800-3-NOTARY - Fla. Notary Service & Bonding Co.

317-0617 SUCRN

State of Florida
Department of Environmental Protection
Notice of Application

The Department announces receipt of an application for permit renewal from the Citrus County for Operation of the existing Citrus Country Central Landfill, located on the south side of S.R. 44, 3 miles east of Lecanto, Citrus County, Florida.

This application is being processed and is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at the Department of Environmental Protection, southwest District Office, 3804 Coconut Palm Drive, Tampa, Florida 33619-1352.

F ARD OF COUNTY COMM SSIONERS
DEPARTMENT OF PUBLIC WORKS
SOLID WASTE MANAGEMENT DIVISION
P.O. Box 340, Lecanto, Florida 34460
(352) 746-5000 FAX (352) 527-1204
Citrus Springs/Dunnellon area Toll Free # (352) 489-2120

RECEIVED
JUN 18 2001
Department of Environmental Protection
SOUTHWEST DISTRICT

June 14, 2001

Kim B. Ford, P.E.
Solid Waste Section
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

Re: Citrus County Central Landfill,
Permit No. 274381 Renewal

Dear Mr. Ford:

Thank you for meeting with representatives of Jones, Edmunds & Associates and me yesterday. Following that discussion, we would like to request an additional 30 days to complete our responses to the Department's Request for Additional Information.

I discovered that the notice of application had not been published previously. We will proceed with publication as soon as possible, and recognize that this reopens the public review and comment period.

If you have any questions, please contact me.

Sincerely,

Susan Metcalfe

Susan Metcalfe
Director of Solid Waste Management

CC: Ken Frink, Interim Director, Public Works Department
David Keough, JEA, Gainesville
John Morris, FDEP, Tampa
Bob Butera, FDEP, Tampa
Susan Pelz, FDEP, Tampa

Cindy [illegible]

meeting 6/13/01

1135 p

Kim Ford	DEP	(813) 744-6100 x382
Susie Metcalfe	Citrus County	352-746-5000
DAVID KEOUGH	JEA	352-377-5821
John Lockler	JEA	352 377-5821
Mickey Pollman	JEA	352 377-5821
JUDY DeVITA	JEA	"
3pm Joan Morris	DEP	744-6100 x336

CITRUS LF meeting
6/13/01

Discussed 5/24/01 RAI

#3 Discussed without documents
need to be in appendix,
separate; or in Ops plan

Discussed seq of fill
DK - current seq is ok for 2 - 3 years
SM - Citrus County has plans to
design and expand in next 2 yrs.
The ops plan is for phase I & IA

We reviewed other editorial comments
in my review copy

3pm J Morris comes in to
discuss GW.

Erin

APPENDICES

APPENDIX A	OPERATOR TRAINING FORMS plan
APPENDIX B	PHASE 1 AND 1A FILLING PLANS ~~(No change, not included)~~
APPENDIX C	LOAD CHECKING PROGRAM ~~(No change, not included)~~ Form
~~APPENDIX D~~	~~UNAUTHORIZED WASTE TRAINING~~ course to be described in Ops Plan
APPENDIX E	MAINTENANCE SUMMARY FORM ~~(No change, not included)~~ - is referred in Ops Plan
~~APPENDIX F~~	~~AGREEMENTS FOR OFF SITE LEACHATE TREATMENT AND DISCHARGE~~ but reservoir X ops plan if leachate on-site was released.
~~APPENDIX G~~	~~GAS MONITORING PROGRAM (No change, not included)~~ is in Ops Plan
~~APPENDIX H~~	~~LOCATION OF LEACHATE/CONTAMINATED STORMWATER PIPING (No change, not included)~~
APPENDIX I	LAND LEASE (No change, not included)
APPENDIX J	~~CLEANING OF LEACHATE LINES~~ to be in Ops plan
APPENDIX K	TEMPORARY CONCEPTUAL TRANSFER STATION (No change, not included) [illegible] Ops plan
~~APPENDIX M~~	~~ACCESS ROAD (No change, not included)~~
~~APPENDIX N~~	~~HOUSEHOLD HAZARDOUS WASTE OPERATIONS PLAN~~
~~APPENDIX O~~	~~LEACHATE TREATMENT PLANT AND TANK OPERATIONS MANUAL (No change, not included)~~ in Ops Plan and reference Oper manual

Citizens Drop-Off Area

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

May 24, 2001

Ms. Susan Metcalfe, P.G.
Citrus County
Solid Waste Management
PO Box 340
Lecanto, FL 34460

Re: Citrus County Central Landfill
Pending Permit No.: #21375-003-SO, Citrus County

Dear Ms. Metcalfe:

This is to acknowledge receipt of your permit renewal application received April 27, 2001 for operation of the Citrus County Central Landfill.

This letter constitutes notice that a permit will be required for your project pursuant to Chapter(s) 403, Florida Statutes.

Your permit application is incomplete. This is the Department's 1st request for additional information. Please provide the information listed below promptly. Evaluation of your proposed project will be delayed until all requested information has been received.

The following information is needed in support of the solid waste applications [Chapters 62-701, Florida Administrative Code (F.A.C.)]. Please provide:

1. Proof of publication of notice of application pursuant to Rule 62-110.106, see attached notice.

2. 62-701.300. An explanation to confirm that each of the prohibitions will not be violated.

3. 62-701.320(7)(e)1. Complete comprehensive updated Operations Plan with all revisions and necessary attachments. Clarification is needed to identify which appendices are to be supplemented with new pages, replaced, or deleted.

4. 62-701.330(4)(d). Topographic map (current - less than 6 months old) with 5-foot contour intervals and topographic plans with cross sections of lifts for 5 years of disposal.

Bob your copy

Cindy Lee

meeting 6/13/01

1135 p

Kim Ford	DEP	(813) 744-6100 x382
Susie Metcalfe	Citrus County	352-746-5000
DAVID KEOUGH	~~JEA~~	352-377-5821
John Lockler	JEA	352 377-5821
Mickey Pollman	JEA	352 377-5821
JUDY DeVITA	JEA	"
3p Tom Morris	DEP	744 6100 x336

Board of County Commissioners

Department of Public Works

Post Office Box 167, Lecanto, Florida 34460

(904) 746-4107 — Fax (904) 746-1203

October 20, 1995

117956.28.01

Kim B. Ford, P.E.
Solid Waste Section
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, FL 33619

RECEIVED
OCT 26 1995
Department of Environmental Protection
SOUTHWEST DISTRICT
BY

Dear Mr. Ford:

Subject: Citrus County Central Landfill
Phase 1 Operating Permit Renewal
Pending Permit Number.: SO09-274381

The purpose of this correspondence is to provide the information requested in your letter dated August 15, 1995 to renew the operating permit for Phase 1 of the Citrus County Central Landfill. As you suggested in your letter dated August 28, 1995, this information is being provided as a supplement to the permit application we previously submitted on May 31, 1995 for the Citrus County Central Landfill Phase 2 Expansion. As such, it is our understanding that:

- Your office is accepting the referenced previous application for the Phase 2 Expansion as an application for the Phase 1 operating permit renewal.
- Information in the referenced previous application which is not applicable to Phase 1 operations is not considered as part of the Phase 1 operating permit renewal application.
- Phase 2 information in the referenced previous application which is applicable to Phase 1 operations is considered to be part of the Phase 1 operating permit renewal application.

To help clarify the subject application for the Phase 1 operating permit renewal, we have provided a revised permit application form in Attachment A. This form is been modified from the form submitted on May 31, 1995 to reflect an application for renewal of an operations permit instead of an application for construction and operations of the Phase 2 expansion.

Your requests for additional information from your August 15, 1995 letter are restated below with our response.

Request No. 1 *Please provide information to demonstrate that each of the prohibitions of FAC 62-701.300 will not be violated.*

Response No. 1 Specific information to demonstrate that each of the prohibitions of Rule 62-701.300, FAC was not provided in the previous application because neither Chapter 62-701, FAC or the State of Florida Department of Environmental Protection Solid Waste Management Facility Permit Application and Instructions Forms [FDEP Form # 62-701.900(1)] require a specific demonstration of compliance with the prohibitions. Compliance with the prohibitions is demonstrated throughout the permit application and supporting documentation. Each of the prohibitions is discussed in Attachment B to this correspondence to assist your office in locating the related information in the permit application.

Request No. 2 *Item D.13. Please provide proof of publication of notice of application as per FAC 62-701.320(8), see attachment.*

Response No. 2 Proof of publication of the notice of application is provided in Attachment C to this correspondence.

Request No. 3 *Item D.14. Please provide confirmation from DOT that there are no airports within five miles of the landfill.*

Response No. 3 Confirmation from the Florida Department of Transportation (FDOT) that there are no airports within five miles of the landfill is provided in Attachment D to this correspondence

Request No. 4 *Item E.3. and 4. Please provide the site plans and cross-sections for all trenching and disposal areas. Cross-sections are requested for each disposal area in six-months increments to show the sequence of filling for at least 5 years and not more than 10 years. A Phase 1 only operation plan is required since Phase 2 has not been constructed. A permit modification may be required for phase 2 operation upon completion of construction.*

Attachment B
Rule 62-701.300 (FAC) - Prohibitions

This attachment addresses each of the prohibitions in Rule 62-701.300 (FAC) in relation to operation of Phase 1 of the Citrus County Central Landfill. The prohibition numbers are provided below along with a response.

Rule 62-701.300(1)(a), FAC

The Phase I Citrus County Central Landfill is permitted by the Florida Department of Environmental Protection as a solid waste management facility. The permit number for construction of the facility is SC09-155514. The permit number for past operations of the facility is SO09-187229. The pending permit number for future operations of the facility is SO09-274381.

Rule 62-701.300(1)(b), FAC

The Phase I Citrus County Central Landfill is operated to not cause air quality standards or water quality standards to be violated. The operations plan for the facility includes both a water quality monitoring plan and gas monitoring program. The water quality monitoring plan was included in the previously made permit application and has subsequently been revised to address FDEP's August 15, 1995 request for additional information (Number 23). The gas monitoring program is addressed in Section 9 of the previously submitted operations plan and has subsequently been revised to address FDEP's August 15, 1995 request for additional information (Number 19).

Rule 62-701.300(2)(a), FAC

The geotechnical investigation and hydrogeological investigation which were conducted prior to construction of the facility and submitted as part of the facility construction permit demonstrate that the geologic formations and other subsurface features will provide adequate support for the solid waste.

Rule 62-701.300(2)(b), FAC

This prohibition is not applicable to the facility because geologic formations and subsurface features in combination with the landfill lining and leachate collection system impede the discharge of waste and leachate to both groundwater and surface water.

Rule 62-701.300(2)(c), FAC

The well inventory included in the hydrogeological investigation which was conducted prior to construction of the facility and submitted as part of the facility construction

permit shows that no shallow water supply wells within 500 feet were in existence prior to facility permitting.

Rule 62-701.300(2)(d), FAC

The Phase I Citrus County Central Landfill is not a dewatered pit. Section G.2.a.3 on Page G-4 of the previously submitted permit application demonstrates that the groundwater level is below the landfill bottom.

Rule 62-701.300(2)(e), FAC

Section F.1 on Page F-1 of the previously submitted permit application demonstrates that the Phase I Citrus County Central Landfill is not located in an area subject to frequent and periodic flooding.

Rule 62-701.300(2)(f), FAC

Figure D-1 of the previously submitted permit application demonstrates that the Phase I Citrus County Central Landfill is not located in any natural or artificial bodies of water. Section G.2.a.3 on Page G-4 of the previously submitted permit application demonstrates that the groundwater level is below the landfill bottom.

Rule 62-701.300(2)(g), FAC

The surface water management permit application which was prepared prior to construction of the facility demonstrate that the Citrus County Central Landfill is not located within 200 feet of a body of water or jurisdictional wetland.

Rule 62-701.300(2)(h), FAC

Phase 1 of the Citrus County Central Landfill is located entirely within County owned property and not on any public highways, roads, or alleys.

Rule 62-701.300(3), FAC

Operations for Phase 1 of the Citrus County Central Landfill are included in the operations plan previously submitted. Burning of solid waste is not part of landfill operations.

Rule 62-701.300(4), FAC

Operations for Phase 1 of the Citrus County Central Landfill are included in the operations plan previously submitted. Placing hazardous waste in the facility is not part of landfill operations.

Rule 62-701.300(5), FAC

No liquids or non-liquids containing PCBs at concentrations of 50 parts per million or greater will be knowingly disposed of in Phase 1 of the Citrus County Central Landfill.

Rule 62-701.300(6), FAC

No untreated biohazardous waste will be knowingly disposed of in Phase 1 of the Citrus County Central Landfill.

Rule 62-701.300(7), FAC

Figure D-1 of the previously submitted permit application demonstrates that Phase I of the Citrus County Central Landfill is not located within 3,000 feet of any Class I surface water bodies.

Rule 62-701.300(8), FAC

No lead-acid batteries, used oil, yard trash, white goods, or whole waste tires will be knowingly disposed of in Phase 1 of the Citrus County Central Landfill.

Rule 62-701.300(9), FAC

This prohibition is not applicable since Phase 1 of the Citrus County Central Landfill does not include a waste to energy facility.

Rule 62-701.300(10)(a), FAC

No noncontainerized liquid waste; except household waste other than septic waste, or leachate condensate, gas condensate, or treatment byproducts from the facility; will be knowingly disposed of in Phase 1 of the Citrus County Central Landfill.

Rule 62-701.300(10)(b), FAC

No containerized liquid waste; except small containers normally found in household waste, containers designed to hold liquids for use other than storage, or the waste is household waste; will be knowingly disposed of in Phase 1 of the Citrus County Central Landfill.

Rule 62-701.300(10)(c), FAC

Containers or tanks larger 20 gallons or larger shall be cut open or punctured to ensure the container is empty and free of residue prior to disposal in the landfill. In addition, the container shall be compacted to its smallest practical volume prior to disposal.

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

June 1, 2001

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
JUN - 5 2001
SOUTHWEST DISTRICT
TAMPA

Ms. Susan J. Metcalfe, Director
Division of Solid Waste Management
Citrus County
P.O. Box 340
Lecanto, Florida 34460

Dear Ms. Metcalfe:

Your Application for Registration of a Yard Trash Processing Facility for Citrus County Central Landfill is complete. Your facility identification number is 054-01-YT. This registration is valid until **May 1, 2002**. The receipt number for the registration fee you paid is 351716.

You must comply with the following requirements in order to maintain qualification for the registration program:

1. Monthly records of incoming and outgoing material shall be kept on site or at another location as indicated on the registration form for at least three years.

2. An Annual Report for a Yard Trash Processing Facility, DEP Form 62-709.320 (7)(b), shall be submitted by April 1 of each year.

3. A registration renewal, DEP Form 62-709.320(7)(a), shall be submitted by April 1 of each year to renew this registration.

4. The facility shall be operated in accordance with Rules 62-709.320(3) and (4), Florida Administrative Code. A summary of these requirements is enclosed.

If you need further information, please contact Francine Joyal at the above address, Mail Station 4565, telephone 850/921/9977, or email Francine.Joyal@dep.state.fl.us.

Sincerely,

Francine Joyal

Francine Joyal
Environmental Specialist

Enclosure

cc: Bob Butera, Southwest District

Is this the bottom liner? or a protective layer

Look at the tension (stress) on it-
If it continues like this it will likely fail.

CITRUS CENTRAL
CITRUS COUNTY

05/09/01
S. PETRO

Recycle Alley

CITRUS CENTRAL
CITRUS COUNTY

05/09/01
S. PETRO

looking east

CITRUS CENTRAL
CITRUS COUNTY

05/09/01
S. PETRO


DO NOT
ONE WAY
ENTER
13 3 '01


13 3 '01


13 3 '01

CITRUS CENTRAL
CITRUS COUNTY

05/09/01
S. PETRO

CITRUS CENTRAL
CITRUS COUNTY

05/09/01
S. PETRO

CITRUS CENTRAL
CITRUS COUNTY

05/09/01
S. PETRO

Ford, Kim

From: Morris, John R.
Sent: Monday, June 04, 2001 12:35 PM
To: Ford, Kim
Subject: Accepted: Citrus LF Ops Permit Renewal - RAI Meeting June 13, 1:30

Ford, Kim

Subject:	Citrus LF Ops Permit Renewal - RAI Meeting June 13, 1:30
Location:	WASTE CONF RM
Start:	Wed 6/13/01 1:30 PM
End:	Wed 6/13/01 3:00 PM
Recurrence:	(none)
Meeting Status:	Meeting organizer
Required Attendees:	Ford, Kim; Morris, John R.
Optional Attendees:	Butera, Robert; Pelz, Susan

NOTICE OF MEETING

Today's date: 6/4/01 Writer: K FORD

Date of meeting: JUNE 13

Time: 1:30 -

Place: WASTE CONFERENCE

Subject: CITRUS LF
OPS PERMIT RENEWAL

Explanation: — TO DISCUSS NAE ISSUES

Requested by: DAVID KEOUGH Ph.# _____

Names of attendees other than DER: SMITHCALFE

Local Program notified: ☐/yes ☐/no Attending? _____

Copies to anticipated in-house attendees:
KM
JOHN

Information copies to:
BOB
SUSAN

TPA-04
07/88

(1)

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS
SOLID WASTE MANAGEMENT DIVISION
P.O. Box 340, Lecanto, Florida 34460
(352) 746-5000 FAX (352) 527-1204
Citrus Springs/Dunnellon area Toll Free # (352) 489-2120

TELECOPIER MESSAGE

DATE: 5/28/01

TIME: 3:27

NO. OF PAGES 18 INCLUDING COVER SHEET:

TO: JOHN MORRIS
FDEP

FROM: SUSIE METCALFE

SUBJECT: CONTAMINATION ASSESSMENTS REPORT (EXCERPTS)

MESSAGE:

File Copy
Task 18 (2)

Contamination Assessment Report

Prepared For

Citrus County Central Landfill

CITRUS COUNTY, FLORIDA

Prepared By

CH2M HILL
4350 WEST CYPRESS STREET
TAMPA, FLORIDA 33607

April 1996

Steven A. Faraggio, P.E.
47091
4-25-96

Contents

(4)

2. Field Investigation

All groundwater sampling activities and laboratory analyses were performed by Orlando Laboratories, Inc., in accordance with its FDEP-approved Comprehensive Quality Assurance Plan (CompQAP) (#860106G). All other field activities were performed by CH2M HILL in accordance with its FDEP-approved Field Comprehensive Quality Assurance Plan (#910036G).

2.1 Evaluation of Existing Monitoring Wells

The six existing monitoring wells (MW-R-1, MW-AA, MW-B, MW-C, MW-D, and MW-E) were evaluated for acceptability for continued groundwater monitoring. A field inspection of the wells was conducted on September 8, 1995. The wells were sounded, to compare present depth with reported original depths. Wells MW-B and MW-C have installed pumps that prevent access; therefore, total depth measurements could not be collected from these wells. Table 2-1 presents the well construction details based on construction histories and the field inspection. Monitoring well completion diagrams and soil boring logs (where available) for the six wells are provided in Appendix B.

TABLE 2-1
Monitoring Well Construction Details
Citrus County Landfill

Well ID	Well Casing Diameter (inches)	Length of Screen (feet)	Reported Original Total Depth	Measured Total Depth (ft btoc)
MW-R-1	2	20	126	124.5
MW-D	4	20(a)	208	208
MW-E	2	20	115	117.58
MW-AA	2	10	116.42	115.8
MW-B	4	20	124	--
MW-C	4	7(b)	199	--

Notes:
btoc = below top of casing
(a)Open hole from 188 to 208 feet
(b)Open hole from 192 to 199 feet

2.2 Hydraulic Conductivity Testing

Hydraulic conductivity (slug) tests were performed on September 8, 1995, at select monitoring wells surrounding the 60-acre closed landfill and the 80-acre active landfill. The five monitoring wells included in the testing were MW-R-1, MW-D, MW-E, MW-AA, and MW-3. Monitoring wells MW-B and MW-C, located near the southern boundary of the 60-acre closed landfill, were originally proposed for testing, however, installed pumps at each of these wells prevented access. Therefore, monitoring well MW-3, located at the southern boundary of the 80-acre site, was substituted in the testing plan.

The static depth to water and total depth of the well were determined with an electronic water level indicator before testing began. A 0- to 15-pound-per-square-inch pressure transducer was placed in the well. The transducer cable was connected to a data logger programmed to measure and record water level data during the slug test. The transducer was positioned approximately 10 feet below the water surface, where well depth permitted.

After the initial water level was measured and recorded, a 1.5-inch diameter by 5.5-foot long PVC slug was lowered into the well (a 3.75-inch diameter by 6-foot long PVC slug was used for 4-inch well MW-D), and water levels were allowed to equilibrate. The slug was then quickly removed from the well, causing the water level to drop rapidly. The data logger measured and recorded the recovery of the water level in the well for at least ten minutes or until the approximate pretest groundwater elevation was reached. The slug out procedure was conducted twice for all wells (Runs 1 and 2) to confirm results.

Slug test data were analyzed using the method described by Bouwer and Rice (1976) to determine hydraulic conductivity. Based on the hydraulic gradient, hydraulic conductivity, and the effective porosity of the lithology of the subsurface in which the slug tests were conducted, a horizontal velocity was calculated from the following relationship:

$$V = Ki/n$$

where:

V = average horizontal groundwater velocity (ft/day)
K = horizontal hydraulic conductivity (ft/day)
i = hydraulic gradient (ft/ft)
n = effective porosity (percent)

The horizontal velocity across the site can then be represented in ft/day or ft/year. Hydraulic conductivity test analysis sheets are provided in Appendix C.

2.3 Groundwater Sampling and Analysis

Groundwater samples were collected from the six monitoring wells on a quarterly basis for a period of one year. Sampling events were conducted in April, July, and October 1995, and in January 1996. Per the requirements of Groundwater Monitoring Permit No. SF09-211030 for the closed landfill, samples collected from MW-AA, MW-C, MW-D, and MW-E were analyzed for VOCs using EPA Methods 601/602. Per the requirements of FDEP Permit No. SO09-187229 for the active 80-acre site, samples collected from MW-B and MW-R-1 were analyzed for VOCs using EPA Method 8260.

3. Contamination Assessment Results

3.1 Site-Specific Geology and Hydrogeology

PBS&J performed Standard Penetration Test (SPT) soil borings and developed several cross-sections for the site. A representative cross-section is shown in Figure 3-1. The upper 130 feet of sediments range from fine to medium sands to clayey, silty fine sands. Several 1- to 2-foot clay layers were encountered between 50 and 80 feet below land surface (bls). The shallow stratigraphy of the site can be generalized as a 10-foot thick surface layer of fine to medium-grained quartz sand; underlain by 120 feet of silty, clayey sand, and silty, fine-grained sand. These sediments form a low permeability unit above the Floridan aquifer with an average hydraulic conductivity of 0.024 feet per day. Below these surficial sediments lie the thick sequence of carbonate rocks of the Floridan aquifer including the Suwannee, Ocala, and Avon Park Formations.

The Oligocene Suwannee Formation outcrops in the southwestern and northeastern parts of Citrus County. Borings made at the landfill site reveal that the top of the Suwannee Formation is very irregular, its top surface being encountered as high as 80 feet above mean sea level (msl) at some locations. Land surface elevations average about 120 feet above msl. At other locations it was not encountered in borings advanced as deep as 54 feet below msl.

Groundwater elevations in the vicinity of the site range from approximately 5 to 7 feet above msl (approximately 113 to 115 feet bls). In those areas where the limestone surface projects above the water table, the limestone aquifer is strictly unconfined. Beneath most of the site, however, the top surface of the limestone lies 50 or more feet below saturated low to moderate permeability surficial sediments. In these areas, the limestone aquifer can be characterized as semi-confined or leaky-confined.

The depth to water measurements collected at the site on September 8, 1995 are presented in Table 3-1. The relative water level elevations were plotted on a water level map (see Figure 3-2) to determine the groundwater flow direction. The data indicate that the groundwater flow at the Citrus County landfill site is to the west. The hydraulic gradient is approximately 0.0004 ft/ft.

TABLE 3-1
Groundwater Elevation Data
Citrus County Landfill

Well ID	Casing Stick-up Height (feet)	Ground Elevation (ft, NGVD)	Depth to Water (ft, btoc)	Water Level Elevation (ft, NGVD)
MW-R-1	2.85	115.3	111.34	6.81
MW-D	1.5	108.4	103.18	6.72
MW-E	2.42	107.0	102.86	6.56
MW-AA	1.45	104.7	99.45	6.70
MW-3	0.41	119.5	112.18	7.73

Notes:
btoc = below top of casing

(7)

Table 3-2 presents the hydraulic conductivity test results. As shown in the table, the two test runs were fairly repeatable (with the exception of MW-D), with percent differences of approximately 10 or less. The average hydraulic conductivity (K) for the wells completed in the surficial sediments (MW-R-1, MW-E, MW-AA, and MW-3) was 15.7 ft/day. MW-D exhibited an average hydraulic conductivity of 548 ft/day. This value is much higher because MW-D is completed in limestone of relatively high permeability, compared to the surficial sediments of the other four wells.

Based on an average hydraulic conductivity of the surficial sediments of 15.7 ft/day, a hydraulic gradient of 0.0004 ft/ft, and an assumed effective porosity of 0.2 (typical of sand), the horizontal velocity across the site is estimated to be 0.03 ft/day or 11.5 ft/year.

TABLE 3-2
Hydraulic Conductivity Test Results
Citrus County Landfill

	Horizontal Hydraulic Conductivity (K, ft/day)			Average K
Well ID	Run 1	Run 2	% Difference	(ft/day)
MW-R-1	0.06	0.07	9.5	0.6
MW-D(1)	297	800	169.4	548
MW-E	56.7	62.7	10.6	59.7
MW-AA	2.83	2.83	0	2.83
MW-3	0.37	0.38	1.1	0.37
Overall Average	71.4	173	38.1	122
Non-Limestone Average(2)	15.0	16.5	5.3	15.7

Notes:
(1)Monitoring well MW-D is completed into limestone.
(2)Non-limestone average includes all wells except MW-D.

3.2 Sampling and Analysis Results

The quarterly groundwater samples collected at the site were analyzed for VOCs. Table 3-3 presents the groundwater analytical results. Benzene was detected in the April 1995 sample collected from MW-E and the October 1995 sample collected from MW-AA at 1 microgram per liter (µg/L), which is the primary drinking water standard (PDWS). However, the analytical results for benzene in the January 1996 samples collected from MW-E and MW-AA were below the method detection limit (bmdl). Vinyl chloride was detected in all samples collected from MW-AA and MW-E. The January 1996 vinyl chloride concentration for both wells was 3 µg/L, slightly exceeding the PDWS of 1 µg/L. Acetone was detected in the January 1996 sample collected from MW-R-1 at 860 µg/L, exceeding the guidance concentration of 700 µg/L. MW-R-1 was resampled on February 15, 1996, to confirm acetone concentrations. Acetone, a common laboratory contaminant, was detected in the February sample at 240 µg/L and also was detected in the associated equipment blank at 22 µg/L. EPA guidance document *Functional Guidelines for Evaluating Data Quality* (EPA, 1994) states that if the concentration of acetone in the sample is less than or equal to 10 times the amount in any blank, the result in not considered positive. Therefore, the concentration of acetone detected in the January 1996 sample for

4. Conclusions and Recommendations

The results of the contamination assessment at the 60-acre landfill site are summarized below.

- The six existing monitoring wells are in good condition and are acceptable for continued groundwater monitoring.
- Groundwater elevation measurements indicate the groundwater contour is relatively flat, with a hydraulic gradient of approximately 0.0004 ft/ft to the west.
- Slug test data indicate that the hydraulic conductivity in the surficial sediments is approximately 15.7 ft/day, resulting in a horizontal velocity across the site of 0.03 ft/day.
- In the January 1996 sampling event, vinyl chloride was detected in MW-AA and MW-E at 3 µg/L, slightly exceeding the PDWS of 1 µg/L. No significant groundwater contamination was detected in any of the other five monitoring wells.

Given that the detected groundwater contamination is minimal and the horizontal groundwater velocity across the site is low, it is unlikely the contamination will migrate significantly. However, because there are domestic wells downgradient of the site, continued groundwater monitoring on a routine (semi-annual) basis is recommended.

CH2M HILL

SLUG TEST ANALYSIS FOR DETERMINATION OF HORIZONTAL HYDRAULIC CONDUCTIVITY, K - BOUWER & RICE METHOD

Well ID: MW R-1, RUN 1

	Value
Radius of casing, rc (in.)	1.00
Radius to undisturbed aquifer, rw (in.)	3.00
Length of well submergence, Lw (ft.)	13.16
Length of submerged screen, Le (ft.)	13.16
(If Lw < Le, let Le = Lw)	
Height of water in aquifer, H (ft.)	13.16
Initial (max.) water level drawdown from static, y(0) (ft.) (y-intercept)	2.26

If Lw <= Le, porosity, n, of the gravel/sandpack must be accounted for in the radius of the casing, rc:

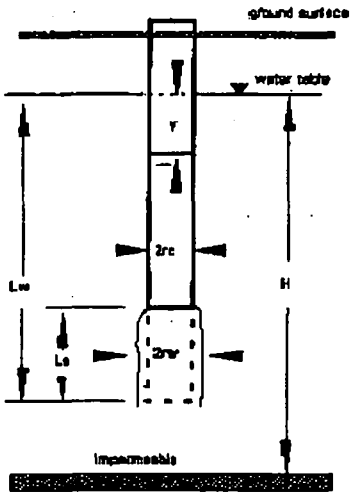
Porosity of sandpack, n (fraction) 0.20

(if porosity unknown, type "ND")

Adjusted radius of casing, r'c:

r'c = ((1-n)rc**2 + n(rw**2))**1/2

r'c (ft.) = 0.134



From the Thiem equation, horizontal hydraulic conductivity, K can be calculated as:

K = (rc**2 (ln(Re/rw)) / 2Le) (1/t) (ln(y(0)/y(t)))

where: t = time (min)

y = drawdown from static water level

Re = effective radial distance over which y(drawdown) is dissipated

The value of ln(Re/rw) depends on the penetration of the well into the aquifer

If the well is partially penetrating (Lw < H):

ln(Re/rw) = (1.1 / ln(Lw/rw) +(A + B ln((H - Lw) / rw) / (Le / rw)))**-1

where A and B are obtained from data curves

Le / rw = 52.64 A = [ ]

Le / rw = 52.64 B = [ ]

---- If the well is fully penetrating:

ln(Re/rw) = (1.1 / ln(Lw/rw) + C / (Le / rw))**-1

where C is obtained from a data curve

Le / rw = 52.64 C = 2.70

Since the well is fully penetrating:

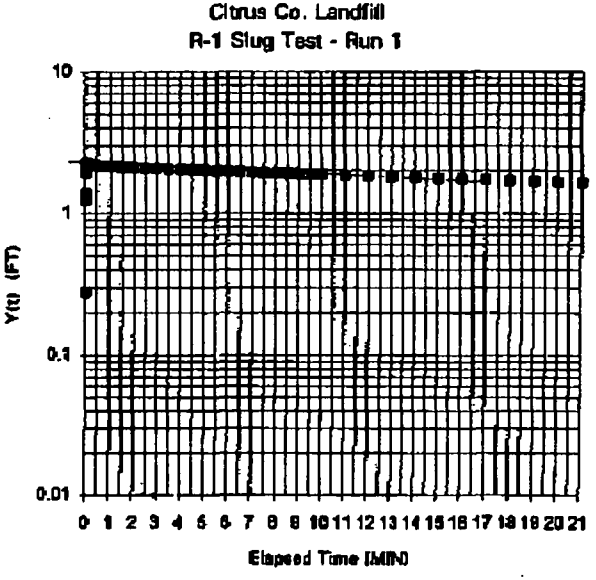
ln(Re/rw) = 3.04

From the semi-log drawdown vs. time plot:

Y-intercept, y(0) (feet.) =	2.26
Y-value, y(t), at time, t , (feet) =	2.00
Time, t (min) =	6.00

Solving for horizontal hydraulic conductivity, K:

K = 8.12E-02 ft/day K = 2.16E-05 cm/s



If the maximum (initial) drawdown is below the level of the well screen, y(0) > Lw - Le, a double straight-line effect may be noted in the water level response curve: Double straight-line may occur

File: MWR1-ANALYS

9/11/86

9

CH2M HILL

SLUG TEST ANALYSIS FOR DETERMINATION OF HORIZONTAL HYDRAULIC CONDUCTIVITY, K - BOUWER & RICE METHOD

Well ID: MW R-1, RUN 2

	Value
Radius of casing, rc (in.)	1.00
Radius to undisturbed aquifer, rw (in.)	3.00
Length of well submergence, Lw (ft.)	13.16
Length of submerged screen, Le (ft.)	13.16
(If Lw < Le, let Le = Lw)	
Height of water in aquifer, H (ft.)	13.16
Initial (max.) water level drawdown from static, y(0) (ft.) (y-intercept)	2.00

If Lw < = Le, porosity, n, of the gravel/sandpack must be accounted for in the radius of the casing, rc:

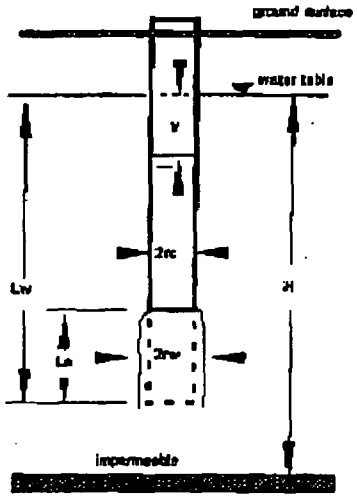
Porosity of sandpack, n (fraction) 0.20

(if porosity unknown, type "ND")

Adjusted radius of casing, r'c:

r'c = ((1-n)rc**2 + n(rw**2))**1/2

r'c (ft.) = 0.134



From the Thiem equation, horizontal hydraulic conductivity, K can be calculated as:

K = (rc**2 (ln(Re/rw)) / 2Le) (1/t) (ln(y(0)/y(t))

where: t = time (min)

y = drawdown from static water level

Re = effective radial distance over which y(drawdown) is dissipated

The value of ln(Re/rw) depends on the penetration of the well into the aquifer

If the well is partially penetrating (Lw < H):

ln(Re/rw) = (1.1 / ln(Lw/rw) +(A + B ln((H - Lw) / rw) / (Le / rw)))**-1

where A and B are obtained from data curves

Le / rw = 52.64 A =

Le / rw = 52.64 B =

---- If the well is fully penetrating:

ln(Re/rw) = (1.1 / ln(Lw/rw) + C / (Le / rw))**-1

where C is obtained from a data curve

Le / rw = 52.64 C = 2.70

Since the well is fully penetrating:

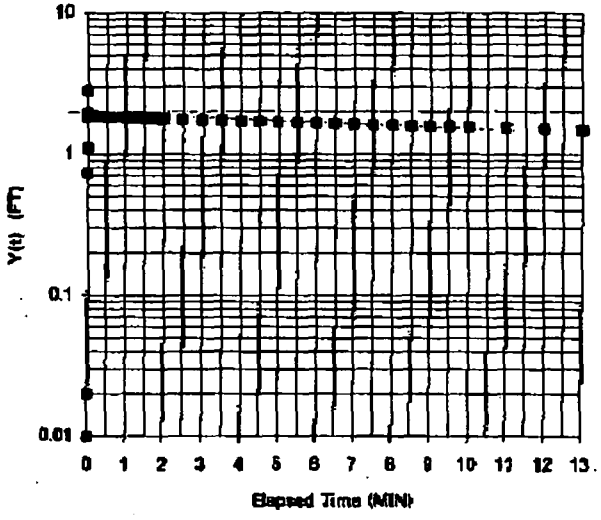
ln(Re/rw) = 3.04

From the semi-log drawdown vs. time plot:

Y-intercept, y(0) (feet.) =	2.00
Y-value, y(t), at time, t , (feet) =	1.60
Time, t (min) =	10.00

Citrus Co. Landfill

R-1 Slug Test - Run 2



Solving for horizontal hydraulic conductivity, K:

K = 6.70E-02 ft/day K = 2.36E-05 cm/s

If the maximum (initial) drawdown is below the level of the well screen, y(0) > Lw - Le, a double straight-line effect may be noted in the water level response curve: Double straight-line may occur

CH2M HILL

SLUG TEST ANALYSIS FOR DETERMINATION OF HORIZONTAL HYDRAULIC CONDUCTIVITY, K - BOUWER & RICE METHOD

Well ID: MW-D, RUN 1

	Value
Radius of casing, rc (in.)	2.00
Radius to undisturbed aquifer, rw (in.)	5.00
Length of well submergence, Lw (ft.)	104.82
Length of submerged screen, Le (ft.)	20.00
(If Lw < Le, let Le = Lw)	
Height of water in aquifer, H (ft.)	104.82
Initial (max.) water level drawdown from static, y(0) (ft.) (y-intercept)	3.25

If Lw <= Le, porosity, n, of the gravel/sandpack must be accounted for in the radius of the casing, rc:

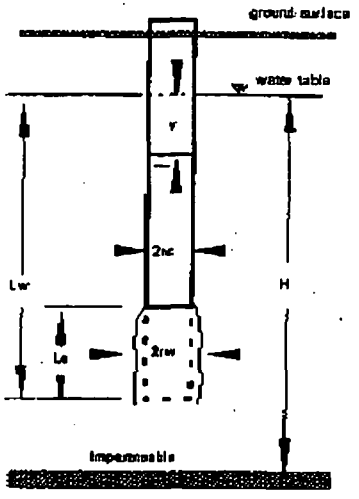
Porosity of sandpack, n (fraction) 0.20

(if porosity unknown, type "ND")

Adjusted radius of casing, r'c:

r'c = [(1-n)rc**2 + n(rw**2)]**1/2

r'c (ft.) = 0.167 No adjustment performed



From the Thiem equation, horizontal hydraulic conductivity, K can be calculated as:

K = rc**2 [ln(Re/rw)] / 2Le (1/t) (ln(y(0)/y(t))

where: t = time (min)

y = drawdown from static water level

Re = effective radial distance over which y(drawdown) is dissipated

The value of ln(Re/rw) depends on the penetration of the well into the aquifer

If the well is partially penetrating (Lw < H):

ln(Re/rw) = (1.1 / ln(Lw/rw) + [A + B ln(H - Lw) / rw) / (Le / rw)])**-1

where A and B are obtained from data curves

Le / rw = 48 A =

Le / rw = 48 B =

---- If the well is fully penetrating:

ln(Re/rw) = (1.1 / ln(Lw/rw) + C / (Le / rw))**-1

where C is obtained from a data curve

Le / rw = 48 C = 2.63

Since the well is fully penetrating:

ln(Re/rw) = 3.94

From the semi-log drawdown vs. time plot:

Y-intercept, y(0) (feet.) =	3.26
Y-value, y(t), at time, t , (feet) =	0.34
Time, t (min) =	0.03

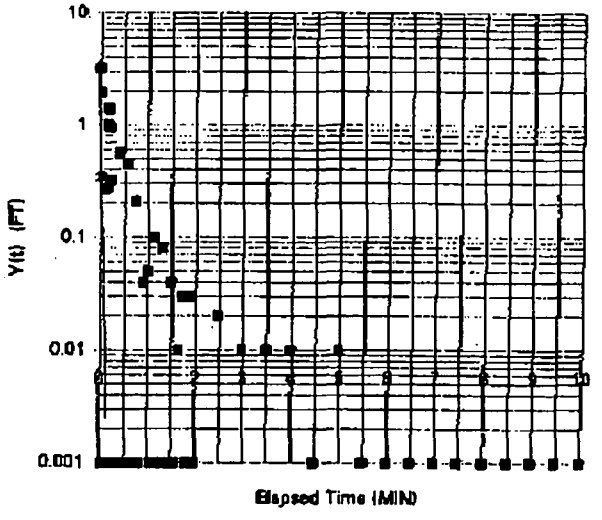
Solving for horizontal hydraulic conductivity, K:

K = 2.97E+02 ft/day K = 1.05E-01 cm/s

If the maximum (initial) drawdown is below the level of the well screen, y(0) > Lw - Le, a double straight-line effect may be noted in the water level response curve: Double straight-line should not occur

Citrus Co. Landfill

MW-D Slug Test - Run 2



CH2M HILL

SLUG TEST ANALYSIS FOR DETERMINATION OF HORIZONTAL HYDRAULIC CONDUCTIVITY, K - BOUWER & RICE METHOD

Well ID: MW-D, RUN 2

	Value
Radius of casing, rc (in.)	2.00
Radius to undisturbed aquifer, rw (in.)	5.00
Length of well submergence, Lw (ft.)	104.82
Length of submerged screen, Le (ft.)	20.00
(if Lw < Le, let Le = Lw)	
Height of water in aquifer, H (ft.)	104.82
Initial (max.) water level drawdown from static, y(0) (ft.) (y-intercept)	3.35

If Lw < = Le, porosity, n, of the gravel/sandpack must be accounted for in the radius of the casing, rc:

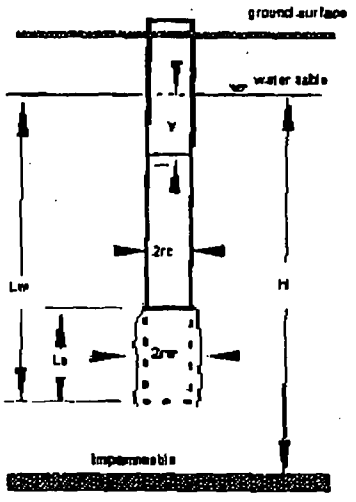
Porosity of sandpack, n (fraction) 0.20

(if porosity unknown, type "ND")

Adjusted radius of casing, r'c:

r'c = ((1-n)rc**2 + n(rw**2))**1/2

r'c (ft.) = 0.187 No adjustment performed



From the Thiem equation, horizontal hydraulic conductivity, K can be calculated as:

K = (rc**2 (ln(Re/rw)) / 2Le) (1/t) (ln(y(0)/y(t)))

where: t = time (min)

y = drawdown from static water level

Re = effective radial distance over which y(drawdown) is dissipated

The value of ln(Re/rw) depends on the penetration of the well into the aquifer

If the well is partially penetrating (Lw < H):

ln(Re/rw) = (1.1 / ln(Lw/rw) + (A + B ln((H - Lw) / rw) / (Le / rw)))**-1

where A and B are obtained from data curves

Le / rw = 48 A =

Le / rw = 48 B =

= = = = If the well is fully penetrating:

ln(Re/rw) = (1.1 / ln(Lw/rw) + C / (Le / rw))**-1

where C is obtained from a data curve

Le / rw = 48 C = 2.63

Since the well is fully penetrating:

ln(Re/rw) = 3.94

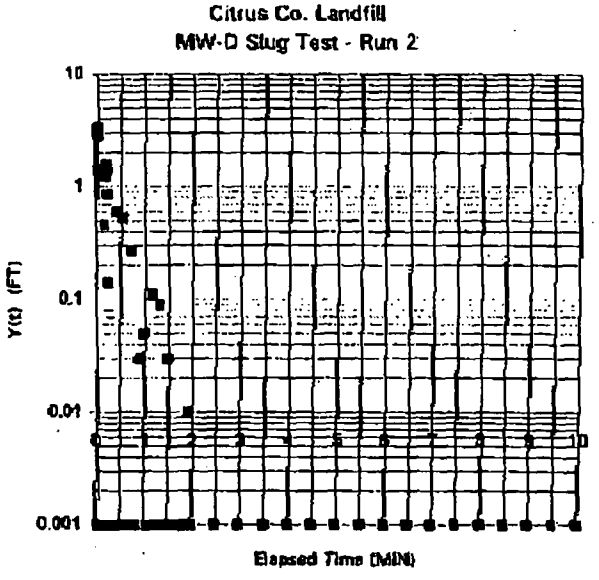
From the semi-log drawdown vs. time plot:

Y-intercept, y(0) (feet.) =	3.35
Y-value, y(t), at time, t , (feet) =	0.001
Time, t (min) =	0.04

Solving for horizontal hydraulic conductivity, K:

K = 8.00E+02 ft/day K = 2.82E-01 cm/s

If the maximum (initial) drawdown is below the level of the well screen, y(0) > Lw - Le, a double straight-line effect may be noted in the water level response curve: Double straight-line should not occur



CH2M HILL

SLUG TEST ANALYSIS FOR DETERMINATION OF HORIZONTAL HYDRAULIC CONDUCTIVITY, K - BOUWER & RICE METHOD

Well ID: MW-E, RUN 1

	Value
Radius of casing, rc (in.)	1.00
Radius to undisturbed aquifer, rw (in.)	4.00
Length of well submergence, Lw (ft.)	14.72
Length of submerged screen, Le (ft.)	14.72
(if Lw < Le, let Le = Lw)	
Height of water in aquifer, H (ft.)	14.72
Initial (max.) water level drawdown from static, y(0) (ft.) (y-intercept)	0.30

If Lw <= Le, porosity, n, of the gravel/sandpack must be accounted for in the radius of the casing, rc:

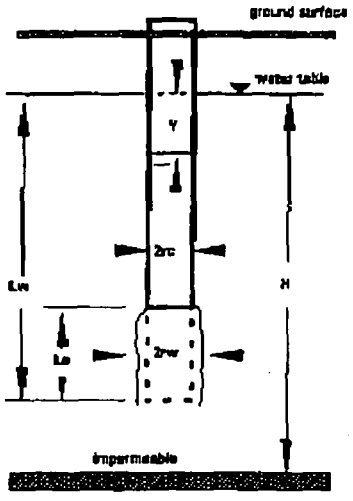
Porosity of sandpack, n (fraction) 0.20

(if porosity unknown, type "ND")

Adjusted radius of casing, r'c:

r'c = ((1-n)rc**2 + n(rw**2))**1/2

r'c (ft.) = 0.167



From the Thiem equation, horizontal hydraulic conductivity, K can be calculated as:

K = (rc**2 (ln(Re/rw)) / 2Le) (1/t) (ln(y(0)/y(t)))

where: t = time (min)

y = drawdown from static water level

Re = effective radial distance over which y(drawdown) is dissipated

The value of ln(Re/rw) depends on the penetration of the well into the aquifer

If the well is partially penetrating (Lw < H):

ln(Re/rw) = (1.1 / ln(Lw/rw) + (A + B ln((H - Lw) / rw) / (Le / rw))**-1

where A and B are obtained from data curves

Le / rw = 44.16 A = [ ]

Le / rw = 44.16 B = [ ]

- - - - If the well is fully penetrating:

ln(Re/rw) = (1.1 / ln(Lw/rw) + C / (Le / rw))**-1

where C is obtained from a data curve

Le / rw = 44.16 C = 2.57

Since the well is fully penetrating:

ln(Re/rw) = 2.87

From the semi-log drawdown vs. time plot:

Y-intercept, y(0) (feet.) =	0.30
Y-value, y(t), at time, t , (feet) =	0.07
Time, t (min) =	0.10

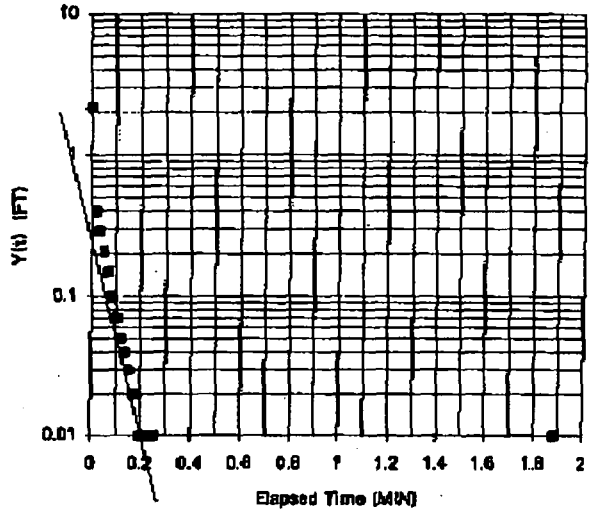
Solving for horizontal hydraulic conductivity, K:

K = 5.67E+01 ft/day K = 2.00E-02 cm/s

If the maximum (initial) drawdown is below the level of the well screen, y(0) > Lw - Le, a double straight-line effect may be noted in the water level response curve: Double straightline may occur

Citrus Co. Landfill

MW-E Slug Test - Run 1



13

CH2M HILL

SLUG TEST ANALYSIS FOR DETERMINATION OF HORIZONTAL HYDRAULIC CONDUCTIVITY, K - BOUWER & RICE METHOD

Well ID: MW -E, RUN 2

	Value
Radius of casing, rc (in.)	1.00
Radius to undisturbed aquifer, rw (in.)	4.00
Length of well submergence, Lw (ft.)	14.72
Length of submerged screen, Le (ft.)	14.72
(If Lw < Le, let Le = Lw)	
Height of water in aquifer, H (ft.)	14.72
Initial (max.) water level drawdown from static, y(0) (ft.) (y-intercept)	0.50

If Lw < = Le, porosity, n, of the gravel/sandpack must be accounted for in the radius of the casing, rc:

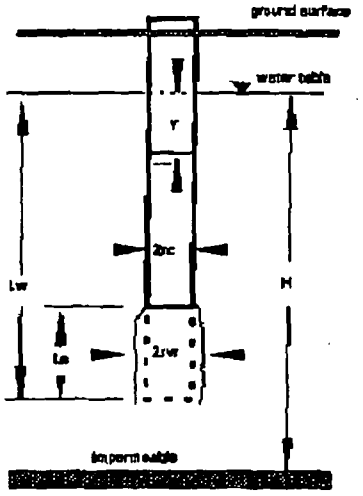
Porosity of sandpack, n (fraction) 0.20

(if porosity unknown, type "ND")

Adjusted radius of casing, r'c:

r'c = ((1-n)rc**2 + n(rw**2))**1/2

r'c (ft.) = 0.167



From the Thiem equation, horizontal hydraulic conductivity, K can be calculated as:

K = (rc**2 (ln(Re/rw)) / 2Le) (1/t) (ln(y(0)/y(t))

where: t = time (min)

y = drawdown from static water level

Re = effective radial distance over which y(drawdown) is dissipated

The value of ln(Re/rw) depends on the penetration of the well into the aquifer

If the well is partially penetrating (Lw < H):

ln(Re/rw) = (1.1 / ln(Lw/rw) +(A + B ln((H - Lw) / rw) / (Le / rw)))**-1

where A and B are obtained from data curves

Le / rw = 44.16 A = [ ]

Le / rw = 44.16 B = [ ]

---- If the well is fully penetrating:

ln(Re/rw) = ((1.1 / ln(Lw/rw) + C / (Le / rw))**-1

where C is obtained from a data curve

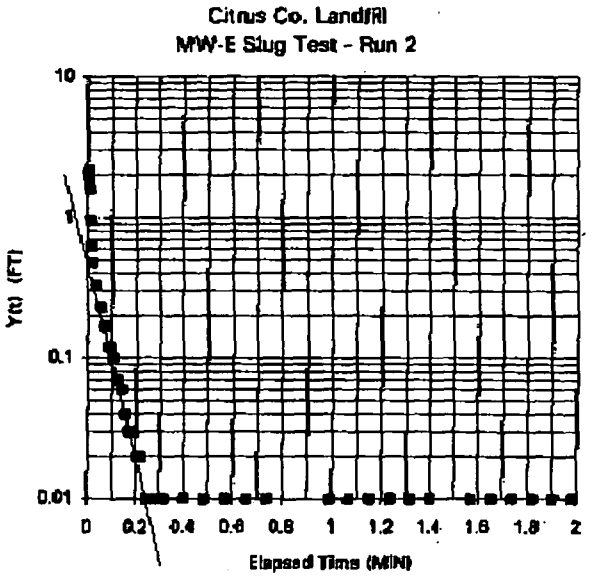
Le / rw = 44.16 C = 2.57

Since the well is fully penetrating:

ln(Re/rw) = 2.87

From the semi-log drawdown vs. time plot:

Y-intercept, y(0) (feet.) =	0.50
Y-value, y(t), at time, t , (feet) =	0.10
Time, t (min) =	0.10



Solving for horizontal hydraulic conductivity, K:

K = 6.27E+01 ft/day K = 2.21E-02 cm/s

If the maximum (initial) drawdown is below the level of the well screen, y(0) > Lw - Le, a double straight-line effect may be noted in the water level response curve: Double straight-line may occur

File: MWE-ANA.XLS

8/11/95

CH2M HILL

SLUG TEST ANALYSIS FOR DETERMINATION OF HORIZONTAL HYDRAULIC CONDUCTIVITY, K - BOUWER & RICE METHOD

Well ID: MW-AA, RUN 1

	Value
Radius of casing, rc (in.)	1.00
Radius to undisturbed aquifer, rw (in.)	3.00
Length of well submergence, Lw (ft.)	18.36
Length of submerged screen, Le (ft.)	10.00
(if Lw < Le, let Le = Lw)	
Height of water in aquifer, H (ft.)	16.36
Initial (max.) water level drawdown from static, y(0) (ft.) (y-intercept)	2.70

If Lw < = Le, porosity, n, of the gravel/sandpack must be accounted for in the radius of the casing, rc:

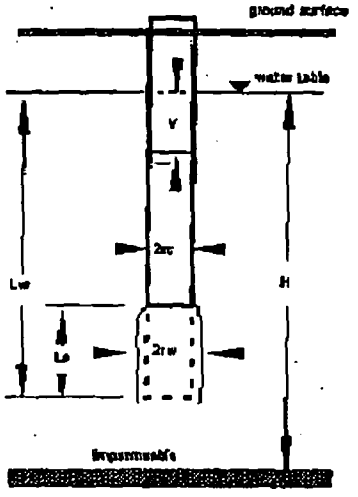
Porosity of sandpack, n (fraction)	0.20

(if porosity unknown, type "ND")

Adjusted radius of casing, r'c:

r'c = [(1-n)rc**2 + n(rw**2)]**1/2

r'c (ft.) = 0.083 (no adjustment performed)



From the Thiem equation, horizontal hydraulic conductivity, K can be calculated as:

K = (rc**2 (ln(Re/rw)) / 2Le) (1/t) (ln(y(0)/y(t)))

where: t = time (min)

y = drawdown from static water level

Re = effective radial distance over which y(drawdown) is dissipated

The value of ln(Re/rw) depends on the penetration of the well into the aquifer

If the well is partially penetrating (Lw < H):

ln(Re/rw) = (1.1 / ln(Lw/rw) + (A + B ln((H - Lw) / rw) / (Le / rw))]**-1

where A and B are obtained from data curves

Le / rw = 40 A = [ ]

Le / rw = 40 B = [ ]

= = = = If the well is fully penetrating:

ln(Re/rw) = [1.1 / ln(Lw/rw) + C / (Le / rw)]**-1

where C is obtained from a data curve

Le / rw = 40 C = 2.40

Since the well is fully penetrating:

ln(Re/rw) = 3.09

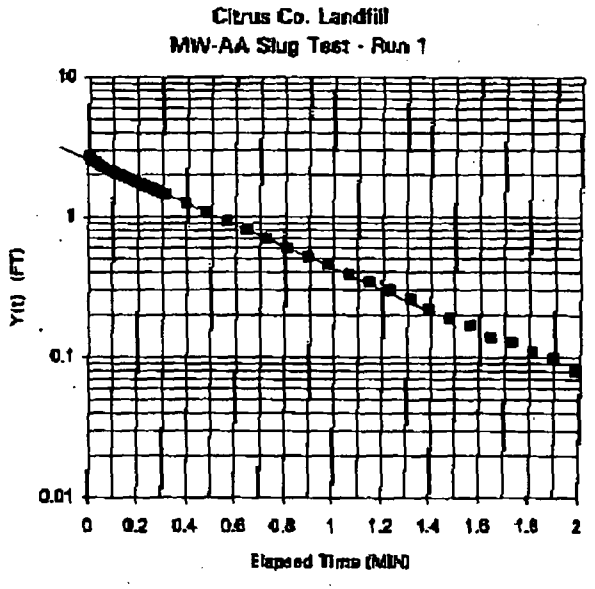
From the semi-log drawdown vs. time plot:

Y-intercept, y(0) (feet.) =	2.70
Y-value, y(t), at time, t , (feet) =	0.80
Time, t (min) =	0.60

Solving for horizontal hydraulic conductivity, K:

K = 2.83E+00 ft/day K = 1.00E-03 cm/s

If the maximum (initial) drawdown is below the level of the well screen, y(0) > Lw - Le, a double straight-line effect may be noted in the water level response curve: Double straight-line should not occur



15

CH2M HILL

SLUG TEST ANALYSIS FOR DETERMINATION OF HORIZONTAL HYDRAULIC CONDUCTIVITY, K - BOUWER & RICE METHOD

Well ID: MW-AA, RUN 2

	Value
Radius of casing, rc (in.)	1.00
Radius to undisturbed aquifer, rw (in.)	3.00
Length of well submergence, Lw (ft.)	16.35
Length of submerged screen, Le (ft.)	10.00
(If Lw < Le, let Le = Lw)	
Height of water in aquifer, H (ft.)	16.35
Initial (max.) water level drawdown from static, y(0) (ft.) (y-intercept)	3.00

If Lw < = Le, porosity, n, of the gravel/sandpack must be accounted for in the radius of the casing, rc:

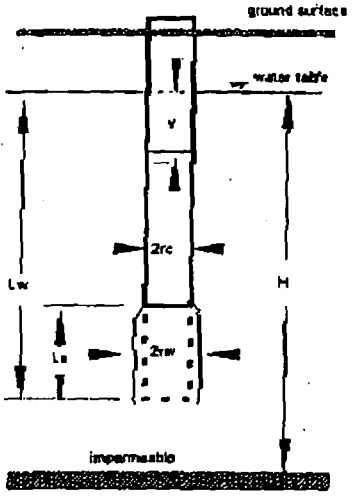
Porosity of sandpack, n (fraction) 0.20

(If porosity unknown, type "ND")

Adjusted radius of casing, r'c:

r'c = ((1-n)rc**2 + n(rw**2))**1/2

r'c (ft.) = 0.083 No adjustment performed



From the Thiem equation, horizontal hydraulic conductivity, K can be calculated as:

K = (rc**2 (ln(Re/rw)) / 2Le) (1/t) (ln(y(0)/y(t)))

where: t = time (min)

y = drawdown from static water level

Re = effective radial distance over which y(drawdown) is dissipated

The value of ln(Re/rw) depends on the penetration of the well into the aquifer

If the well is partially penetrating (Lw < H):

ln(Re/rw) = (1.1 / ln(Lw/rw) + (A + B ln((H - Lw) / rw) / (Le / rw)))**-1

where A and B are obtained from data curves

Le / rw = 40 A =

Le / rw = 40 B =

= = = = If the well is fully penetrating:

ln(Re/rw) = (1.1 / ln(Lw/rw) + C / (Le / rw))**-1

where C is obtained from a data curve

Le / rw = 40 C = 2.40

Since the well is fully penetrating:

ln(Re/rw) = 3.09

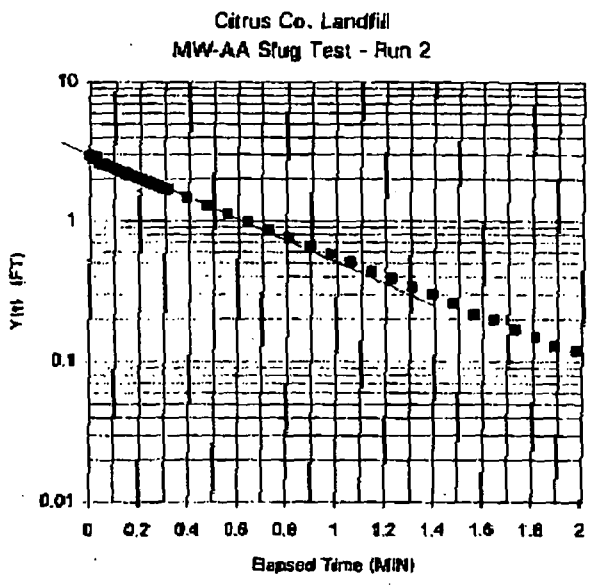
From the semi-log drawdown vs. time plot:

Y-intercept, y(0) (feet) =	3.00
Y-value, y(t), at time, t, (feet) =	1.00
Time, t (min) =	0.60

Solving for horizontal hydraulic conductivity, K:

K = 2.83E+00 ft/day K = 1.00E-03 cm/s

If the maximum (initial) drawdown is below the level of the well screen, y(0) > Lw - Le, a double straight-line effect may be noted in the water level response curve: Double straight-line should not occur



16

CH2M HILL

SLUG TEST ANALYSIS FOR DETERMINATION OF HORIZONTAL HYDRAULIC CONDUCTIVITY, K - BOUWER & RICE METHOD

Well ID: MW-3, RUN 1

	Value
Radius of casing, rc (in.)	1.00
Radius to undisturbed aquifer, rw (in.)	3.00
Length of well submergence, Lw (ft.)	6.12
Length of submerged screen, Le (ft.)	6.12
(If Lw < Le, let Le = Lw)	
Height of water in aquifer, H (ft.)	6.12
Initial (max.) water level drawdown from static, y(0) (ft.) (y-intercept)	0.36

If Lw <= Le, porosity, n, of the gravel/sandpack must be accounted for in the radius of the casing, rc:

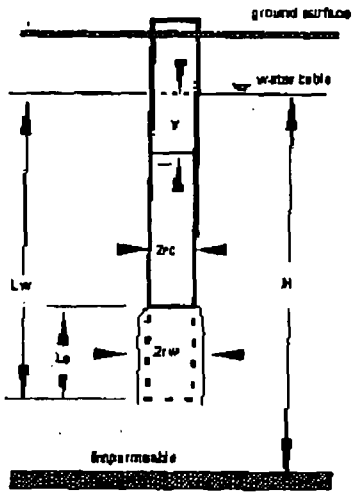
Porosity of sandpack, n (fraction) 0.20

(if porosity unknown, type "ND")

Adjusted radius of casing, r'c:

r'c = ((1-n)rc**2 + n(rw**2))**1/2

r'c (ft.) = 0.134



From the Thiem equation, horizontal hydraulic conductivity, K can be calculated as:

K = (rc**2 (ln(Re/rw)) / 2Le) (1/t) (ln(y(0)/y(t))

where: t = time (min)

y = drawdown from static water level

Re = effective radial distance over which y(drawdown) is dissipated

The value of ln(Re/rw) depends on the penetration of the well into the aquifer

If the well is partially penetrating (Lw < H):

ln(Re/rw) = (1.1 / ln(Lw/rw) + (A + B ln((H - Lw) / rw) / (Le / rw)))**-1

where A and B are obtained from data curves

Le / rw = 24.48 A =

Le / rw = 24.48 B =

==== If the well is fully penetrating:

ln(Re/rw) = (1.1 / ln(Lw/rw) + C / (Le / rw))**-1

where C is obtained from a data curve

Le / rw = 24.48 C = 1.79

Since the well is fully penetrating:

ln(Re/rw) = 2.40

From the semi-log drawdown vs. time plot:

Y-intercept, y(0) (feet.) =	0.36
Y-value, y(t), at time, t , (feet) =	0.30
Time, t (min.) =	2.50

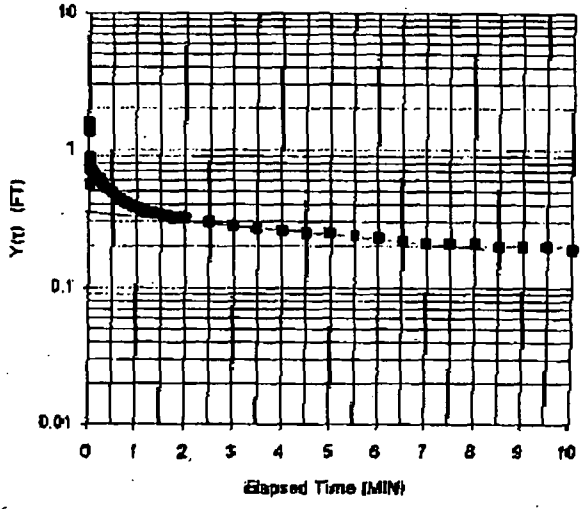
Solving for horizontal hydraulic conductivity, K:

K = 3.71E-01 ft/day K = 1.31E-04 cm/s

If the maximum (initial) drawdown is below the level of the well screen, y(0) > Lw - Le, a double straight-line effect may be noted in the water level response curve: Double straight-line may occur

Citrus Co. Landfill

MW-3 Slug Test - Run 1



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CH2M HILL

SLUG TEST ANALYSIS FOR DETERMINATION OF HORIZONTAL HYDRAULIC CONDUCTIVITY, K - BOUWER & RICE METHOD

Well ID: MW-3, RUN 2

	Value
Radius of casing, rc (in.)	1.00
Radius to undisturbed aquifer, rw (in.)	3.00
Length of well submergence, Lw (ft.)	6.12
Length of submerged screen, Le (ft.)	6.12
(If Lw < Le, let Le = Lw)	
Height of water in aquifer, H (ft.)	6.12
Initial (max.) water level drawdown from static, y(0) (ft.) (y-intercept)	0.30

If Lw < = Le, porosity, n, of the gravel/sandpack must be accounted for in the radius of the casing, rc:

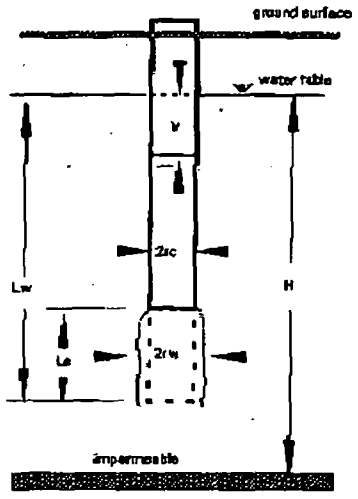
Porosity of sandpack, n (fraction) 0.20

(if porosity unknown, type "ND")

Adjusted radius of casing, r'c:

r'c = ((1-n)rc**2 + n(rw**2))**3/2

r'c (ft.) = 0.134



From the Thiem equation, horizontal hydraulic conductivity, K can be calculated as:

K = (rc**2 (ln(Re/rw)) / 2Le) (1/t) (ln(y(0)/y(t))

where: t = time (min)

y = drawdown from static water level

Re = effective radial distance over which y(drawdown) is dissipated

The value of ln(Re/rw) depends on the penetration of the well into the aquifer

If the well is partially penetrating (Lw < H):

ln(Re/rw) = (1.1 / ln(Lw/rw) + (A + B ln((H - Lw) / rw) / (Le / rw)))**-1

where A and B are obtained from data curves

Le / rw = 24.48 A =

Le / rw = 24.48 B =

= = = If the well is fully penetrating:

ln(Re/rw) = (1.1 / ln(Lw/rw) + C / (Le / rw))**-1

where C is obtained from a data curve

Le / rw = 24.48 C = 1.79

Since the well is fully penetrating:

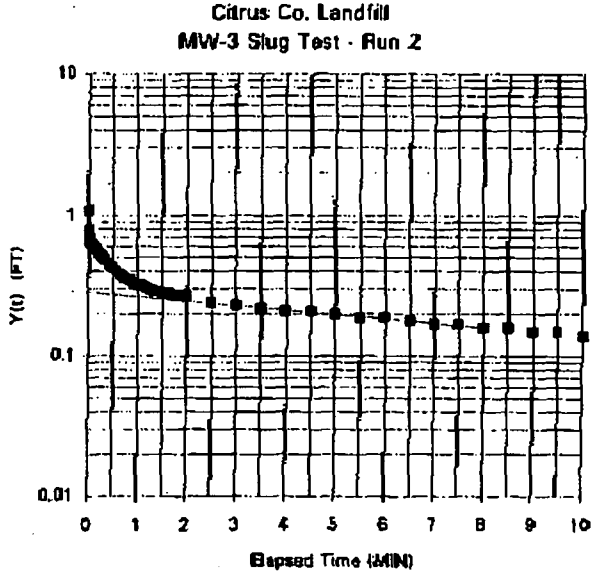
ln(Re/rw) = 2.40

From the semi-log drawdown vs. time plot:

Y-intercept, y(0) (feet.) =	0.30
Y-value, y(t), at time, t , (feet) =	0.20
Time, t (min) =	5.50

Solving for horizontal hydraulic conductivity, K:

K = 3.75E-01 ft/day K = 1.32E-04 cm/s



If the maximum (initial) drawdown is below the level of the well screen, y(0) > Lw - Le, a double straight-line effect may be noted in the water level response curve: Double straight-line may occur

Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

FAXED

Virginia B. Wetherell
Secretary

August 28, 1996

Ms. Susan Metcalfe, P.G.
Director, Division of Solid Waste Management, Citrus County
P.O. Box 340
Lecanto, Florida 34460

Mr. Steven Tsangaris, P.E.
CH_2M Hill
P.O. Box 21647
Tampa, Florida 33607-1647

Post-it® Fax Note 7671	Date 5/24/01	# of pages ▶ 2
To SUSAN METCALFE	From JOHN MORRIS	
Co./Dept. CITRUS COUNTY	Co. — GOT YOUR FAX	
Phone #	Phone # THANKS	
Fax # 352-527-1204	Fax # — 2 LETTERS THAT WE TALKED ABOUT - FYI	

Subject: Contamination Assessment Report for the Citrus County Central Landfill
Permit No. SO09-187229 (pending permit No. SO09-274381), SF09-211030
Citrus County

Dear Ms. Metcalfe and Mr. Tsangaris:

The Solid Waste Section of the Florida Department of Environmental Protection (FDEP) has reviewed the Contamination Assessment Report (CAR) from CH_2M Hill dated April 25, 1996 addressing the presence of volatile organic compounds (VOC) in the landfill's western monitoring wells. The FDEP has the following comments on this report:

- Section 3.1 calculates a non-limestone aquifer hydraulic conductivity using wells MW-R-1, MW-E, MW-AA and MW-3. Please note that monitoring well MW-E is completed in limestone. Exclusion of this well appears to decrease the average hydraulic conductivity from 15.7 to 1.09 feet per day.

- The report concludes that the VOCs present are at low concentrations, that groundwater flow is slow in the area, and that the nearest groundwater receptor is more than one-half mile downgradient of the site. Based on these conclusions, the report recommends semi-annual monitoring of these wells for VOCs. The FDEP agrees with the monitoring recommendation, but would like to state that the VOCs have been detected in the limestone aquifer, and contaminant transport through the limestone will be faster than through the unconsolidated sediments, based on the information provided in this report.

No further assessment activities appear to be warranted at this time. Monitoring of these wells will be covered in the pending landfill operation permit. If you have any questions, please contact me at 813/744-6100, ext. 336.

Sincerely,

Allison Amram

Allison Amram, P.G.
Solid Waste Section

cc: Gary Kuhl, Citrus County Director of Public Works, P.O. Box 167, Lecanto, FL 34460
Martin Clasen, CH_2M Hill, P.O. Box 21647, Tampa, FL 33622-1647
Kim Ford, P.E., FDEP
Bob Butera, P.E., FDEP

50 permit file

Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

October 30, 1996

Ms. Susan Metcalfe, P.G.
Director, Division of Solid Waste
Management, Citrus County
P.O. Box 340
Lecanto, Florida 34460

Subject: Field Filtering of Groundwater Approval for the Citrus County Central Landfill
Permit No. SO09-274381

Dear Ms. Metcalfe:

The Solid Waste Section of the Florida Department of Environmental Protection (FDEP) has reviewed your October 21, 1996 letter that contained the remaining requirements to demonstrate that field filtration of groundwater samples is appropriate at the site. Field filtration of groundwater samples from the site's monitoring wells is **APPROVED**.

Filtration must be done in accordance with the FDEP's January 1994 technical document Determining Representative Ground Water Samples, Filtered or Unfiltered. Filtering is appropriate for metals and radionuclide samples when the unfiltered turbidity is more than 5 NTUs for samples from unconsolidated aquifers. Filtering must be conducted in the field prior to sample preservation with in in-line molded and disposable 1.0 micron filter unit. Groundwater reports must record the unfiltered turbidity for the sample, and state the filter size.

If you have any questions, please contact me at 813/744-6100, ext. 336.

Sincerely,

Allison Amram

Allison Amram, P.G.
Solid Waste Section

cc: Gary Kuhl, Citrus County Director of Public Works, P.O. Box 167, Lecanto, FL 34460
Kim Ford, P.E., FDEP
Bob Butera, P.E., FDEP

WASTE MGT TAMPA SWD ax:8137446125

*** Transmit Conf.Report ***

P.1 May 24 2001 18:22

Telephone Number	Mode	Start	Time	Pages	Result	Note
813525271204	FINE	24,18:21	1'14"	2	* O K	

Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

August 28, 1996

Ms. Susan Metcalfe, P.G.
Director, Division of Solid Waste Management, Citrus County
P.O. Box 340
Lecanto, Florida 34460

Mr. Steven Tsangaris, P.E.
CH_2M Hill
P.O. Box 21647
Tampa, Florida 33607-1647

Post-it® Fax Note 7671	Date 5/24/01	# of pages ▶ 2
To SUSAN METCALFE	From JOHN MORRIS	
Co./Dept. CITRUS COUNTY	Co. — GOT YOUR FAX	
Phone #	Phone # THANKS	
Fax # 352-527-1204	Fax # — 2 LETTERS THAT WE TALKED ABOUT - FAX	

Subject: Contamination Assessment Report for the Citrus County Central Landfill
Permit No. SO09-187229 (pending permit No. SO09-274381), SF09-211030
Citrus County

Dear Ms. Metcalfe and Mr. Tsangaris:

The Solid Waste Section of the Florida Department of Environmental Protection (FDEP) has reviewed the Contamination Assessment Report (CAR) from CH_2M Hill dated April 25, 1996 addressing the presence of volatile organic compounds (VOC) in the landfill's western monitoring wells. The FDEP has the following comments on this report:

- Section 3.1 calculates a non-limestone aquifer hydraulic conductivity using wells MW-R-1, MW-E, MW-AA and MW-3. Please note that monitoring well MW-E is completed in limestone. Exclusion of this well appears to decrease the average hydraulic conductivity from 15.7 to 1.09 feet per day.

- The report concludes that the VOCs present are at low concentrations, that groundwater flow is slow in the area, and that the nearest groundwater receptor is more than one-half mile downgradient of the site. Based on these conclusions, the report recommends semi-annual monitoring of these wells for VOCs. The FDEP agrees with the monitoring recommendation, but would like to state that the VOCs have been detected in the limestone aquifer, and contaminant transport through the limestone will be faster than through the unconsolidated sediments, based on the information provided in this report.

No further assessment activities appear to be warranted at this time. Monitoring of these wells will be covered in the pending landfill operation permit. If you have any questions, please contact me at 813/744-6100, ext. 336.

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

May 24, 2001

Ms. Susan Metcalfe, P.G.
Citrus County
Solid Waste Management
PO Box 340
Lecanto, FL 34460

Re: Citrus County Central Landfill
Pending Permit No.: #21375-003-SO, Citrus County

Dear Ms. Metcalfe:

This is to acknowledge receipt of your permit renewal application received April 27, 2001 for operation of the Citrus County Central Landfill.

This letter constitutes notice that a permit will be required for your project pursuant to Chapter(s) 403, Florida Statutes.

Your permit application is incomplete. This is the Department's 1st request for additional information. Please provide the information listed below promptly. Evaluation of your proposed project will be delayed until all requested information has been received.

The following information is needed in support of the solid waste applications [Chapters 62-701, Florida Administrative Code (F.A.C.)]. Please provide:

✓ 1. Proof of publication of notice of application pursuant to Rule 62-110.106, see attached notice.

✓ 2. **62-701.300.** An explanation to confirm that each of the prohibitions will not be violated.

✓ 3. **62-701.320(7)(e)1.** Complete comprehensive updated Operations Plan with all revisions and necessary attachments. Clarification is needed to identify which appendices are to be supplemented with new pages, replaced, or deleted.

✓ 4. **62-701.330(4)(d).** Topographic map (current - less than 6 months old) with 5-foot contour intervals and topographic plans with cross sections of lifts for 5 years of disposal.

5. **62-701.500(1).** (1.)Reference to 62-703 is not applicable. A training plan is needed to demonstrate compliance with the training requirements will be maintained. (2.)Revision to the Operations Plan is needed to indicate that a trained spotter will be located at the working face. How will loads be adequately evaluated if the equipment operator is the spotter?

6. **62-701.500(2)(f).** (1.)Reference to "filling of Phase 1A" is unclear. Plans and cross-sections are needed to show the distinction between phases for filling the entire lined disposal area to designed dimensions. (2.)The description of unwrapping the geotextile overlying the leachate pipes is unclear. How will the system be protected and clogging of the system be prevented? Why doesn't this description include placement of the required 2 feet of protective soil layer?

7. **62-701.500(6)(b).** What procedures will be provided for on-site isolation of hazardous wastes found during random load checking?

8. **62-701.500(7).** A description of the operations for protection of the new sideslope liner for Phase I.

9. **62-701.500(8)(b).** An assessment of the condition of the leachate collection system to demonstrate adequate performance. Documents related to the most recent cleaning and inspection such as letter reports that may contain conclusions or recommendations regarding system performance are requested.

10. **62-701.500(8)(d).** A description of on-site leachate treatment and disposal.

11. **62-701.500(8)(g).** Method of comparing precipitation with leachate generation. Why was the amount of effluent disposal twice the amount of leachate generated for the month of February 2001?

12. **62-701.500(12).** A description of the design and location of each access road.

13. **62-701.500(13)(c).** Most recent estimate of remaining life and capacity in cubic yards. The estimate shall be based on a summary of the current and proposed design heights, lengths and widths of the entire lined disposal area.

14. **62-701.510.** Groundwater monitoring plan and required supporting information in response to Mr. John Morris' May 24, 2001 memorandum (attached). You may call Mr. Morris at (813) 744-6100, extension 336 to discuss this item.

15. **62-701.600(3).** Closure will not be authorized by the operation permit and requires a closure permit.

16. **62-701.630.** Cost estimates for closure and long-term care and proof of financial assurance. A response to Ms. Susan Pelz's May 24, 2001 letter (attached) is required. You may call Ms. Pelz at (813) 744-6100, extension 386.

17. **62-709.320.** A copy of the approval of the yard trash processing facility from the Department's Solid Waste Section in Tallahassee.

Please provide all responses that relate to engineering required for design and operation, signed and sealed by a professional engineer. All descriptions of operational procedures provided as part of responses should be included as revisions to the Operations Plan.

"NOTICE! Pursuant to the provisions of Section 120.60, F.S., if the Department does not receive a response to this request for information within 90 days of the date of this letter, the Department may issue a final order denying your application. You need to respond within 30 days after you receive this letter, responding to as many of the information requests as possible and indicating when a response to any unanswered questions will be submitted. If the response will require longer than 30 days to develop, you should develop a specific time table for the submission of the requested information for Department review and consideration. Failure to comply with a time table accepted by the Department will be grounds for the Department to issue a Final Order of Denial for lack of timely response. A denial for lack of information or response will be unbiased as to the merits of the application. The applicant can reapply as soon as the requested information is available."

You are requested to arrange a meeting with DEP staff to discuss the items in this letter prior to responding. Please submit your response to this letter as one complete package. On all future correspondence, please include Robert Butera on distribution. If you have any questions you may call me at (813) 744-6100, extension 382.

Sincerely,

Kim B. Ford, P.E.
Solid Waste Section
Division of Waste Management

KBF/ab
Attachments
cc: David A. Keough, P.E, Jones, Edmunds & Associates
Robert Butera, P.E., FDEP Tampa
John Morris, P.G., FDEP Tampa
Susan Pelz, P.E., FDEP Tampa

62-110.106(5). Notices: General Requirements.
Each person who files an application for a Department permit or other notice as may publish or be required to publish a notice of application or other notice as set forth below in this section. Except as specifically provided otherwise in this paragraph, each person publishing such a notice under this section shall do so at his own expense in the legal advertisements section a newspaper of general circulation (i.e., one that meets the requirements of sections 50.011 and 50.031 of the Florida Statutes) in the county or counties in which the activity will take place or the effects of the Department's proposed action will occur, and shall provide proof of the publication to the Department within seven days of the publication.

62-110.106(6). If required, the notice shall be published by the applicant one time only within fourteen days after a complete application is filed and shall contain the name of the applicant, a brief description of the project and its location, the location of the application file, and the times when it is available for public inspection. The notice shall be prepared by the Department and shall comply with the following format:

State of Florida
Department of Environmental Protection
Notice of Application

The Department announces receipt of an application for permit renewal from the Citrus County for Operation of the existing Citrus County Central Landfill, located on the south side of S.R. 44, 3 miles east of Lecanto, Citrus County, Florida.

This application is being processed and is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at the Department of Environmental Protection, Southwest District Office, 3804 Coconut Palm Drive, Tampa, Florida 33619-8318.

Florida Department of

Memorandum

Environmental Protection

TO:	Kim Ford, P.E.
FROM:	John R. Morris, P.G. JRM
DATE:	May 24, 2001
SUBJECT:	Citrus County Central Class I Landfill Permit Renewal Pending Permit No. 21375-003-SO Hydrogeologic and Monitoring Review Comments
cc:	Robert Butera, P.E.

I have reviewed the submittal entitled *Citrus County Central Class I Phase 1A Landfill, Operating Permit Renewal Application,* prepared by Jones, Edmunds & Associates, Inc. (JEA), received April 27, 2001. My review focused on the hydrogeologic and monitoring aspects of the permit renewal. Additional information is needed to evaluate the monitoring plan review that was included as Attachment 2 of the referenced document. Please have the applicant address the following comments that refer to the permit application.

PART L - WATER QUALITY AND LEACHATE MONITORING (RULE 62-701.510, F.A.C.)

1. L.1.c.(4) - Location Information for Each Monitoring Well
   L.1.c.(5) - Well Spacing...
   L.1.c.(6) - Well Screen Locations Properly Selected
   L.1.c.(7) - Procedures for Properly Abandoning Monitoring Wells
   L.1.d.(1) - Location and Justification...
   L.1.d.(2) - Each Monitoring Location...
   L.1.f.(4) - Compliance Well Sampling...
   L.1.f.(5) - Surface Water Sampling...
   L.1.g. - Describe Procedures for...
   L.1.h.(1) - Semi-annual Report Requirements
   L.1.h.(2) - Bi-annual Report Requirements...

Each of these application form items reference the document entitled *Citrus County Central Landfill, Phase 1 and 1A Expansion, Operations Plan,* prepared by CH2M Hill, dated October 1996. Section 2.i of the 1996 Operations Plan in turn refers to the document entitled *Groundwater Monitoring Plan, 80-Acre Landfill Expansion, Citrus County Central Landfill,* prepared by Hydro Q, dated April 1995. It appears that the application form items should reference the new operations plan included as Attachment 1 to the renewal application. Please modify Section 2.9 of the 2001 Operations Plan to reference the Hydro Q document.

2. L.1.e. - Leachate Sampling Locations Proposed - Please revise Section 2.2 of the Groundwater and Leachate Monitoring Plan (Attachment 2 to the renewal application) to describe the collection point for leachate effluent samples. Please provide a site map that includes the leachate influent and leachate effluent sampling locations and the monitor well locations for use as a permit attachment.

3. L.1.f.(1) - Background Ground Water...
   L.1.f.(3) - Detection Well Semi-annual...

The background and detection monitor wells listed by the two reference documents (1996 Operations Plan and 2001 Groundwater and Leachate Monitoring Plan Review) are not consistent. It appears that the application form should reference Section 3.2 of Attachment 2 to the renewal application. Please review and revise as appropriate.

GROUNDWATER AND LEACHATE MONITORING PLAN REVIEW FOR CITRUS COUNTY CLASS I CENTRAL LANDFILL, PREPARED BY JEA, APRIL 2001 (Rule 62-701.510(9)(b), F.A.C.)

4. The copy of the Attachment 2 to the renewal application (*Groundwater and Leachate Monitoring Plan Review for Citrus County Class I Central Landfill,* prepared by JEA, April 2001) was not signed and sealed by a P.E. or P.G. Please indicate if the P.E. seal provided for the renewal application cover sheet was intended to include Attachment 2 to meet the requirements of Rule 62-701.510(9)(b), F.A.C., or provide a separate signed and sealed certification page for Attachment 2.

Section 1.1 - Site Information

5. Please revise Table 1 to include the following elevations: top of well, top of screen, bottom of screen, maximum and minimum ground water elevations recorded during the period of record. Please also include in Table 1 a description of the lithology encountered in the screened interval at each monitor well.

Section 2.1.1 - Ground Water Quality

6. The benzene concentrations presented in Appendix C appear to include some inconsistencies with the results of the semi-annual sampling events reported by Citrus County. Please review the results for: MW-2 during 98S2 (BDL vs. 2 μg/L); MW-7 during 99S1 (BDL vs. no data) and during 99S2 (3 μg/L vs. BDL); and, MW-AA during 00S1 (1.2 μg/L vs. BDL). Please review the benzene analyses and revise the discussion of benzene occurrence as appropriate.

7. It is indicated that concentrations reported for iron in the downgradient wells were generally consistent with the background wells. The iron concentrations presented in Appendix C indicate iron concentrations in the background wells (MW-2, MW-3 and MW-7) range from less than 40 to 660 μg/L, and the iron concentrations in the detection wells (MW8, MW-9, MW-AA, MW-C, MW-D and MW-E) range from less 40 to 14,000 μg/L. Please review the discussion of iron occurrence and revise as appropriate.

8. The nitrate concentration presented in Appendix C for well MW2 during 98S2 (BDL vs. 34 mg/L) appears to be inconsistent with the results of the semi-annual sampling events reported by Citrus County. Please review the summary table and bar graph and revise as appropriate.

Section 2.1.2 - Groundwater Flow

9. It is indicated that the hydraulic gradient was calculated on the basis on the ground water elevation change between wells MW-2 and MW-D. The revised ground water contour map prepared for August 2000 (Appendix D) appears to indicate ground water does not flow from MW-2 toward MW-D, but appears to indicate ground water flow from MW-2 and from MW-D toward MW-1R. Average hydraulic gradients were calculated from the ground water contour maps provided in Appendix D for: January 1997 @ 0.0016 ft/ft; July 1997 @ 0.0011 to 0.0016 ft/ft; August 2000 @ 0.0022 to 0.0027 ft/ft. Please provide a range of hydraulic gradient values that represent seasonal fluctuation. Please provide ground water velocity calculations that reflect the revised hydraulic gradient values.

Section 2.2 -- Leachate

10. Please indicate if the parameters listed in Specific Condition No. 33.a. of operating permit No. SO09-274381 that are sampled at daily, weekly and quarterly frequencies are intended to be used for regulatory or process control purposes.

11. The statement that total trihalomethanes (THMs) in the leachate effluent have ranged from BDL to 360 μg/L appears to omit the concentration of 730 μg/L reported during 00Q4. The statement that THMs are typically reported at concentrations less than 100 μg/L in the leachate effluent appears to be inconsistent with the results of the quarterly sampling events reported by Citrus County since 99Q3. Please review the discussion of THMs occurrence and revise as appropriate.

Section 3.1 - Ground Water

12. It is indicated that wells located along the western landfill boundary include well MW-B. Please delete this location from the list of wells that are located along the western boundary.

13. Please revise this section to indicate the lithology that is monitored by the screened intervals of the individual wells to be consistent with the revision to Table 1 that is requested in comment No. 5, above.

Section 3.2 -- Leachate

14. Please note the pending revision to Rule 62-701.510(6)(c), F.A.C., requires annual sampling of leachate (influent) for the parameters listed in Rule 62-701.510(8)(c) and (8)(d), F.A.C. It is the Department's intention to revise the required leachate (influent) sampling to an annual frequency assuming that the renewal permit will be issued after the effective date of the pending solid waste rule.

15. It does not appear that the request to eliminate the quarterly sampling of THMs from leachate effluent is supported by the information presented in Section 2.2 . Please revise this section as appropriate to be consistent with the response provided to comment No. 11, above.

Please have the applicant contact me at (813) 744-6100, extension 336, to discuss these comments if there are any questions.

jrm

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

Ms. Susan J. Metcalfe, P.G., Director
Citrus County Solid Waste Division
PO Box 340
Lecanto, Fl. 34460-0340

May 24, 2001

RE: Citrus County Landfill Financial Assurance Cost Estimates
Permit Nos.: SO09-274381 and 126601-002-SF, Citrus County

Dear Ms. Metcalfe:

This letter is to acknowledge receipt of the cost estimates dated April 26, 2001 (received April 27, 2001), Attachment 4 of the submittal titled, Citrus County Central Class I Phase 1A Landfill Operating Permit Renewal Application, prepared by Jones, Edmunds & Associates, Inc., for closure (closing and long-term care) of the Citrus County Landfill (Phase 1, 1A, and old closed 60 acres). The cost estimates submitted are not approved. The following information is needed to fully evaluate the estimates submitted:

CLOSING:

1. Cover Material (synthetics), Top Soil Cover, Drainage Layer. Please verify the acreage included for closing. Please verify the quantity of topsoil. Is this quantity as-received or as-placed?

2. Revegetation. Please verify the quantities of sodding and hydroseeding.

3. Landscape Irrigation. Due to the continuing drought conditions, it has come to the Department's attention that watering of newly placed vegetation (sod or seeding) may require substantial resources to ensure that the vegetative cover becomes adequately established. Therefore, please provide revised cost estimates which include a cost for this activity. In the event that an adequate onsite well is available, the cost (material and labor) may only include pumping, hoses, sprinklers required to irrigate the closed facility, or alternatively, may only include rental of a water truck for a specified period of time, or other suitable methods of irrigation.

4. Waste tire facility, $8,000. Please provide a detailed estimate which describes the activities and quantities included in this cost.

LONG-TERM CARE:

5. Maintenance/Operation of Leachate Collection. Please explain the basis for the on-site pretreatment maintenance cost. The total leachate generated in 2000 was 2,301,214 gallons. However, the pretreatment system maintenance is based on 600,000 gallons per year. Although the Department recognizes that the leachate generation after closing will decrease with time, the initial leachate generation is expected to be much the same as the currently operating facility. Please provide a revised cost as appropriate.

6. Landscape Maintenance. Please verify the number of acres included in each mowing event (3 events/year).

The Department requests that two copies, signed and sealed by a registered professional engineer, be provided to the Solid Waste Section, FDEP, Tampa office **within thirty (30) days of this letter.** In order to expedite the review, please submit all correspondence concerning financial assurance cost estimates directly to the undersigned. If you have any questions, you may contact me at (813) 744-6100 ext. 386.

Sincerely,

Susan J. Pelz, P.E.
Solid Waste Section
Southwest District

sjp
cc: David Keough, P.E., JEA, 730 NE Waldo Road, Bldg. A., Gainesville, Fl. 32641
Fred Wick, FDEP, Tallahassee, w/attachment
Robert Butera, P.E., FDEP Tampa
Kim Ford, P.E., FDEP Tampa

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
SOUTHWEST DISTRICT

CONVERSATION RECORD

Date 5/23/01

Time 1:35

Subject Citrus Ops Renewal

Permit No.

County Carlos

M Judy DiMaio

Telephone No.

Representing J Edmunds

[✓] Phoned Me [ ] Was Called [ ] Scheduled Meeting [ ] Unscheduled Meeting

Other Individuals Involved in Conversation/Meeting

Summary of Conversation/Meeting

I mentioned some confusion over phases to fill - is it more than 1A only?
And for how many years?
J-D. said may be less than 5 yrs in lined area
I suggested ops indicate all phases already lined to be filled
And one update comprehensive ops plan should be provided with sequence drawings
J.D. agreed and wants to meet to discuss upon receipt of RAI

(continue on another sheet, if necessary)

Signature

Title

PA-01
1/96
pap

Florida Department of

Memorandum

Environmental Protection

TO:	Kim Ford, P.E.
FROM:	John R. Morris, P.G. JRM
DATE:	May 24, 2001
SUBJECT:	Citrus County Central Class I Landfill Permit Renewal Pending Permit No. 21375-003-SO Hydrogeologic and Monitoring Review Comments
cc:	Robert Butera, P.E.

I have reviewed the submittal entitled *Citrus County Central Class I Phase 1A Landfill, Operating Permit Renewal Application,* prepared by Jones, Edmunds & Associates, Inc. (JEA), received April 27, 2001. My review focused on the hydrogeologic and monitoring aspects of the permit renewal. Additional information is needed to evaluate the monitoring plan review that was included as Attachment 2 of the referenced document. Please have the applicant address the following comments that refer to the permit application.

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GROUNDWATER AND LEACHATE MONITORING PLAN REVIEW FOR CITRUS COUNTY CLASS I CENTRAL LANDFILL, PREPARED BY JEA, APRIL 2001 (Rule 62-701.510(9)(b), F.A.C.)

4. The copy of the Attachment 2 to the renewal application (*Groundwater and Leachate Monitoring Plan Review for Citrus County Class I Central Landfill,* prepared by JEA, April 2001) was not signed and sealed by a P.E. or P.G. Please indicate if the P.E. seal provided for the renewal application cover sheet was intended to include Attachment 2 to meet the requirements of Rule 62-701.510(9)(b), F.A.C., or provide a separate signed and sealed certification page for Attachment 2.

Section 1.1 – Site Information

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Section 2.2 -- Leachate

10. Please indicate if the parameters listed in Specific Condition No. 33.a. of operating permit No. SO09-274381 that are sampled at daily, weekly and quarterly frequencies are intended to be used for regulatory or process control purposes.

11. The statement that total trihalomethanes (THMs) in the leachate effluent have ranged from BDL to 360 μg/L appears to omit the concentration of 730 μg/L reported during 00Q4. The statement that THMs are typically reported at concentrations less than 100 μg/L in the leachate effluent appears to be inconsistent with the results of the quarterly sampling events reported by Citrus County since 99Q3. Please review the discussion of THMs occurrence and revise as appropriate.

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Please have the applicant contact me at (813) 744-6100, extension 336, to discuss these comments if there are any questions.

jrm

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

Ms. Susan J. Metcalfe, P.G., Director
Citrus County Solid Waste Division
PO Box 340
Lecanto, Fl. 34460-0340

May 24, 2001

RE: Citrus County Landfill Financial Assurance Cost Estimates
Permit Nos.: SO09-274381 and 126601-002-SF, Citrus County

Dear Ms. Metcalfe:

This letter is to acknowledge receipt of the cost estimates dated April 26, 2001 (received April 27, 2001), Attachment 4 of the submittal titled, Citrus County Central Class I Phase 1A Landfill Operating Permit Renewal Application, prepared by Jones, Edmunds & Associates, Inc., for closure (closing and long-term care) of the Citrus County Landfill (Phase 1, 1A, and old closed 60 acres). The cost estimates submitted are not approved. The following information is needed to fully evaluate the estimates submitted:

CLOSING:

1. Cover Material (synthetics), Top Soil Cover, Drainage Layer. Please verify the acreage included for closing. Please verify the quantity of topsoil. Is this quantity as-received or as-placed?

2. Revegetation. Please verify the quantities of sodding and hydroseeding.

3. Landscape Irrigation. Due to the continuing drought conditions, it has come to the Department's attention that watering of newly placed vegetation (sod or seeding) may require substantial resources to ensure that the vegetative cover becomes adequately established. Therefore, please provide revised cost estimates which include a cost for this activity. In the event that an adequate onsite well is available, the cost (material and labor) may only include pumping, hoses, sprinklers required to irrigate the closed facility, or alternatively, may only include rental of a water truck for a specified period of time, or other suitable methods of irrigation.

4. Waste tire facility, $8,000. Please provide a detailed estimate which describes the activities and quantities included in this cost.

LONG-TERM CARE:

5. Maintenance/Operation of Leachate Collection. Please explain the basis for the on-site pretreatment maintenance cost. The total leachate generated in 2000 was 2,301,214 gallons. However, the pretreatment system maintenance is based on 600,000 gallons per year. Although the Department recognizes that the leachate generation after closing will decrease with time, the initial leachate generation is expected to be much the same as the currently operating facility. Please provide a revised cost as appropriate.

6. Landscape Maintenance. Please verify the number of acres included in each mowing event (3 events/year).

The Department requests that two copies, signed and sealed by a registered professional engineer, be provided to the Solid Waste Section, FDEP, Tampa office **within thirty (30) days of this letter.** In order to expedite the review, please submit all correspondence concerning financial assurance cost estimates directly to the undersigned. If you have any questions, you may contact me at (813) 744-6100 ext. 386.

Sincerely,

Susan J. Pelz, P.E.
Solid Waste Section
Southwest District

sjp
cc: David Keough, P.E., JEA, 730 NE Waldo Road, Bldg. A., Gainesville, Fl. 32641
Fred Wick, FDEP, Tallahassee, w/attachment
Robert Butera, P.E., FDEP Tampa
Kim Ford, P.E., FDEP Tampa

WASTE MANAGEMENT TECHNICAL SUPPORT
ROUTING FORM

PERMITTED FACILITIES

To: John Morris

From: Kim Ford

Date: 4/27/01

Subject: CITRUS C.I LF OPS PERMIT RENEWAL

Document Name: _____

Revision Number D County: CITRUS

Facility Name: CI LF

Type of Facility: _____

Permit Number: _____ Issue Date: _____

Copy of Permit attached: _____

Document submitted in compliance with permit condition. _____

Document subject to permit timeclock. 45

Day 1: 4/27/01

Day 30: 5/26/01

PATS sheet attached: _____

Enforcement Case/CO/NOV/ associated with this site: _____

Files and related documents can be found ATTACHED IN FILES.

Please review and comment on the technical aspects of the attached document as you deem appropriate. In order to maintain progress with the permit review, please provide comments within 30 days or by May 20.

Comments: _____

Module _____

Attachments

WASTE MANAGEMENT TECHNICAL SUPPORT
ROUTING FORM

PERMITTED FACILITIES

To: S. Sg.

From: Fm

Date: 4/27/01

Subject: Citrus Cps Permit Renewal - Cost Estimates

Document Name: _____

Revision Number 0 County: Citrus

Facility Name: _____

Type of Facility: LI LF

Permit Number: _____ Issue Date: _____

Copy of Permit attached: _____

Document submitted in compliance with permit condition. _____

Document subject to permit timeclock. Yes

Day 1: 4/27/01

Day 30: 5/26/01

PATS sheet attached: _____

Enforcement Case/CO/NOV/ associated with this site: _____

Files and related documents can be found Attached & in files

Please review and comment on the technical aspects of the attached document as you deem appropriate. In order to maintain progress with the permit review, please provide comments within 30 days or by May 28.

Comments: Cost estimates in Attachment 4

Module _____

Attachments

CITRUS COUNTY CENTRAL CLASS I PHASE 1A LANDFILL OPERATING PERMIT RENEWAL APPLICATION

FACILITY ID NO.: 4009C00086
PERMIT NO.: SO09-274381

Jones Edmunds & Associates, Inc.
CONSULTING ENGINEERS AND SCIENTISTS
JEA

Gainesville • Jacksonville • Tampa • Destin • Titusville

CITRUS COUNTY CENTRAL CLASS I PHASE 1A LANDFILL OPERATING PERMIT RENEWAL APPLICATION

FACILITY ID NO.: 4009C00086
PERMIT NO.: SO09-274381

Prepared for:

CITRUS COUNTY BOARD OF COUNTY COMMISSIONERS
P.O. Box 340
Lecanto, Florida 34460

Prepared by:

JONES, EDMUNDS & ASSOCIATES, INC.
730 NE Waldo Road, Building A
Gainesville, Florida 32641

April 2001

David A. Keough, P.E. 4-25-01
PE # 33164

SOUTHWEST DISTRICT
FDEP

Solid Waste Program
Permitting Application

New Site

Site Name:	
Site Address:	
County:	
Type/Subcode:	

Existing Site

Site ID:	21375 — 003		
Project Name:	CITRUS CENTRAL LANDFILL		
Type/Subcode:	50/01		
Fee Submitted:	10,000	(✓) correct	( ) incorrect
Fee Refund $		Fee Request $	

Related Party

Role:	APPLICANT
Name:	SUSAN METCALFE
Company:	CITRUS COUNTY BOCC
Street:	PO BOX 340
City:	LECANTO FL
Zip Code:	34460
Phone:	(904) 746-5000

Distribution Date: _____

Fee Checked By: Kim FORD Date: 4/30/01

COUNTY OF CITRUS
INVERNESS, FLORIDA

County Warrant

179985

DEPARTMENT	ACCOUNT	PURCH. ORDER	INVOICE NUMBER	AMOUNT	DESCRIPTION
5212	54912		PERMIT	10,000.00	B OPERATION PERMIT CLAS 1

3403.4 DEPT OF ENVIRONMENTAL PROTECTION

PLEASE DETACH
BEFORE DEPOSITING

STATE OF FLORIDA
County Warrant
110 N. APOPKA AVENUE
INVERNESS, FLORIDA 34450-4299

VOID AFTER 90 DAYS

CITRUS COUNTY ACCOUNTS PAYABLE
SUNTRUST BANK
INVERNESS, FLORIDA
63-115
631

179985

CHECK 179985
DATE 03/27/01

AMOUNT ****10,000.00**

PAY TEN THOUSAND DOLLARS & ZERO CENTS

TO THE ORDER OF

DEPT OF ENVIRONMENTAL PROTECTION
SOUTHWEST DISTRICT
3804 COCONUT PALM DRIVE
TAMPA, FL 33619

CHAIRMAN BOARD OF COUNTY COMMISSIONERS

SEAL

CLERK AND AUDITOR

[redacted]

SW - Kim Ford
4/27/01
fee check

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

APPLICATION FOR PERMIT TO CONSTRUCT, OPERATE, MODIFY OR CLOSE
A SOLID WASTE MANAGEMENT FACILITY

Please Type or Print

A. GENERAL INFORMATION

1. Type of Facility

Disposal [X]

Class I Landfill	[X]	Ash Monofill	[ ]
Class II Landfill	[ ]	Asbestos Monofill	[ ]
Class III Landfill	[ ]	Industrial Solid Waste	[ ]
Other	[ ]	_____	

Volume Reduction [ ]

Incinerator	[ ]	Pulverizer / Shredder	[ ]
Composing	[ ]	Compactor / Baling Plant	[ ]
Materials Recovery	[ ]	Energy Recovery	[ ]
Other	[ ]	_____	

2. Type of Application:

Construction	[ ]	Construction / Operation	[ ]
Operation	[X]	Closure	[ ]

3. Classification of application:

New	[ ]	Substantial Modification	[ ]
Renewal	[X]	Minor Modification	[ ]

4. Facility name: Citrus County Central Landfill

5. DEP ID number: 4009C00086 County: Citrus

6. Facility location (main entrance): State Road 44 between Lecanto and Inverness, Florida

7. Location coordinates:

Section: 1 Township: 19S Range: 18E

UTMs: Zone _____ _____ km E _____ km N

Latitude: 28 ° 51 ' 08 " Longitude: 82 ° 26 ' 38 "

3. Applicant name (operating authority): Citrus County Board of County Commissioners

Mailing address: P.O. Box 340 Lecanto FL 34460

Street or P.O. Box City State Zip

Contact person: Susan Metcalfe, P.G. Telephone: (904) 746-5000

Title: Solid Waste Management Division Director

9. Authorized agent / Consultant: Jones, Edmunds & Associates, Inc.

Mailing address: 730 NE Waldo Road, Building A Gainesville FL 32641

Street or P.O. Box City State Zip

Contact person: David A. Keough, PE Telephone(352) 377-5821

Title: Project Manager

10. Landowner (if different than applicant): _____

Mailing address: _____

Street or P.O. Box City State Zip

Contact person: _____ Telephone ( )

11. Cities, towns, and areas to be served: Citrus County

12. Population to be served:

Current: 118,085 (2000 Census) Five-year Projection: 130,000 (FY2005)

13. Volume of solid waste to be received: 84,000 (FY2001 estimated) tons/year

14. Date site will be ready to be inspected for completion: 2003

15. Estimated life of facility: 2 years years

16. Estimated costs:

Total Construction: $_____ Closing Costs: $ 2,361,326

17. Anticipated construction starting and completion dates:

From: _____ To: _____

T. CERTIFICATION BY APPLICANT AND ENGINEER OR PUBLIC OFFICER

A. Applicant

The undersigned applicant or authorized representative of Citrus County Board of County Commissioners is aware that statements made in this form and attached information are an application for a Solid Waste Management Facility Permit from the Florida Department of Environmental Regulation and certifies that the information in this application is true, correct and complete to the best of his 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.

Susan J Metcalfe

Signature of Applicant or Agent

Susan J. Metcalfe, Director, Division of Solid Waste Management

Name and Title

Date: April 24, 2001

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

B. Professional Engineer Registered in Florida or Public Officer as required in Section 403.707 and 403.707(5), 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 principals applicable to such facilities. In my professional judgement, 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

Jones, Edmunds & Associates, Inc.
730 NE Waldo Road, Building A

Mailing Address

David A. Keough, PE, Project Manager

Name and Title (please type)

Gainesville, Florida 32641

City, State, Zip

#33164

Florida Registration Number
(Please affix seal)

352-377-5821

Telephone Number

Date: 4-25-01

ᐧOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS
SOLID WASTE MANAGEMENT DIVISION

P.O. Box 340, Lecanto, Florida 34460
(352) 746-5000 FAX (352) 527-1204
Citrus Springs/Dunnellon area Toll Free # (352) 489-2120

RECEIVED
APR 27 2001
Department of Environmental Protection
BY SOUTHWEST DISTRICT

April 24, 2001

Kim B. Ford, P.E.
Solid Waste Section
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

Re: Citrus County Central Landfill,
Permit No. 274381 Renewal Application

Dear Mr. Ford:

Enclosed please find six copies of the application for renewal of the landfill operating permit for the Central Landfill. Citrus County Warrant No. 179985 in the amount of $10,000.00, the permit application fee, is also included in this package, as well as one set of the three video tapes produced during inspection of the leachate collection and transfer system.

Jones, Edmunds & Associates prepared this document for Citrus County. The submittal includes the application form, modifications to the operation plan, a review of the groundwater monitoring plan, updated closure cost estimates and a copy of the yard waste processing facility registration and annual report that will be simultaneously submitted to Tallahassee.

The only other active permits related to the active and closed landfill sites are the waste tire permit, which was renewed earlier this year and the closure permit that deals with physical maintenance of the closed landfill. All leachate, groundwater and gas issues for both sites are addressed in this permit. We have received from your office a notice of intent to issue a construction/operation permit for repair of exposed liner at this site. This application covers operation of Phase 1A, which will be completely filled before the end of the normal 5-year operation permit period. No decision has been made as yet by the Board as to the subsequent construction pattern. We expect that policy decision to be made within a few months.

If you have questions, we will be glad to discuss them with you. Please contact me first to determine whether the County or our consultants will be the appropriate party to respond.

Sincerely,

Susan J Metcalfe

Susan Metcalfe
Director of Solid Waste Management

CC: Kenneth E. Saunders, Jr., Director, Public Works Department

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS
SOLID WASTE MANAGEMENT DIVISION
P.O. Box 340, Lecanto, Florida 34460
(352) 746-5000 FAX (352) 527-1204
Citrus Springs/Dunnellon area Toll Free # (352) 489-2120

D.E.P.
MAR 29 2001
Southwest District Tampa

Bob JTM 4/9/01
John
Susan 4/5
MSP

March 22, 2001

Kim B. Ford, P.E.
Solid Waste Section
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

LEACHATE RELEASE 3/21/01

Re: Citrus County Central Landfill,
Permit No. 274381 and SF-211030

Dear Mr. Ford:

This is to report an incident that occurred on March 21 at our facility. County staff is installing an irrigation system to serve the vegetative buffer that is being planted along the SR44 frontage. While trenching for the main line from the supply well near the scalehouse northward along the west side of the common fence, the 1-1/2 inch line carrying leachate from the closed site lift stations was severed. We estimate that less than 50 gallons of leachate was released. SCS Field Services made repairs today. The line was located in a different alignment than was shown in the as-built drawings. Those drawings will be corrected. A sketch of the location is attached.

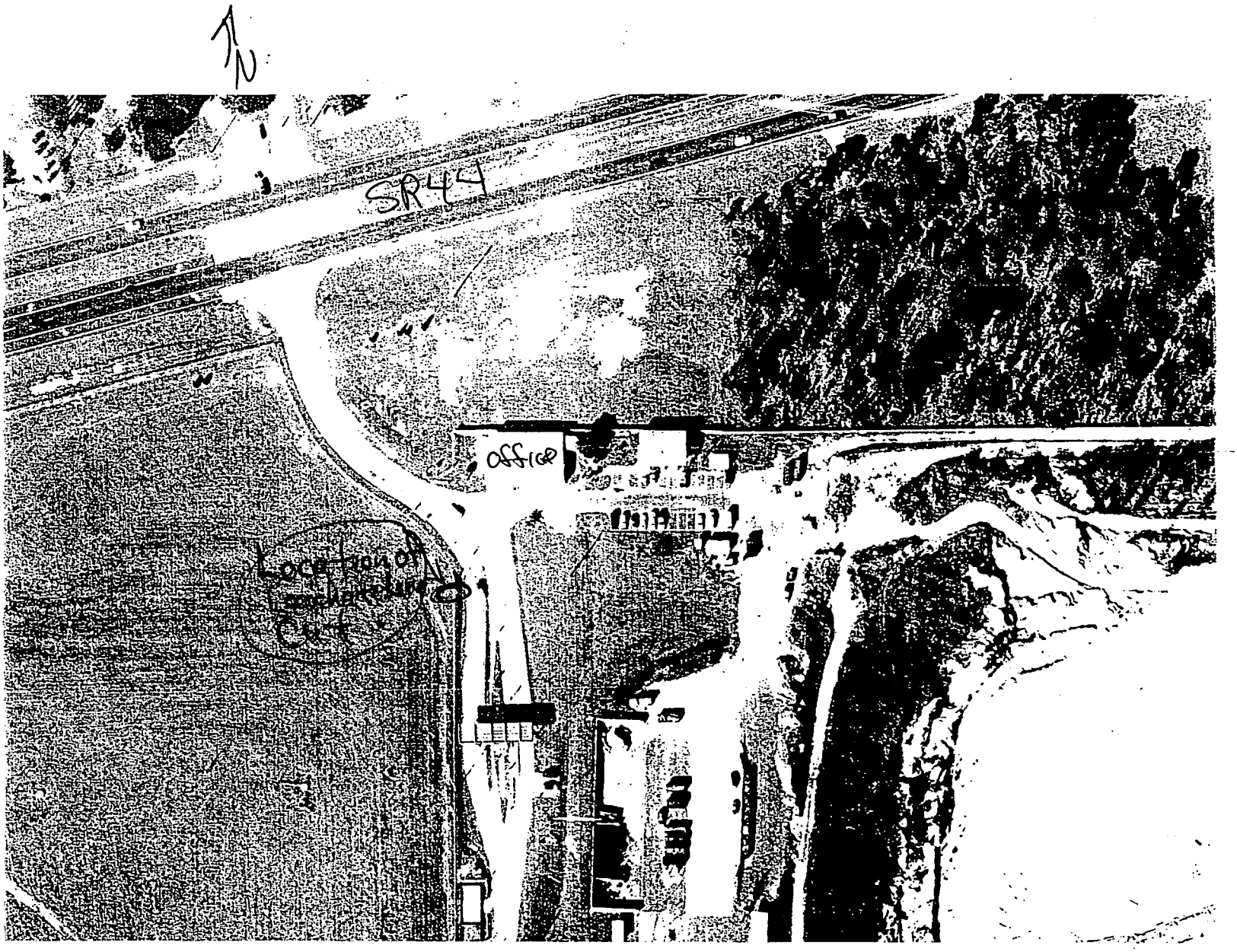
If you have any questions, please contact me.

Sincerely,

Susan J Metcalfe

Susan Metcalfe
Director of Solid Waste Management

CC: Kenneth E. Saunders, Jr., Director, Public Works Department


N
SR44
office
Location of underground Cut

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

October 17, 2000

Ms. Susan Metcalfe, P.G.
Solid Waste Management
Citrus County
P. O. Box 340
Lecanto, FL 34460

Re Citrus Central Landfill - Liner Repair
Permit No.: SO09-247381, Citrus County

Dear Ms. Metcalfe:

The Department received the proposal for liner repair from your consultant and has no objection to the repair concept. You are advised that a Solid Waste "Other" Construction Permit is required for the work described in the October 10, 2000 proposal by Jones Edmunds and Associates according to FAC 62-4.050(4)(h)11., including the completed permit application (attached) and $1000 processing fee and all applicable supporting information required by F.A.C. Rule 62-701.400 for new liner systems.

On all future correspondence, please include Robert Butera on distribution. If you have any questions you may call me at (813) 744-6100, extension 382.

Sincerely,

Kim B. Ford, P.E.
Solid Waste Section
Division of Waste Management

KBF/ab
Attachment

cc: David Keough, P.E., Jones Edmunds & Associates
Robert Butera, P.E., FDEP Tampa, Solid Waste Section

Jones Edmunds & Associates, Inc.
CONSULTING ENGINEERS AND SCIENTISTS
JEA

October 10, 2000

Mr. Kim B. Ford, P.E.
Florida Department of Environmental Protection
Southwest District
Solid Waste Section
3804 Coconut Palm Drive
Tampa, FL 33619-8318

RE: Citrus County Central Landfill
Class I Landfill Geomembrane Remediation
Permit No. SO09-247381
JEA Project No.: 03860-003-01-1000

Dear Mr. Ford:

The purpose of this correspondence is to present a proposed plan which addresses the stress-cracked areas of geomembrane liner in the Citrus County Central Landfill. The proposed remediation plan is based on an investigation conducted by Dr. Ian D. Peggs, of I-CORP International, Inc. and engineering analysis performed by Jones, Edmunds & Associates, Inc. (JEA).

Dr. Peggs' investigation report, previously-submitted to your office, states that cracks appear in a portion of the apex-down folds and in areas adjacent to a few seams of the currently-exposed liner areas. To estimate the amount of potential leakage resulting from the cracked areas, JEA performed a hydrologic analysis using the HELP Model ("Hydrologic Evaluation of Landfill Performance, Version 3.01," Schroeder, 1994). As a conservative estimate, model conditions assume that a penetrating crack exists in every fold (apex-up and apex-down) and that each crack extends the entire length of the exposed liner slope that is currently exposed. These assumptions are conservative based on Peggs' investigations which revealed only 12 penetrating cracks which did not extend the entire length of slope. HELP model results show the leakage rate to be considerably greater than that expected with typical landfill operations. HELP model results are included as Attachment 1.

Due to potential high leakage rates, application of a soil cover over the exposed areas would not by itself provide an appropriate solution. Repair methods which include welding of the existing geomembrane material (as suggested by the liner manufacturer) were also rejected on Dr. Peggs recommendation that added thermal energy from seaming procedures may aggravate the stress cracking problem. Therefore, it appears that applying new material may be the most viable remediation alternative.

730 NE Waldo Road, Bldg. A • Gainesville, Florida 32641 • Telephone (352) 377-5821 • FAX (352) 377-3166

Jones Edmunds & Associates, Inc.
CONSULTING ENGINEERS AND SCIENTISTS
JEA

October 10, 2000

Mr. Kim B. Ford, P.E.
Florida Department of Environmental Protection
Southwest District
Solid Waste Section
3804 Coconut Palm Drive
Tampa, FL 33619-8318

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Class I Landfill Geomembrane Remediation
Permit No. SO09-247381
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730 NE Waldo Road, Bldg. A • Gainesville, Florida 32641 • Telephone (352) 377-5821 • FAX (352) 377-3166

This alternative consists of using a geomembrane installer to place a new 60-mil HDPE geomembrane in the presently exposed liner areas, as shown in Drawing 1 (attached). Slope stability analyses to compare the factor of safety resulting from different geomembrane materials on the existing 2H:1V slope of smooth geomembrane have been performed. Results, provided as Attachment 2, show that a textured geomembrane liner would reduce the potential for material sloughing and slope failures when compared with a similar smooth geomembrane. Therefore, it is our recommendation that the proposed geomembrane consists of a 60-mil, HDPE, textured geomembrane. Please note that the proposed new material is composed of a different resin than that which was used for the original geomembrane material. As Dr. Peggs concluded in his investigative report, stress cracks were initiated due to the inadequacy of the antioxidant package incorporated into the geomembrane material. The proposed new geomembrane materials will contain a resin with improved oxidation resistance.

In addition, once a layer of solid waste is placed along the side slope, installation of a stormwater geomembrane is proposed. The stormwater geomembrane will provide erosion control and better leachate management.

We will advise the Department once arrangements for installation of the new liner are confirmed. It is anticipated that the time frame to fill the newly lined areas with solid waste to the level that will allow placement of the new stormwater liner and rain gutter will be between four and five months.

If you have any questions, please call me at 352/377-5821.

Sincerely,

David A. Keough, P.E.
Project Manager

H:\JMcGregor\DKeough\03860\012.wpd

Attachments

XC: Susan Metcalfe, Citrus County

ATTACHMENT 1

HELP MODEL RESULTS AND SUPPORTING INFORMATION

Citrus County Central Landfill
Geomembrane Liner Investigation

Comparison of HELP Model Results

Model Condtion	# holes/acre	Peak Leakage Rate (in/day)	Peak Leakage Rate (ft^3/day)
Conservative	953	0.157	5,697
Moderate	275	0.120	4,349
Standard	2	0.001	46

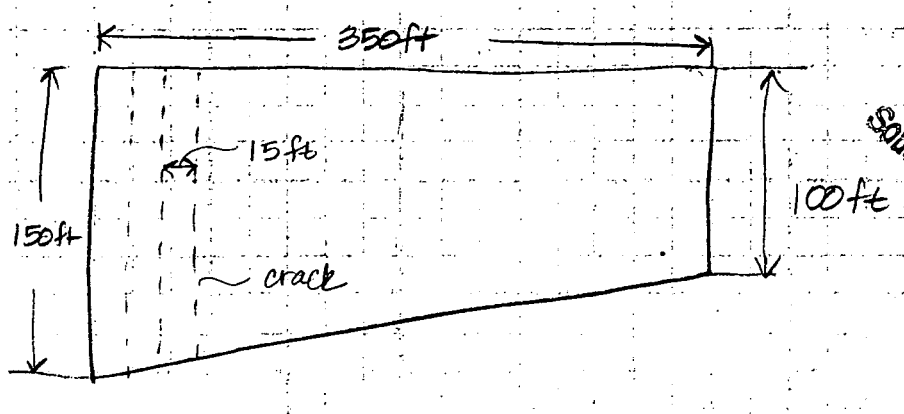
Notes:
1 - Area of each hole = 1 cm^2
2 - See attached calculations for number of holes for conservative & moderate cases.
3 - Number of holes for standard case based on industry standard for installed liner.

Jones Edmunds & Associates, Inc. JEA
CONSULTING ENGINEERS AND SCIENTISTS
Destin • Gainesville • Jacksonville • Tampa

PROJECT NUME _____ SHEET 1 OF 1
PROJECT NAME: CITRUS CO - LINER REMED
BY: JLD DATE: 9/13/00
SUBJECT: LINER "CRACKS"
CHECKED BY: _____ DATE: _____

PROBLEM: RELATE OPEN AREAS OF LINER CRACKS TO STANDARD HOLE AREA

ASSUMPTIONS: STANDARD LINER HOLE AREA = 1 cm^2
HORIZONTAL DISTANCE B/T CRACKS = 15 ft
AVG VERTICAL LENGTH OF CRACK = 125 ft
WIDTH OF CRACK = 0.01 cm



TOTAL NUMBER OF CRACKS = $\frac{350\text{ ft}}{15\text{ ft}} = 23.3 \Rightarrow \underline{25}$

OPEN AREA OF 1 CRACK = $(125\text{ ft})(0.01\text{ cm})\left(\frac{30.48\text{ cm}}{1\text{ ft}}\right)$

$= 38.1\text{ cm}^2$

TOTAL OPEN AREA = $25(38.1\text{ cm}^2) = \underline{952.5\text{ cm}^2}$

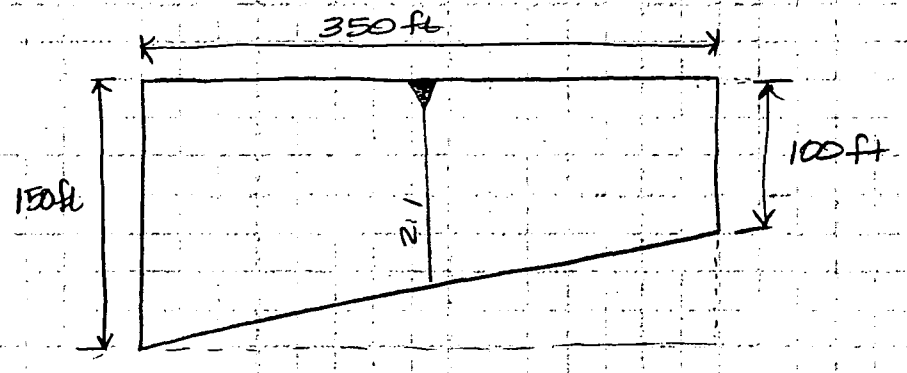
21 cm²/ac

0.08 mil

Jones Edmunds & Associates, Inc. JEA
CONSULTING ENGINEERS AND SCIENTISTS
Destin • Gainesville • Jacksonville • Tampa

PROJECT NUMB _____ SHEET 1 OF 1
PROJECT NAME: CITROS CO. LINER INVEST
BY: JLD DATE: 9-13-00
SUBJECT: LINER REMEDIATION AREA
CHECKED BY: _____ DATE: _____

PROBLEM: ESTIMATE LINER REMEDIATION AREA



AREA = (150 ft)(350 ft) - (0.5)(50 ft)(150 ft)

AREA = 43,750 ft² ≅ 1 ac

→ SAME REMEDIATION AREA ON OPPOSITE SIDE OF LANDFILL

⇒ AREA = 2(43,750 ft²)

AREA = 87,500 ft² ≅ 90,000 ft²

Jones Edmunds & Associates, Inc. JEA
CONSULTING ENGINEERS AND SCIENTISTS
Destin • Gainesville • Jacksonville • Tampa

PROJECT NUM. _____ SHEET ____ OF ____
PROJECT NAME: CITRUS CO LINER INVEST.
BY: JLD DATE: 10-4-00
SUBJECT: LINER "CRACKS"
CHECKED BY: _____ DATE: _____

PROBLEM: ESTIMATE LINER OPENINGS BASED ON IAN PEGGS' INVESTIGATION REPORT & RELATE TO STANDARD HOLES IN LINER

REPORT INFO: (PEGGS, 7/00) NUMBER OF FULLY PENETRATING CRACKS = 12

ASSUMPTIONS: AVG VERTICAL LENGTH OF CRACK = 75 ft
WIDTH OF CRACK = 0.01 cm
STANDARD LINER HOLE AREA = 1 cm^2

1.) CALCULATE TOTAL AREA OF LINER OPENINGS (CRACKS)

$$A_T = N W L$$

A_T = TOTAL AREA OF LINER OPENINGS
N = NUMBER OF CRACKS
W = WIDTH OF EACH CRACK
L = LENGTH OF EACH CRACK

$$A_T = (12)(0.01\,cm)(75\,ft)\left(\frac{30.5\,cm}{ft}\right)$$

$$A_T = 274.5\ cm^2$$

2) RELATE A_T TO NUMBER OF STANDARD HOLES (N_H)

$$N_H = \frac{274.5\,cm^2}{1\,cm^2} \cong \underline{\underline{275}}$$

```
******************************************************************************
******************************************************************************
**                                                                          **
**                                                                          **
**              HYDROLOGIC EVALUATION OF LANDFILL PERFORMANCE               **
**                HELP MODEL VERSION 3.07  (1 NOVEMBER 1997)                **
**                  DEVELOPED BY ENVIRONMENTAL LABORATORY                   **
**                    USAE WATERWAYS EXPERIMENT STATION                     **
**             FOR USEPA RISK REDUCTION ENGINEERING LABORATORY              **
**                                                                          **
**                                                                          **
******************************************************************************
******************************************************************************


PRECIPITATION DATA FILE:     C:\HELP3\CITRUS4.D4
TEMPERATURE DATA FILE:       C:\HELP3\CITRUS7.D7
SOLAR RADIATION DATA FILE:   C:\HELP3\CITRUS13.D13
EVAPOTRANSPIRATION DATA:     C:\HELP3\CITRUS11.D11
SOIL AND DESIGN DATA FILE:   C:\HELP3\950DEF.D10
OUTPUT DATA FILE:            C:\HELP3\950def.OUT


TIME:  16:58     DATE:   9/29/2000


******************************************************************************

     TITLE:  Citrus County Liner - Solid Waste Fill -Average Slope Length
                    CONSERVATIVE CASE
******************************************************************************


     NOTE:  INITIAL MOISTURE CONTENT OF THE LAYERS AND SNOW WATER WERE
              COMPUTED AS NEARLY STEADY-STATE VALUES BY THE PROGRAM.


                                   LAYER  1
                                   --------

                     TYPE 1 - VERTICAL PERCOLATION LAYER
                         MATERIAL TEXTURE NUMBER   5
          THICKNESS                    =      6.00   INCHES
          POROSITY                     =      0.4570 VOL/VOL
          FIELD CAPACITY               =      0.1310 VOL/VOL
          WILTING POINT                =      0.0580 VOL/VOL
          INITIAL SOIL WATER CONTENT   =      0.1084 VOL/VOL
          EFFECTIVE SAT. HYD. COND.    =  0.100000005000E-02 CM/SEC
        NOTE:  SATURATED HYDRAULIC CONDUCTIVITY IS MULTIPLIED BY  3.00
                 FOR ROOT CHANNELS IN TOP HALF OF EVAPORATIVE ZONE.
```

LAYER 2

TYPE 1 - VERTICAL PERCOLATION LAYER
MATERIAL TEXTURE NUMBER 18

THICKNESS	=	840.00	INCHES
POROSITY	=	0.6710	VOL/VOL
FIELD CAPACITY	=	0.2920	VOL/VOL
WILTING POINT	=	0.0770	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.2896	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.100000005000E-02	CM/SEC

LAYER 3

TYPE 2 - LATERAL DRAINAGE LAYER
MATERIAL TEXTURE NUMBER 2

THICKNESS	=	24.00	INCHES
POROSITY	=	0.4370	VOL/VOL
FIELD CAPACITY	=	0.0620	VOL/VOL
WILTING POINT	=	0.0240	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.0786	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.579999993000E-02	CM/SEC
SLOPE	=	50.00	PERCENT
DRAINAGE LENGTH	=	134.0	FEET

LAYER 4

TYPE 4 - FLEXIBLE MEMBRANE LINER
MATERIAL TEXTURE NUMBER 35

THICKNESS	=	0.06	INCHES
POROSITY	=	0.0000	VOL/VOL
FIELD CAPACITY	=	0.0000	VOL/VOL
WILTING POINT	=	0.0000	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.0000	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.199999996000E-12	CM/SEC
FML PINHOLE DENSITY	=	0.00	HOLES/ACRE
FML INSTALLATION DEFECTS	=	950.00	HOLES/ACRE
FML PLACEMENT QUALITY	=	4 - POOR	

GENERAL DESIGN AND EVAPORATIVE ZONE DATA

NOTE: SCS RUNOFF CURVE NUMBER WAS USER-SPECIFIED.

SCS RUNOFF CURVE NUMBER	=	50.00	
FRACTION OF AREA ALLOWING RUNOFF	=	100.0	PERCENT
AREA PROJECTED ON HORIZONTAL PLANE	=	10.000	ACRES
EVAPORATIVE ZONE DEPTH	=	22.0	INCHES
INITIAL WATER IN EVAPORATIVE ZONE	=	3.335	INCHES
UPPER LIMIT OF EVAPORATIVE STORAGE	=	13.478	INCHES
LOWER LIMIT OF EVAPORATIVE STORAGE	=	1.580	INCHES
INITIAL SNOW WATER	=	0.000	INCHES
INITIAL WATER IN LAYER MATERIALS	=	245.829	INCHES
TOTAL INITIAL WATER	=	245.829	INCHES
TOTAL SUBSURFACE INFLOW	=	0.00	INCHES/YEAR

EVAPOTRANSPIRATION AND WEATHER DATA

NOTE: EVAPOTRANSPIRATION DATA WAS OBTAINED FROM
TAMPA FLORIDA

STATION LATITUDE	=	27.58	DEGREES
MAXIMUM LEAF AREA INDEX	=	2.00	
START OF GROWING SEASON (JULIAN DATE)	=	0	
END OF GROWING SEASON (JULIAN DATE)	=	367	
EVAPORATIVE ZONE DEPTH	=	22.0	INCHES
AVERAGE ANNUAL WIND SPEED	=	8.60	MPH
AVERAGE 1ST QUARTER RELATIVE HUMIDITY	=	74.00	%
AVERAGE 2ND QUARTER RELATIVE HUMIDITY	=	72.00	%
AVERAGE 3RD QUARTER RELATIVE HUMIDITY	=	78.00	%
AVERAGE 4TH QUARTER RELATIVE HUMIDITY	=	76.00	%

NOTE: PRECIPITATION DATA FOR TAMPA FLORIDA
WAS ENTERED FROM THE DEFAULT DATA FILE.

NOTE: TEMPERATURE DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR TAMPA FLORIDA

NORMAL MEAN MONTHLY TEMPERATURE (DEGREES FAHRENHEIT)

JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
59.80	60.80	66.20	71.60	77.10	80.90
82.20	82.20	80.90	74.50	66.70	61.30

NOTE: SOLAR RADIATION DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR TAMPA FLORIDA
AND STATION LATITUDE = 27.58 DEGREES

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ANNUAL TOTALS FOR YEAR 1974

	INCHES	CU. FEET	PERCENT
PRECIPITATION	33.90	1230569.870	100.00
RUNOFF	0.207	7499.246	0.61
EVAPOTRANSPIRATION	29.074	1055369.870	85.76
DRAINAGE COLLECTED FROM LAYER 3	0.1855	6735.255	0.55
PERC./LEAKAGE THROUGH LAYER 4	4.290434	155742.766	12.66
AVG. HEAD ON TOP OF LAYER 4	0.0052		
CHANGE IN WATER STORAGE	0.144	5223.775	0.42
SOIL WATER AT START OF YEAR	246.573	8950607.000	
SOIL WATER AT END OF YEAR	246.717	8955831.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	-0.969	0.00

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ANNUAL TOTALS FOR YEAR 1975

	INCHES	CU. FEET	PERCENT
PRECIPITATION	43.44	1576871.500	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	40.143	1457192.870	92.41
DRAINAGE COLLECTED FROM LAYER 3	0.1334	4843.349	0.31
PERC./LEAKAGE THROUGH LAYER 4	3.165879	114921.414	7.29
AVG. HEAD ON TOP OF LAYER 4	0.0039		

CHANGE IN WATER STORAGE	-0.002	-85.854	-0.01
SOIL WATER AT START OF YEAR	246.717	8955831.000	
SOIL WATER AT END OF YEAR	246.715	8955745.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	-0.268	0.00

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ANNUAL TOTALS FOR YEAR 1976

	INCHES	CU. FEET	PERCENT
PRECIPITATION	41.73	1514799.120	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	42.911	1557683.620	102.83
DRAINAGE COLLECTED FROM LAYER 3	0.0096	348.717	0.02
PERC./LEAKAGE THROUGH LAYER 4	0.501326	18198.117	1.20
AVG. HEAD ON TOP OF LAYER 4	0.0005		
CHANGE IN WATER STORAGE	-1.692	-61431.836	-4.06
SOIL WATER AT START OF YEAR	246.715	8955745.000	
SOIL WATER AT END OF YEAR	245.022	8894313.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	0.446	0.00

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ANNUAL TOTALS FOR YEAR 1977

	INCHES	CU. FEET	PERCENT

PRECIPITATION	32.03	1162689.250	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	29.255	1061961.750	91.34
DRAINAGE COLLECTED FROM LAYER 3	0.0020	74.084	0.01
PERC./LEAKAGE THROUGH LAYER 4	0.146270	5309.605	0.46
AVG. HEAD ON TOP OF LAYER 4	0.0001		
CHANGE IN WATER STORAGE	2.627	95344.000	8.20
SOIL WATER AT START OF YEAR	245.022	8894313.000	
SOIL WATER AT END OF YEAR	247.649	8989657.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	-0.186	0.00

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ANNUAL TOTALS FOR YEAR 1978

	INCHES	CU. FEET	PERCENT
PRECIPITATION	39.85	1446554.750	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	37.746	1370187.870	94.72
DRAINAGE COLLECTED FROM LAYER 3	0.1117	4053.679	0.28
PERC./LEAKAGE THROUGH LAYER 4	2.862452	103906.992	7.18
AVG. HEAD ON TOP OF LAYER 4	0.0033		
CHANGE IN WATER STORAGE	-0.870	-31593.562	-2.18
SOIL WATER AT START OF YEAR	247.649	8989657.000	
SOIL WATER AT END OF YEAR	246.779	8958064.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00

ANNUAL WATER BUDGET BALANCE 0.0000 -0.216 0.00

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AVERAGE MONTHLY VALUES IN INCHES FOR YEARS 1974 THROUGH 1978

	JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
PRECIPITATION						
TOTALS	1.46	2.16	1.65	0.98	3.41	6.80
	5.24	5.54	5.78	2.07	0.76	2.34
STD. DEVIATIONS	1.35	1.88	0.75	0.53	3.13	4.89
	1.27	1.10	3.22	2.05	0.89	1.10
RUNOFF						
TOTALS	0.000	0.000	0.000	0.000	0.000	0.041
	0.000	0.000	0.000	0.000	0.000	0.000
STD. DEVIATIONS	0.000	0.000	0.000	0.000	0.000	0.092
	0.000	0.000	0.000	0.000	0.000	0.000
EVAPOTRANSPIRATION						
TOTALS	1.279	2.558	2.197	1.336	2.598	4.652
	6.340	5.326	4.822	2.295	1.313	1.111
STD. DEVIATIONS	0.702	0.680	1.372	0.516	2.090	2.362
	0.986	0.746	0.820	1.963	0.848	0.318
LATERAL DRAINAGE COLLECTED FROM LAYER 3						
TOTALS	0.0006	0.0052	0.0153	0.0017	0.0006	0.0004
	0.0133	0.0222	0.0016	0.0064	0.0199	0.0013
STD. DEVIATIONS	0.0007	0.0105	0.0333	0.0031	0.0009	0.0004
	0.0290	0.0489	0.0022	0.0125	0.0435	0.0020
PERCOLATION/LEAKAGE THROUGH LAYER 4						
TOTALS	0.0340	0.1411	0.3555	0.0726	0.0327	0.0222
	0.2969	0.4946	0.0667	0.1641	0.4538	0.0589
STD. DEVIATIONS	0.0289	0.2548	0.7403	0.1194	0.0357	0.0183
	0.6172	1.0618	0.0855	0.2761	0.9534	0.0835

AVERAGES OF MONTHLY AVERAGED DAILY HEADS (INCHES)

DAILY AVERAGE HEAD ON TOP OF LAYER 4

AVERAGES	0.0004	0.0020	0.0052	0.0007	0.0004	0.0003
	0.0045	0.0074	0.0007	0.0023	0.0069	0.0006
STD. DEVIATIONS	0.0003	0.0038	0.0109	0.0011	0.0004	0.0002
	0.0095	0.0160	0.0009	0.0041	0.0147	0.0007

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AVERAGE ANNUAL TOTALS & (STD. DEVIATIONS) FOR YEARS 1974 THROUGH 1978

	INCHES		CU. FEET	PERCENT
PRECIPITATION	38.19	(4.980)	1386296.7	100.00
RUNOFF	0.041	(0.0924)	1499.85	0.108
EVAPOTRANSPIRATION	35.826	(6.3502)	1300479.25	93.810
LATERAL DRAINAGE COLLECTED FROM LAYER 3	0.08846	(0.08011)	3211.017	0.23163
PERCOLATION/LEAKAGE THROUGH LAYER 4	2.19327	(1.79198)	79615.781	5.74305
AVERAGE HEAD ON TOP OF LAYER 4	0.003	(0.002)		
CHANGE IN WATER STORAGE	0.041	(1.6227)	1491.30	0.108

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PEAK DAILY VALUES FOR YEARS 1974 THROUGH 1978

	(INCHES)	(CU. FT.)
PRECIPITATION	5.47	198561.000
RUNOFF	0.207	7499.2456
DRAINAGE COLLECTED FROM LAYER 3	0.00858	311.27985
PERCOLATION/LEAKAGE THROUGH LAYER 4	0.156935	5696.75439
AVERAGE HEAD ON TOP OF LAYER 4	0.087	
MAXIMUM HEAD ON TOP OF LAYER 4	0.182	
LOCATION OF MAXIMUM HEAD IN LAYER 3 (DISTANCE FROM DRAIN)	0.0 FEET	
SNOW WATER	0.00	0.0000

MAXIMUM VEG. SOIL WATER (VOL/VOL)	0.4762
MINIMUM VEG. SOIL WATER (VOL/VOL)	0.0718

*** Maximum heads are computed using McEnroe's equations. ***

Reference: Maximum Saturated Depth over Landfill Liner
by Bruce M. McEnroe, University of Kansas
ASCE Journal of Environmental Engineering
Vol. 119, No. 2, March 1993, pp. 262-270.

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FINAL WATER STORAGE AT END OF YEAR 1978

LAYER	(INCHES)	(VOL/VOL)
1	1.2132	0.2022
2	243.0350	0.2893
3	1.7864	0.0744
4	0.0000	0.0000
SNOW WATER	0.000	

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**              HYDROLOGIC EVALUATION OF LANDFILL PERFORMANCE               **
**                HELP MODEL VERSION 3.07  (1 NOVEMBER 1997)                **
**                  DEVELOPED BY ENVIRONMENTAL LABORATORY                   **
**                    USAE WATERWAYS EXPERIMENT STATION                     **
**             FOR USEPA RISK REDUCTION ENGINEERING LABORATORY              **
**                                                                          **
**                                                                          **
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PRECIPITATION DATA FILE:      C:\HELP3\CITRUS4.D4
TEMPERATURE DATA FILE:        C:\HELP3\CITRUS7.D7
SOLAR RADIATION DATA FILE:    C:\HELP3\CITRUS13.D13
EVAPOTRANSPIRATION DATA:      C:\HELP3\CITRUS11.D11
SOIL AND DESIGN DATA FILE:    C:\HELP3\275DEF.D10
OUTPUT DATA FILE:             C:\HELP3\275def.OUT


TIME:  13:14     DATE:  10/ 4/2000


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     TITLE:  Citrus County Liner - Solid Waste Fill -Average Slope Length
                    MODERATE  CASE
******************************************************************************


     NOTE:  INITIAL MOISTURE CONTENT OF THE LAYERS AND SNOW WATER WERE
              COMPUTED AS NEARLY STEADY-STATE VALUES BY THE PROGRAM.


                                   LAYER  1
                                   --------

                     TYPE 1 - VERTICAL PERCOLATION LAYER
                         MATERIAL TEXTURE NUMBER   5
          THICKNESS                    =      6.00   INCHES
          POROSITY                     =      0.4570 VOL/VOL
          FIELD CAPACITY               =      0.1310 VOL/VOL
          WILTING POINT                =      0.0580 VOL/VOL
          INITIAL SOIL WATER CONTENT   =      0.1084 VOL/VOL
          EFFECTIVE SAT. HYD. COND.    =  0.100000005000E-02 CM/SEC
        NOTE:  SATURATED HYDRAULIC CONDUCTIVITY IS MULTIPLIED BY  3.00
                 FOR ROOT CHANNELS IN TOP HALF OF EVAPORATIVE ZONE.
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LAYER 2

TYPE 1 - VERTICAL PERCOLATION LAYER
MATERIAL TEXTURE NUMBER 18

THICKNESS	=	840.00	INCHES
POROSITY	=	0.6710	VOL/VOL
FIELD CAPACITY	=	0.2920	VOL/VOL
WILTING POINT	=	0.0770	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.2896	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.100000005000E-02	CM/SEC

LAYER 3

TYPE 2 - LATERAL DRAINAGE LAYER
MATERIAL TEXTURE NUMBER 2

THICKNESS	=	24.00	INCHES
POROSITY	=	0.4370	VOL/VOL
FIELD CAPACITY	=	0.0620	VOL/VOL
WILTING POINT	=	0.0240	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.0786	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.579999993000E-02	CM/SEC
SLOPE	=	50.00	PERCENT
DRAINAGE LENGTH	=	134.0	FEET

LAYER 4

TYPE 4 - FLEXIBLE MEMBRANE LINER
MATERIAL TEXTURE NUMBER 35

THICKNESS	=	0.06	INCHES
POROSITY	=	0.0000	VOL/VOL
FIELD CAPACITY	=	0.0000	VOL/VOL
WILTING POINT	=	0.0000	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.0000	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.199999996000E-12	CM/SEC
FML PINHOLE DENSITY	=	0.00	HOLES/ACRE
FML INSTALLATION DEFECTS	=	275.00	HOLES/ACRE
FML PLACEMENT QUALITY	=	4 - POOR	

GENERAL DESIGN AND EVAPORATIVE ZONE DATA

NOTE: SCS RUNOFF CURVE NUMBER WAS USER-SPECIFIED.

SCS RUNOFF CURVE NUMBER	=	50.00	
FRACTION OF AREA ALLOWING RUNOFF	=	100.0	PERCENT
AREA PROJECTED ON HORIZONTAL PLANE	=	10.000	ACRES
EVAPORATIVE ZONE DEPTH	=	22.0	INCHES
INITIAL WATER IN EVAPORATIVE ZONE	=	3.335	INCHES
UPPER LIMIT OF EVAPORATIVE STORAGE	=	13.478	INCHES
LOWER LIMIT OF EVAPORATIVE STORAGE	=	1.580	INCHES
INITIAL SNOW WATER	=	0.000	INCHES
INITIAL WATER IN LAYER MATERIALS	=	245.829	INCHES
TOTAL INITIAL WATER	=	245.829	INCHES
TOTAL SUBSURFACE INFLOW	=	0.00	INCHES/YEAR

EVAPOTRANSPIRATION AND WEATHER DATA

NOTE: EVAPOTRANSPIRATION DATA WAS OBTAINED FROM
TAMPA FLORIDA

STATION LATITUDE	=	27.58	DEGREES
MAXIMUM LEAF AREA INDEX	=	2.00	
START OF GROWING SEASON (JULIAN DATE)	=	0	
END OF GROWING SEASON (JULIAN DATE)	=	367	
EVAPORATIVE ZONE DEPTH	=	22.0	INCHES
AVERAGE ANNUAL WIND SPEED	=	8.60	MPH
AVERAGE 1ST QUARTER RELATIVE HUMIDITY	=	74.00	%
AVERAGE 2ND QUARTER RELATIVE HUMIDITY	=	72.00	%
AVERAGE 3RD QUARTER RELATIVE HUMIDITY	=	78.00	%
AVERAGE 4TH QUARTER RELATIVE HUMIDITY	=	76.00	%

NOTE: PRECIPITATION DATA FOR TAMPA FLORIDA
WAS ENTERED FROM THE DEFAULT DATA FILE.

NOTE: TEMPERATURE DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR TAMPA FLORIDA

NORMAL MEAN MONTHLY TEMPERATURE (DEGREES FAHRENHEIT)

JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
59.80	60.80	66.20	71.60	77.10	80.90
82.20	82.20	80.90	74.50	66.70	61.30

NOTE: SOLAR RADIATION DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR TAMPA FLORIDA
AND STATION LATITUDE = 27.58 DEGREES

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ANNUAL TOTALS FOR YEAR 1974

	INCHES	CU. FEET	PERCENT
PRECIPITATION	33.90	1230569.870	100.00
RUNOFF	0.207	7499.246	0.61
EVAPOTRANSPIRATION	29.074	1055369.870	85.76
DRAINAGE COLLECTED FROM LAYER 3	0.7595	27571.320	2.24
PERC./LEAKAGE THROUGH LAYER 4	3.716438	134906.703	10.96
AVG. HEAD ON TOP OF LAYER 4	0.0208		
CHANGE IN WATER STORAGE	0.144	5223.775	0.42
SOIL WATER AT START OF YEAR	246.573	8950615.000	
SOIL WATER AT END OF YEAR	246.717	8955839.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	-0.969	0.00

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ANNUAL TOTALS FOR YEAR 1975

	INCHES	CU. FEET	PERCENT
PRECIPITATION	43.44	1576871.500	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	40.143	1457192.870	92.41
DRAINAGE COLLECTED FROM LAYER 3	0.5483	19904.799	1.26
PERC./LEAKAGE THROUGH LAYER 4	2.751010	99861.664	6.33
AVG. HEAD ON TOP OF LAYER 4	0.0154		

CHANGE IN WATER STORAGE	-0.002	-87.515	-0.01
SOIL WATER AT START OF YEAR	246.717	8955839.000	
SOIL WATER AT END OF YEAR	246.715	8955751.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	-0.303	0.00

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ANNUAL TOTALS FOR YEAR 1976

	INCHES	CU. FEET	PERCENT
PRECIPITATION	41.73	1514799.120	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	42.911	1557683.620	102.83
DRAINAGE COLLECTED FROM LAYER 3	0.0313	1137.900	0.08
PERC./LEAKAGE THROUGH LAYER 4	0.479595	17409.293	1.15
AVG. HEAD ON TOP OF LAYER 4	0.0009		
CHANGE IN WATER STORAGE	-1.692	-61432.387	-4.06
SOIL WATER AT START OF YEAR	246.715	8955751.000	
SOIL WATER AT END OF YEAR	245.023	8894319.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	0.642	0.00

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ANNUAL TOTALS FOR YEAR 1977

	INCHES	CU. FEET	PERCENT

PRECIPITATION	32.03	1162689.250	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	29.255	1061961.750	91.34
DRAINAGE COLLECTED FROM LAYER 3	0.0062	223.414	0.02
PERC./LEAKAGE THROUGH LAYER 4	0.142343	5167.036	0.44
AVG. HEAD ON TOP OF LAYER 4	0.0002		
CHANGE IN WATER STORAGE	2.626	95337.906	8.20
SOIL WATER AT START OF YEAR	245.023	8894319.000	
SOIL WATER AT END OF YEAR	247.649	8989657.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	-0.853	0.00

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ANNUAL TOTALS FOR YEAR 1978

	INCHES	CU. FEET	PERCENT
PRECIPITATION	39.85	1446554.750	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	37.746	1370187.870	94.72
DRAINAGE COLLECTED FROM LAYER 3	0.4559	16549.777	1.14
PERC./LEAKAGE THROUGH LAYER 4	2.518106	91407.266	6.32
AVG. HEAD ON TOP OF LAYER 4	0.0128		
CHANGE IN WATER STORAGE	-0.870	-31590.238	-2.18
SOIL WATER AT START OF YEAR	247.649	8989657.000	
SOIL WATER AT END OF YEAR	246.779	8958066.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00

ANNUAL WATER BUDGET BALANCE 0.0000 0.095 0.00

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AVERAGE MONTHLY VALUES IN INCHES FOR YEARS 1974 THROUGH 1978

	JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
PRECIPITATION						
TOTALS	1.46	2.16	1.65	0.98	3.41	6.80
	5.24	5.54	5.78	2.07	0.76	2.34
STD. DEVIATIONS	1.35	1.88	0.75	0.53	3.13	4.89
	1.27	1.10	3.22	2.05	0.89	1.10
RUNOFF						
TOTALS	0.000	0.000	0.000	0.000	0.000	0.041
	0.000	0.000	0.000	0.000	0.000	0.000
STD. DEVIATIONS	0.000	0.000	0.000	0.000	0.000	0.092
	0.000	0.000	0.000	0.000	0.000	0.000
EVAPOTRANSPIRATION						
TOTALS	1.279	2.558	2.197	1.336	2.598	4.652
	6.340	5.326	4.822	2.295	1.313	1.111
STD. DEVIATIONS	0.702	0.680	1.372	0.516	2.090	2.362
	0.986	0.746	0.820	1.963	0.848	0.318
LATERAL DRAINAGE COLLECTED FROM LAYER 3						
TOTALS	0.0021	0.0209	0.0624	0.0072	0.0021	0.0012
	0.0525	0.0935	0.0058	0.0237	0.0840	0.0050
STD. DEVIATIONS	0.0023	0.0433	0.1367	0.0141	0.0029	0.0013
	0.1150	0.2068	0.0088	0.0470	0.1842	0.0087
PERCOLATION/LEAKAGE THROUGH LAYER 4						
TOTALS	0.0326	0.1243	0.3074	0.0693	0.0313	0.0214
	0.2465	0.4332	0.0634	0.1359	0.4001	0.0562
STD. DEVIATIONS	0.0274	0.2195	0.6345	0.1133	0.0337	0.0174
	0.5062	0.9268	0.0807	0.2170	0.8354	0.0790

AVERAGES OF MONTHLY AVERAGED DAILY HEADS (INCHES)

DAILY AVERAGE HEAD ON TOP OF LAYER 4

AVERAGES	0.0007	0.0076	0.0205	0.0025	0.0007	0.0004
	0.0173	0.0307	0.0020	0.0078	0.0285	0.0016
STD. DEVIATIONS	0.0007	0.0157	0.0449	0.0048	0.0010	0.0004
	0.0378	0.0680	0.0030	0.0155	0.0626	0.0028

AVERAGE ANNUAL TOTALS & (STD. DEVIATIONS) FOR YEARS 1974 THROUGH 1978

	INCHES		CU. FEET	PERCENT
PRECIPITATION	38.19	(4.980)	1386296.7	100.00
RUNOFF	0.041	(0.0924)	1499.85	0.108
EVAPOTRANSPIRATION	35.826	(6.3502)	1300479.25	93.810
LATERAL DRAINAGE COLLECTED FROM LAYER 3	0.36026	(0.33073)	13077.442	0.94334
PERCOLATION/LEAKAGE THROUGH LAYER 4	1.92150	(1.54194)	69750.398	5.03142
AVERAGE HEAD ON TOP OF LAYER 4	0.010	(0.009)		
CHANGE IN WATER STORAGE	0.041	(1.6226)	1490.31	0.108

****

PEAK DAILY VALUES FOR YEARS 1974 THROUGH 1978

	(INCHES)	(CU. FT.)
PRECIPITATION	5.47	198561.000
RUNOFF	0.207	7499.2456
DRAINAGE COLLECTED FROM LAYER 3	0.03046	1105.72412
PERCOLATION/LEAKAGE THROUGH LAYER 4	0.119820	4349.44824
AVERAGE HEAD ON TOP OF LAYER 4	0.310	
MAXIMUM HEAD ON TOP OF LAYER 4	0.625	
LOCATION OF MAXIMUM HEAD IN LAYER 3 (DISTANCE FROM DRAIN)	0.0 FEET	
SNOW WATER	0.00	0.0000

MAXIMUM VEG. SOIL WATER (VOL/VOL)	0.4762
MINIMUM VEG. SOIL WATER (VOL/VOL)	0.0718

*** Maximum heads are computed using McEnroe's equations. ***

Reference: Maximum Saturated Depth over Landfill Liner
by Bruce M. McEnroe, University of Kansas
ASCE Journal of Environmental Engineering
Vol. 119, No. 2, March 1993, pp. 262-270.

****

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FINAL WATER STORAGE AT END OF YEAR 1978

LAYER	(INCHES)	(VOL/VOL)
1	1.2132	0.2022
2	243.0350	0.2893
3	1.7865	0.0744
4	0.0000	0.0000
SNOW WATER	0.000	

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******************************************************************************
******************************************************************************
**                                                                          **
**                                                                          **
**              HYDROLOGIC EVALUATION OF LANDFILL PERFORMANCE               **
**                HELP MODEL VERSION 3.07  (1 NOVEMBER 1997)                **
**                  DEVELOPED BY ENVIRONMENTAL LABORATORY                   **
**                    USAE WATERWAYS EXPERIMENT STATION                     **
**             FOR USEPA RISK REDUCTION ENGINEERING LABORATORY              **
**                                                                          **
**                                                                          **
******************************************************************************
******************************************************************************


PRECIPITATION DATA FILE:      C:\HELP3\CITRUS4.D4
TEMPERATURE DATA FILE:        C:\HELP3\CITRUS7.D7
SOLAR RADIATION DATA FILE:    C:\HELP3\CITRUS13.D13
EVAPOTRANSPIRATION DATA:      C:\HELP3\CITRUS11.D11
SOIL AND DESIGN DATA FILE:    C:\HELP3\2DEF.D10
OUTPUT DATA FILE:             C:\HELP3\2def.OUT


TIME:  14:16     DATE:  10/ 4/2000


******************************************************************************

     TITLE:  Citrus County Liner - Solid Waste Fill -Average Slope Length
                          STANDARD CASE
******************************************************************************


     NOTE:  INITIAL MOISTURE CONTENT OF THE LAYERS AND SNOW WATER WERE
              COMPUTED AS NEARLY STEADY-STATE VALUES BY THE PROGRAM.


                                  LAYER  1
                                  --------

                     TYPE 1 - VERTICAL PERCOLATION LAYER
                         MATERIAL TEXTURE NUMBER   5
          THICKNESS                    =      6.00   INCHES
          POROSITY                     =      0.4570 VOL/VOL
          FIELD CAPACITY               =      0.1310 VOL/VOL
          WILTING POINT                =      0.0580 VOL/VOL
          INITIAL SOIL WATER CONTENT   =      0.1084 VOL/VOL
          EFFECTIVE SAT. HYD. COND.    =  0.100000005000E-02 CM/SEC
        NOTE:  SATURATED HYDRAULIC CONDUCTIVITY IS MULTIPLIED BY  3.00
                 FOR ROOT CHANNELS IN TOP HALF OF EVAPORATIVE ZONE.
```

LAYER 2

TYPE 1 - VERTICAL PERCOLATION LAYER
MATERIAL TEXTURE NUMBER 18

THICKNESS	=	840.00	INCHES
POROSITY	=	0.6710	VOL/VOL
FIELD CAPACITY	=	0.2920	VOL/VOL
WILTING POINT	=	0.0770	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.2896	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.100000005000E-02	CM/SEC

LAYER 3

TYPE 2 - LATERAL DRAINAGE LAYER
MATERIAL TEXTURE NUMBER 2

THICKNESS	=	24.00	INCHES
POROSITY	=	0.4370	VOL/VOL
FIELD CAPACITY	=	0.0620	VOL/VOL
WILTING POINT	=	0.0240	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.0788	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.579999993000E-02	CM/SEC
SLOPE	=	50.00	PERCENT
DRAINAGE LENGTH	=	134.0	FEET

LAYER 4

TYPE 4 - FLEXIBLE MEMBRANE LINER
MATERIAL TEXTURE NUMBER 35

THICKNESS	=	0.06	INCHES
POROSITY	=	0.0000	VOL/VOL
FIELD CAPACITY	=	0.0000	VOL/VOL
WILTING POINT	=	0.0000	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.0000	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.199999996000E-12	CM/SEC
FML PINHOLE DENSITY	=	1.00	HOLES/ACRE
FML INSTALLATION DEFECTS	=	1.00	HOLES/ACRE
FML PLACEMENT QUALITY	=	3 - GOOD	

GENERAL DESIGN AND EVAPORATIVE ZONE DATA

NOTE: SCS RUNOFF CURVE NUMBER WAS USER-SPECIFIED.

SCS RUNOFF CURVE NUMBER	=	50.00	
FRACTION OF AREA ALLOWING RUNOFF	=	100.0	PERCENT
AREA PROJECTED ON HORIZONTAL PLANE	=	10.000	ACRES
EVAPORATIVE ZONE DEPTH	=	22.0	INCHES
INITIAL WATER IN EVAPORATIVE ZONE	=	3.335	INCHES
UPPER LIMIT OF EVAPORATIVE STORAGE	=	13.478	INCHES
LOWER LIMIT OF EVAPORATIVE STORAGE	=	1.580	INCHES
INITIAL SNOW WATER	=	0.000	INCHES
INITIAL WATER IN LAYER MATERIALS	=	245.833	INCHES
TOTAL INITIAL WATER	=	245.833	INCHES
TOTAL SUBSURFACE INFLOW	=	0.00	INCHES/YEAR

EVAPOTRANSPIRATION AND WEATHER DATA

NOTE: EVAPOTRANSPIRATION DATA WAS OBTAINED FROM
TAMPA FLORIDA

STATION LATITUDE	=	27.58	DEGREES
MAXIMUM LEAF AREA INDEX	=	2.00	
START OF GROWING SEASON (JULIAN DATE)	=	0	
END OF GROWING SEASON (JULIAN DATE)	=	367	
EVAPORATIVE ZONE DEPTH	=	22.0	INCHES
AVERAGE ANNUAL WIND SPEED	=	8.60	MPH
AVERAGE 1ST QUARTER RELATIVE HUMIDITY	=	74.00	%
AVERAGE 2ND QUARTER RELATIVE HUMIDITY	=	72.00	%
AVERAGE 3RD QUARTER RELATIVE HUMIDITY	=	78.00	%
AVERAGE 4TH QUARTER RELATIVE HUMIDITY	=	76.00	%

NOTE: PRECIPITATION DATA FOR TAMPA FLORIDA
WAS ENTERED FROM THE DEFAULT DATA FILE.

NOTE: TEMPERATURE DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR TAMPA FLORIDA

NORMAL MEAN MONTHLY TEMPERATURE (DEGREES FAHRENHEIT)

JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
59.80	60.80	66.20	71.60	77.10	80.90
82.20	82.20	80.90	74.50	66.70	61.30

NOTE: SOLAR RADIATION DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR TAMPA FLORIDA
AND STATION LATITUDE = 27.58 DEGREES

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ANNUAL TOTALS FOR YEAR 1974

	INCHES	CU. FEET	PERCENT
PRECIPITATION	33.90	1230569.870	100.00
RUNOFF	0.207	7499.246	0.61
EVAPOTRANSPIRATION	29.074	1055369.870	85.76
DRAINAGE COLLECTED FROM LAYER 3	4.4173	160347.875	13.03
PERC./LEAKAGE THROUGH LAYER 4	0.058687	2130.330	0.17
AVG. HEAD ON TOP OF LAYER 4	0.1214		
CHANGE IN WATER STORAGE	0.144	5223.221	0.42
SOIL WATER AT START OF YEAR	246.577	8950754.000	
SOIL WATER AT END OF YEAR	246.721	8955977.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	-0.595	0.00

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ANNUAL TOTALS FOR YEAR 1975

	INCHES	CU. FEET	PERCENT
PRECIPITATION	43.44	1576871.500	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	40.143	1457192.870	92.41
DRAINAGE COLLECTED FROM LAYER 3	3.2443	117769.867	7.47
PERC./LEAKAGE THROUGH LAYER 4	0.044475	1614.427	0.10
AVG. HEAD ON TOP OF LAYER 4	0.0912		

CHANGE IN WATER STORAGE	0.008	294.672	0.02
SOIL WATER AT START OF YEAR	246.721	8955977.000	
SOIL WATER AT END OF YEAR	246.729	8956272.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	-0.328	0.00

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ANNUAL TOTALS FOR YEAR 1976

	INCHES	CU. FEET	PERCENT
PRECIPITATION	41.73	1514799.120	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	42.911	1557683.620	102.83
DRAINAGE COLLECTED FROM LAYER 3	0.5071	18408.816	1.22
PERC./LEAKAGE THROUGH LAYER 4	0.015154	550.074	0.04
AVG. HEAD ON TOP OF LAYER 4	0.0141		
CHANGE IN WATER STORAGE	-1.704	-61843.930	-4.08
SOIL WATER AT START OF YEAR	246.729	8956272.000	
SOIL WATER AT END OF YEAR	245.026	8894428.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	0.488	0.00

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ANNUAL TOTALS FOR YEAR 1977

	INCHES	CU. FEET	PERCENT

PRECIPITATION	32.03	1162689.250	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	29.255	1061961.750	91.34
DRAINAGE COLLECTED FROM LAYER 3	0.1448	5256.613	0.45
PERC./LEAKAGE THROUGH LAYER 4	0.005907	214.414	0.02
AVG. HEAD ON TOP OF LAYER 4	0.0041		
CHANGE IN WATER STORAGE	2.624	95257.039	8.19
SOIL WATER AT START OF YEAR	245.026	8894428.000	
SOIL WATER AT END OF YEAR	247.650	8989685.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	-0.562	0.00

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ANNUAL TOTALS FOR YEAR 1978

	INCHES	CU. FEET	PERCENT
PRECIPITATION	39.85	1446554.750	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	37.746	1370187.870	94.72
DRAINAGE COLLECTED FROM LAYER 3	2.9288	106314.523	7.35
PERC./LEAKAGE THROUGH LAYER 4	0.044412	1612.156	0.11
AVG. HEAD ON TOP OF LAYER 4	0.0823		
CHANGE IN WATER STORAGE	-0.869	-31559.775	-2.18
SOIL WATER AT START OF YEAR	247.650	8989685.000	
SOIL WATER AT END OF YEAR	246.780	8958125.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00

ANNUAL WATER BUDGET BALANCE 0.0000 -0.013 0.00

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AVERAGE MONTHLY VALUES IN INCHES FOR YEARS 1974 THROUGH 1978

	JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
PRECIPITATION						
TOTALS	1.46	2.16	1.65	0.98	3.41	6.80
	5.24	5.54	5.78	2.07	0.76	2.34
STD. DEVIATIONS	1.35	1.88	0.75	0.53	3.13	4.89
	1.27	1.10	3.22	2.05	0.89	1.10
RUNOFF						
TOTALS	0.000	0.000	0.000	0.000	0.000	0.041
	0.000	0.000	0.000	0.000	0.000	0.000
STD. DEVIATIONS	0.000	0.000	0.000	0.000	0.000	0.092
	0.000	0.000	0.000	0.000	0.000	0.000
EVAPOTRANSPIRATION						
TOTALS	1.279	2.558	2.197	1.336	2.598	4.652
	6.340	5.326	4.822	2.295	1.313	1.111
STD. DEVIATIONS	0.702	0.680	1.372	0.516	2.090	2.362
	0.986	0.746	0.820	1.963	0.848	0.318
LATERAL DRAINAGE COLLECTED FROM LAYER 3						
TOTALS	0.0354	0.1263	0.3451	0.1091	0.0344	0.0227
	0.2338	0.5627	0.0833	0.1110	0.5099	0.0747
STD. DEVIATIONS	0.0316	0.2210	0.7165	0.2009	0.0398	0.0195
	0.4767	1.2174	0.1217	0.1539	1.0770	0.1181
PERCOLATION/LEAKAGE THROUGH LAYER 4						
TOTALS	0.0011	0.0022	0.0047	0.0021	0.0010	0.0008
	0.0032	0.0068	0.0018	0.0021	0.0064	0.0017
STD. DEVIATIONS	0.0007	0.0028	0.0086	0.0031	0.0009	0.0005
	0.0054	0.0136	0.0022	0.0020	0.0122	0.0021

AVERAGES OF MONTHLY AVERAGED DAILY HEADS (INCHES)

DAILY AVERAGE HEAD ON TOP OF LAYER 4

AVERAGES	0.0116	0.0458	0.1134	0.0371	0.0113	0.0077
	0.0768	0.1849	0.0283	0.0365	0.1731	0.0245
STD. DEVIATIONS	0.0104	0.0805	0.2355	0.0682	0.0131	0.0066
	0.1567	0.4001	0.0413	0.0506	0.3658	0.0388

AVERAGE ANNUAL TOTALS & (STD. DEVIATIONS) FOR YEARS 1974 THROUGH 1978

	INCHES		CU. FEET	PERCENT
PRECIPITATION	38.19	(4.980)	1386296.7	100.00
RUNOFF	0.041	(0.0924)	1499.85	0.108
EVAPOTRANSPIRATION	35.826	(6.3502)	1300479.25	93.810
LATERAL DRAINAGE COLLECTED FROM LAYER 3	2.24847	(1.84500)	81619.539	5.88760
PERCOLATION/LEAKAGE THROUGH LAYER 4	0.03373	(0.02220)	1224.280	0.08831
AVERAGE HEAD ON TOP OF LAYER 4	0.063	(0.051)		
CHANGE IN WATER STORAGE	0.041	(1.6246)	1474.24	0.106

****

PEAK DAILY VALUES FOR YEARS 1974 THROUGH 1978

	(INCHES)	(CU. FT.)
PRECIPITATION	5.47	198561.000
RUNOFF	0.207	7499.2456
DRAINAGE COLLECTED FROM LAYER 3	0.11877	4311.25439
PERCOLATION/LEAKAGE THROUGH LAYER 4	0.001272	46.18091
AVERAGE HEAD ON TOP OF LAYER 4	1.210	
MAXIMUM HEAD ON TOP OF LAYER 4	2.388	
LOCATION OF MAXIMUM HEAD IN LAYER 3 (DISTANCE FROM DRAIN)	0.0 FEET	
SNOW WATER	0.00	0.0000

MAXIMUM VEG. SOIL WATER (VOL/VOL)	0.4762
MINIMUM VEG. SOIL WATER (VOL/VOL)	0.0718

*** Maximum heads are computed using McEnroe's equations. ***

Reference: Maximum Saturated Depth over Landfill Liner
by Bruce M. McEnroe, University of Kansas
ASCE Journal of Environmental Engineering
Vol. 119, No. 2, March 1993, pp. 262-270.

****

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FINAL WATER STORAGE AT END OF YEAR 1978

LAYER	(INCHES)	(VOL/VOL)
1	1.2132	0.2022
2	243.0350	0.2893
3	1.7881	0.0745
4	0.0000	0.0000
SNOW WATER	0.000	

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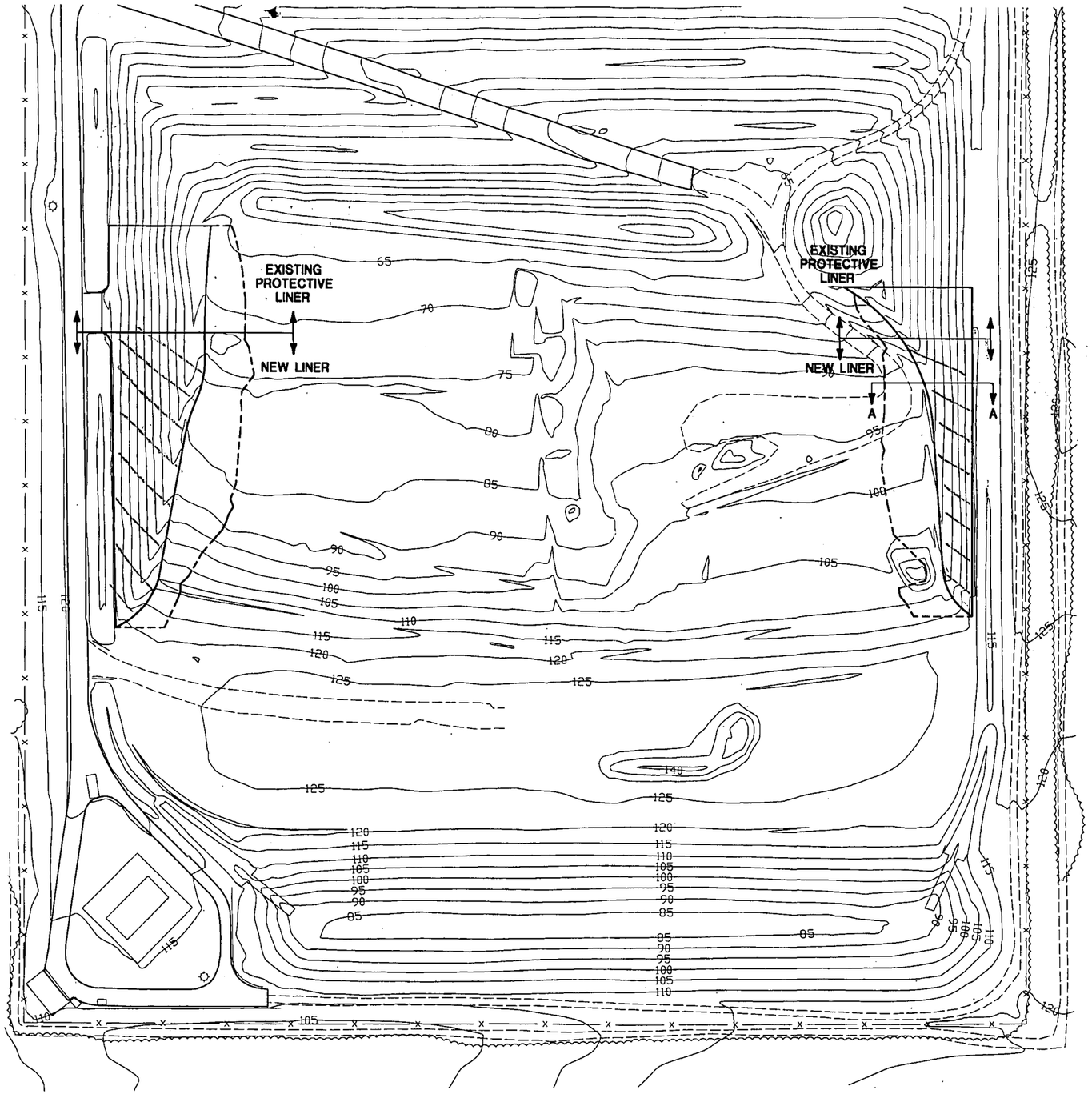
****

ATTACHMENT 2

DRAWINGS



N

GRAPHIC SCALE

0 40 80 160

SCALE IN FEET

LEGEND

LIMITS OF EXISTING EXPOSED GEOMEMBRANE

LIMITS OF SOIL/SOLID WASTE 3H:1V SLOPE

NOTE:
SURVEY DATA PROVIDED BY PTI, 6/20/00

09/29/00 15:00 TA JE003001.dwg

LTR.	DATE	REVISIONS	BY	APPRD.

DESIGNED JLD
DRAWN JAW
CHECKED DAK
PROJECT ENGINEER

Jones Edmunds & Associates, Inc. JEA
730 Northeast Waldo Road/Gainesville, Florida 32641 / (352) 377-5821
CONSULTING ENGINEERS AND SCIENTISTS

CITRUS COUNTY
CENTRAL LANDFILL

LINER REMEDIATION

APPROVED FOR JEA BY

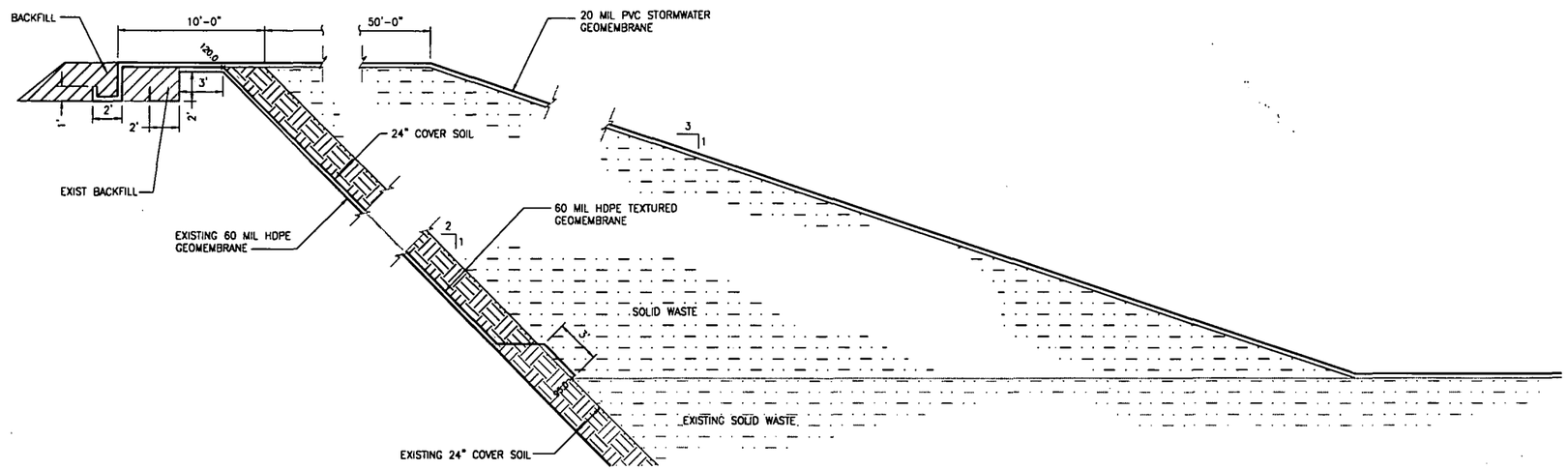
REG. PROF. ENGINEER

DATE SEP 2000

SCALE 1"= 60'

PROJECT NO. 03860-003-01

DWG. NO. 1



SECTION A-A
SCALE: 1"=5'

09/29/00 16:06 TA JE003002.dwg

LTR.	DATE	REVISIONS	BY	APPRD.

DESIGNED JLD
DRAWN JAW
CHECKED DAK
PROJECT ENGINEER

Jones Edmunds & Associates, Inc. JEA
730 Northeast Waldo Road/Gainesville, Florida 32641 / (352) 377-5821
CONSULTING ENGINEERS AND SCIENTISTS

CITRUS COUNTY
CENTRAL LANDFILL

LINER REMEDIATION

APPROVED FOR JEA BY
REG. PROF. ENGINEER

DATE SEP 2000
SCALE 1"= 60'
PROJECT NO. 03860-003-01
DWG. NO. 2

ATTACHMENT 3

SLOPE STABILITY ANALYSIS

Reference: Analysis and De of Veneer Cover Soils
Robert M. Koerner, T-Yang Soong
1998 Sixth International Conference on Geosynthetics

Slope stability

Given: 2(H) : 1(V) exisitng slope

h	=	2	feet		
L	=	22.5	feet		
β	=	26.5	degrees	0.46251186 radians	
γ	=	110	lbs/ft^3		
ϕ	=	32	degrees	0.55850489 radians	
δ	=	18	degrees	0.314159 radians	(non-textured geomembrane)
δ	=	26	degrees	0.45378522 radians	(textured geomembrane)
Ca	=	0			

Calculate "a"

$$a = (Wa - Na*\cos\beta) * \cos\beta$$

$$Wa = \gamma h^2*[L/h - 1/\sin\beta - \tan\beta/2]$$

$$Na = Wa*\cos\beta$$

Wa = 3854

Na = 3449

a = 687

Calculate "b"

$$b = -\ [(Wa - Na*\cos\beta) * \sin\beta * \tan\phi + (Na*\tan\delta + Ca) * \sin\beta * \cos\beta + \sin\beta\ (C + Wp*\tan\phi)$$

$$Wp = (\gamma*h^2) / (\sin 2\beta)$$

Wp = 550.940014

b = 214 + 672 + 154 =

b = -1039 815

Calculate "c"

$$c = (Na*\tan\delta + Ca) * \sin^2\beta * \tan\phi$$

c = 209

Calculate FS

$$FS = \frac{-b + \sqrt{b^2 - 4ac}}{2a}$$

FS = 1.27 (2 feet of soil, 10 feet high on textured geomembrane)

Reference: Analysis and D of Veneer Cover Soils
Robert M. Koerner, T-Yang Soong
1998 Sixth International Conference on Geosynthetics

Slope stability

Given: 2(H) : 1(V) exisitng slope

h	=	2 feet		
L	=	22.5 feet		
β	=	26.5 degrees	0.46251186 radians	
γ	=	110 lbs/ft^3		
ϕ	=	32 degrees	0.55850489 radians	
δ	=	18 degrees	0.314159 radians	(non-textured geomembrane)
δ	=	26 degrees	0.45378522 radians	(textured geomembrane)
Ca	=	0		

Calculate "a"

$$a = (Wa - Na*\cos\beta) * \cos\beta$$

$$Wa = \gamma h^2*[L/h - 1/\sin\beta - \tan\beta/2]$$

$$Na = Wa*\cos\beta$$

Wa = 3854

Na = 3449

a = 687

Calculate "b"

$$b = -\ [(Wa - Na*\cos\beta) * \sin\beta * \tan\phi + (Na*\tan\delta + Ca) * \sin\beta * \cos\beta + \sin\beta\ (C + Wp*\tan\phi)$$

$$Wp = (\gamma*h^2) / (\sin 2\beta)$$

Wp = 550.940014

b = 214 + 448 + 154 =

b = -815

Calculate "c"

$$c = (Na*\tan\delta + Ca) * \sin^2\beta * \tan\phi$$

c = 139

Calculate FS

$$FS = \frac{-b + \sqrt{b^2 - 4ac}}{2a}$$

FS = 1 (2 feet of soil, 10 feet high on ~~textured~~ smooth geomembrane)

Reference: *Analysis and Design of Veneer Cover Soils*
Robert M. Koerner, T-Yang Soong
1998 Sixth International Conference on Geosynthetics

Symbols

Wa	total weight of the active wedge
Wp	total weight of the passive wedge
Na	effective force normal to the failure plane of the active wedge
Np	effective force normal to the failure plane of the passive wedge
g	soil unit weight
h	thickness of soil cover
L	length of slope measured along the geomembrane
b	soil slope angle beneath the geomembrane
f	soil friction angle
g	interface friction angle
Ca	adhesive forces between soil and geomembrane
ca	adhesion between soil and geomembrane
C	cohesive force
Ea	interwedge force acting on the active wedge
Ep	interwedge force acting on the passive wedge
FS	factor of safety