

**Operations Permit Renewal Application  
Hardee County Landfill  
Hardee County, Florida**

**SCS ENGINEERS**

**Prepared for:**

Hardee County  
Board of County Commissioners  
412 West Orange Street  
Wauchula, FL 33873

*ORIGINAL*

**Prepared by:**

SCS Engineers  
3012 U.S. Highway 301 N., Suite 700  
Tampa, Florida 33619  
(813) 621-0080

**INCLUDES RESPONSES AND  
REPLACEMENT PAGES RECEIVED ON  
SEPTEMBER 30, 2003, DECEMBER 30, 2003  
and JANUARY 29, 2004**

File No. 09199033.08  
May 16, 2003

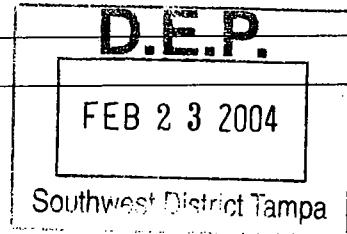
**SCS ENGINEERS**

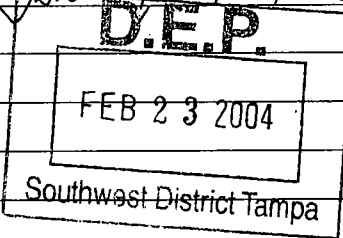
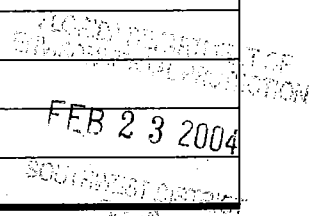
TO Kim Ford  
FDEP - Southwest District

DATE Feb 23, 2004  
JOB NO. 09/99033.09  
ATTENTION \_\_\_\_\_  
Re: \_\_\_\_\_

WE ARE SENDING YOU

- Attached     Under separate cover via \_\_\_\_\_
- Shop drawings     Prints
- Copy of letter     Change order
- the following items:     Plans     Samples
- Specifications     HAND DELIVERED



COPIES	DATE	DESCRIPTION
1		Jan. 29, 2004 Operations Permit Plans 24x36"
1		Jan 29, 2004 Reduced Plans 11x17"
		
		

THESE ARE TRANSMITTED as checked below:

- For approval     Approved as submitted     Resubmit \_\_\_\_\_ copies for approval
- For your use     Approved as noted     Submit \_\_\_\_\_ copies for distribution
- As requested     Returned for corrections     Return \_\_\_\_\_ corrected prints
- For review and comment     \_\_\_\_\_
- FOR BIDS DUE \_\_\_\_\_ 19 \_\_\_\_\_     PRINTS RETURNED AFTER LOAN TO US

REMARKS Kim,  
per your request, attached are signed and sealed  
copies of the Jan 29, 2004 Hander County Operations  
Plan Drawings (Sheets 1-12)  
— please call w/ any questions

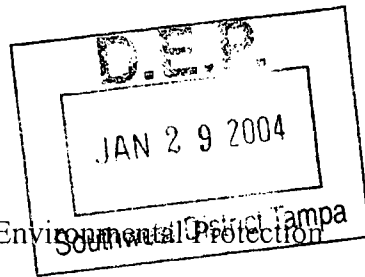
COPY TO \_\_\_\_\_ SIGNED: [Signature]





**SCS ENGINEERS**

January 29, 2004  
File No. 09199033.08



Mr. Kim Ford  
Florida Department of Environmental Protection  
Southwest District  
3804 Coconut Palm Drive  
Tampa, FL 33619

Subject: Additional Requested Information  
Hardee County Landfill – Permit No. 38414-002-SO  
Hardee County, Florida

Dear Mr. Ford:

Per our discussion on Monday January 26, 2004, SCS Engineers (SCS) is pleased to submit the following replacement items for your use in the completing the FDEP's review of the Hardee County Operations Permit Renewal Application. The following items are attached to this letter:

- Replacement drawings for Sheets 5,6,7,8,9,10,11,12 for the Operations Drawings;
- Replacement sheets, specifically sheets L-18, L-20, L-22, L-25, L-27, Figure K-1, Gas Monitoring Form.
- A copy of the well completion log and a copy of the boring logs conducted by PSI for the water supply well immediately adjacent to the maintenance building.

A review of the well construction log for the water supply well and the boring logs for that immediate area indicate that the well is approximately 200 feet deep with a confining clay layer at approximately 35 below ground surface. Therefore the water supply well is not a shallow well and was installed in accordance with Rules in effect at the time the well was installed, specifically Rule 17-701.040(2)(c), F.A.C.

Please do not hesitate to contact us if you should have any questions regarding this letter.

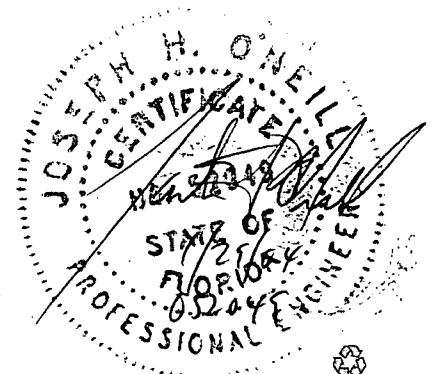
Very truly yours,

  
Joseph H. O'Neill, P.E.  
Project Manager

JHO/JHO

Attachments

Offices Nationwide



## **ATTACHMENTS**

As part of the Leachate Management Program, Hardee County personnel monitor the overflow protection system on a weekly basis. County personnel monitor the amount of liquid entering the tanks at the control panel to prevent possible overflowing of the tank, however ultra-sonic liquid level indicators continually monitor the levels in the tank as described in Section L.8.b of this Operations Plan. The ultra-sonic level indicators shut-off flow to the tanks from the lift station should the levels exceed a pre-determined level. Routine inspections of the overflow protection systems include:

- Inspection of flow meters from the lift station to the Tanks to ensure proper operation.
- Inspection and Testing of the overflow alarms and shut-off controls for proper operations.
- Examining the overflow pipes in Tank 1 for obstructions.
- Check the operations of the ultra-sonic level indicators located on top of each of the tanks for proper operations.
- Monitoring the liquid levels in both tanks.

Also refer to additional related information in Section L.8.b.

### **L.3 LANDFILL OPERATING RECORD**

Copies of all operating records, reports, engineering drawings, training records, etc. are kept on file at the landfill. Upon request, the records will be made available for FDEP inspection. All records pertaining to the operation of the facility will be retained throughout the design life of the landfill. All monitoring records, calibration and maintenance records, and reports required by the operating permit will be retained for at least ten years.

### **L.4 WASTE RECORDS**

Waste reports that include waste type and quantity are compiled monthly and submitted quarterly to FDEP. The waste is categorized and the tonnages are annotated in the appropriate category in the Waste Quantity Form located in Appendix J of this Operations Plan. Reports include: (a) types of solid waste received, and (b) quantities of solid waste received by category. The landfill operator also estimates the amount of the following waste categories:

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

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

## **L.7 WASTE SPREADING AND COMPACTION PROCEDURES**

As previously discussed, both baled waste and loose waste are disposed of in the Class I landfill. The majority of incoming waste is baled for volume reduction. Waste that is not baled at the on-site MRF is disposed of as loose waste in the disposal area. Waste material may not be baled due to scheduled or unscheduled maintenance activities at the MRF. Some wastes, such as asbestos as described in Section L.2.d, are never baled and are taken directly to the Class I disposal area for disposal.

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

At the working face, bales are stacked with a front-end loader equipped with a fork attachment. Each bale measures approximately 61-inches (width) by 46-inches (length) by 31-inches (height). Bales are stacked three high and across the working face. A lift of waste material is generally no more than 10 feet in thickness. When stacking the bales, they are positioned so that their joints are offset to allow the bales to interlock. Wastes that are baled have already been compacted prior to delivery to the disposal area; therefore no additional compaction is required in the bale fill area of the landfill.

When loose waste is disposed of, it is spread in two-foot thick layers and compacted with a Caterpillar D7R Dozer or other equipment of sufficient weight to compact the waste to approximately one-foot in thickness. Generally three to five passes should be sufficient to compact the waste. The loose waste is disposed of in layers atop the bales and along the outer sideslope; loose waste is used to supplement the bales and achieve smooth sideslopes.

To provide additional interlocking and stability of the stacked bales, the following procedures will be followed when placing both bales and loose waste in the landfill:

- Along the outer sideslope of the landfill for the first 20 feet (measured horizontally inward);
  1. loose waste will be placed and compacted; or
  2. Baled waste may be initially be placed along the outer edges; however, the bales will be broken up, crushed, and compacted thoroughly until no visible or distinct bale seams are present.
- Whole, complete bales will then be placed behind the compacted loose waste or crushed bales for the next 25 feet (measured horizontally inward);
- The next 10 feet of space will be filled with compacted loose waste or crushed, compacted bales (measured horizontally inward);

leachate is contained within the bermed area and to prevent leachate from leaving the working area.

#### **L.7.e Initial Cover Type**

Initial cover is used to control disease vector/animal attraction, fires, odors, blowing litter, and moisture infiltration. The initial cover used at the Class I landfill consists of a 6-inch thick layer of compacted soil obtained from the on-site or off-site borrow pit. Tarps maybe used as a temporary daily cover on the exposed side of the working face of the disposal area if additional waste material will be deposited within 18 hours.

#### **L.7.f Initial Cover Application Procedures**

The working face shall be covered with a 6-inch thick layer of compacted soil or tarps at the end of each working day. All waste materials will be compacted prior to application of initial cover.

The initial cover, if soil is used, will be spread to cover the entire working face with a uniform six-inch compacted soil cover (free of waste) using a dozer or applicable equipment. If tarps are used as temporary daily cover then, the tarps will be spread to cover the waste material. Sand or the tarp spreader bar will be used to minimize uplift be wind. When the working face area exceeds the area of available tarp, then six inches of compacted soil will be placed to cover the waste material. Processed yard trash or clean wood (mulch) may be spread over the initial soil cover for stabilization and erosion control measures.

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

Intermediate cover, an additional 12-inches thick layer of compacted soil on top of the 6-inch thick layer of compacted initial soil cover, will be applied within seven days over areas that will not receive additional waste within 180 days. Intermediate cover consists of compacted sandy soils from the borrow pit or off-site borrow sources. The intermediate cover soils will be spread using a dozer. The dozer will make a minimum of three to four passes to compact the soils.

Soils containing any waste materials cannot be used as intermediate cover and must be placed within the bermed area of the disposal area. Berms will be placed around the working face to contain all leachate and to prevent leachate runoff from the working face from entering the stormwater management system.

The top of the intermediate cover soil will be graded, generally a minimum of two percent, to allow clean, uncontaminated surface water to runoff and to minimize ponding on the top of the cover soil.

When waste is to be placed in areas with intermediate cover, all or part of the intermediate cover can be removed for future use prior to the additional waste placement. The intermediate cover is removed by pushing the cover material into a stockpile on the side or a new berm

### **L.8.a.1 Leveling--**

The leachate levels within the landfill shall be maintained lower than the top of the perimeter liner and a general inward gradient will be maintained between the groundwater levels outside of the lined area and the leachate levels inside the lined area. Leachate levels will be monitored using piezometers P-1, P-2, P-9, P-10, P-15, and P-16. Outside groundwater water levels monitored by groundwater monitoring wells or piezometers (MW-1, MW-5, MW-2, P-11, MW-8, MW-9). The leachate levels within the landfill can be lowered by adjusting the pumping rate from Manhole Number 8; however leachate levels can only be lowered to the invert of the perimeter collection pipe. The lowest elevation of perimeter collection pipe is located on the southside of the disposal area at approximately Elevation 72.8 (source: PBS&J record drawings dated July, 2000).

On a monthly basis, the landfill operator or designee, will collect depth to leachate level readings from the interior piezometers and depth to water level readings in either a piezometer or monitoring well across from the lined area on the exterior. The depth to water level readings will be subtracted from the top of casings and water elevations calculated. Refer to Appendix N of the section for the "Monthly Leachate Leveling Form" that has the piezometer and monitoring well information to be used on a monthly basis. Based upon the levels of leachate on the interior of the landfill;

- If the exterior water levels are higher then the interior levels, then an inward gradient is acting on the sidewall barrier geomembrane;
- If the interior water levels are higher then the exterior levels, then increase the leachate removal (pumping) from Manhole Number 8 (Lift Station) until the interior water levels are lower.
- If the interior water levels are not lower, then check the manholes to see if clogs or debris is present which may not be allowing for adequate leachate collection. If clogs or debris is present, then the County will contract with a vacuum truck service to remove the debris and a jet cleaning service to clean the collection pipes.

Liquid levels in the two leachate storage tanks are monitored to estimate available storage and prevent possible overflow of the tanks. To adjust the levels of leachate in the tanks, liquid can be transferred from one tank to another or additional truckloads can be sent offsite for disposal.

### **L.8.a.2 Sampling, Analysis, and Results--**

Leachate is sampled from Manhole 9 every 6 months for water quality standards. The list of leachate test parameters is defined in the Water Quality and Leachate Monitoring Plan contained in Attachment M-2 of this 2003 Operations Permit application.

The **overflow protection system** of the tanks is provided by ultra-sonic liquid level indicators, located on the top of each of the tank, that provide continual monitoring of the liquid levels. The ultra-sonic level indicators provide both overflow protection and low liquid level monitoring to protect the pumps at the truck loading area. As liquid levels rise in the tank above a pre-determined height, the ultra-sonic level indicators send a signal to an alarm (an audible and flashing light) on the control panel located at the lift station. A signal is also sent to the control panel at the lift station to shut-off the pump(s). When leachate is pumped from the tanks to the truck loading area, the ultra-sonic level indicators monitor the liquid level in the tanks and shut off the pumps at the truck loading area should the level drop below a pre-determined level. This prevents the pumps from running dry and possibly over heating.

As a back-up contingency plan (**only used should signal alarms and pump shut-offs fail**) the back-up overflow protection system for the tanks is as follows:

1. Tank 1 is filled by the pump station located at Manhole 8 (MH-8). If the liquid level rises above the overflow pipe in Tank 1, the flow is diverted to Tank 2.
2. As Tank 2 fills and equalizes with Tank 1, the two tanks fill simultaneously.
3. Should both tanks continue to fill, each tank has a final overflow pipe, which allows any overflow to be captured in the containment area for each individual tank.

Tanker trucks are used to transport leachate off-site for disposal. The tanker trucks pull around to the western side of the storage tanks and park on top of a concrete lined unloading area. The unloading area is designed to collect accidental spills and convey the spill back into the lift station. After parking the truck, the driver has the option of selecting which tank to begin draining. The control panel, located immediately adjacent to the truck unloading area, allows the truck driver to control the pump while a meter readout allows the driver to monitor the amount of leachate transferred to the truck. Once the truck is full, the leachate is hauled offsite for disposal.

As part of the weekly responsibilities of the landfill operator (also described in Section L.2.k), the condition of the tanks will be visually inspected, for corrosion, leaks, structural damage to the tanks, loose or broken equipment, for leachate in the secondary containment area of the tanks, integrity of the cathodic protection system, overflow protection system and overflow control piping (located near the top of the tanks). Inspection of the interior of the tanks will be performed whenever the tank is drained or at a minimum of every three years. If the inspection reveals a tank or equipment deficiency, leak, or any other deficiency which could result in the failure of the tank to contain the leachate, then remedial actions will be taken to correct the deficiency immediately.

# HARDEE COUNTY LANDFILL

## LFG MONITORING FORM

<b>SAMPLER'S NAME:</b>		<b>PROJECT NAME:</b> Hardee County Landfill	
<b>DATE:</b>		<b>PROJECT:</b> LFG Monitoring	<b>LOCATION:</b> Wauchula
<b>WEATHER CONDITIONS:</b>			
<b>SAMPLE ID</b>	<b>TIME SAMPLE TAKEN</b>	<b>METHANE CONTENT (%LEL)</b>	<b>COMMENTS:</b>
GP-1			
GP-2			
GP-3			
GP-4			
GP-5			
GP-6			
GP-7			
GP-8			
GP-9			
GP-10			
GP-11			
Maintenance Bldg*			
Scalehouse*			
MRF*			
Animal Control Bldg*			

**NOTES:**

\* Sample locations within the buildings include any slab penetrations, enclosed spaces, or electrical conduits and as shown on the figures.

**FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION**

**JAN 29 2004**

**SOUTHWEST DISTRICT TAMPA**



SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (REGULATORY)  
5080 U.S. Hwy 41 South, Brooksville, Florida 33512  
904/798-7211

APPLICATION FOR A PERMIT TO CONSTRUCT A WELL

In compliance with the Rules and Regulations of the Southwest Florida Water Management District (Regulatory)

Caesar R. Blackburn 9050			
DRILLING CONTRACTOR		LICENSE NUMBER	
401 South W. Ave			
ADDRESS	STREET OR BOX NO.	CITY	ZIP CODE
W. H. Wood FLA			

(PLEASE TYPE OR PRINT IN ABOVE SPACE)

PERMIT NO.: 384468-20  
STIPULATIONS REQUIRED: —  
(See Reverse)  
DATE: Aug 5 1983

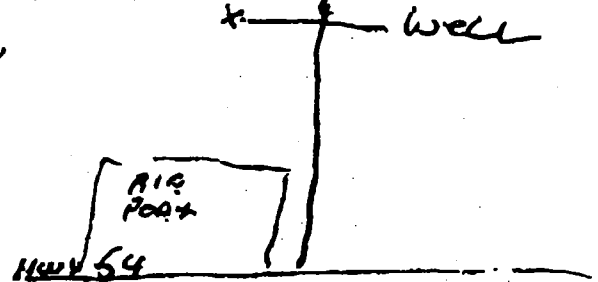
Requests authorization to construct repair, modify a well for:  
(Circle One)

HAND COUNTY Regional SANITARY LANDFILL AIRPORT ROAD  
NAME OF WELL OWNER ADDRESS OF WELL LOCATION STREET OR BOX NO. CITY ZIP CODE

HAND CO. Commissioners W. H. Wood FLA. 33873  
OWNER'S MAILING ADDRESS STREET OR BOX NO. CITY ZIP CODE

TYPE OF EQUIPMENT: Rotary  
APPROXIMATE DEPTH: 200ft DIAMETER: 4"  
APPROXIMATE CASING DEPTH: 50ft CASING MATERIAL: BUXIPON  
SEAL: Cement PURPOSE: INDUSTRIAL  
LEGAL DESCRIPTION:  
QTR.     QTR.     SEC. 35 TWP. 33 S. RGE. 25 E.  
LOT     BLK.     UNIT     SUBDIVISION      
COUNTY: HAND CO. FIRE PROTECTION & WASHING VEHICLES

LOCATION SKETCH  
(TO CLOSEST MAIN HIGHWAY)



I agree to furnish a Completion Report within 30 days after drilling operations cease and to comply with all the provisions of the Rules and Regulations of the SWFWMD(R) relative to well construction. Driller should supply a copy of the Completion Report to the owner.

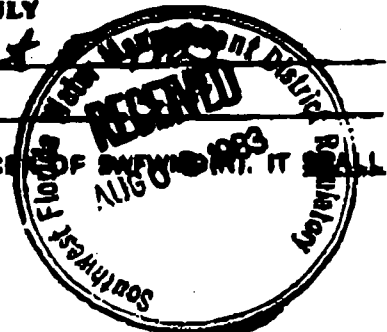
I understand if the withdrawal is from a well having an inside diameter of six inches (6") or more or if the withdrawal during any single day is to exceed one-million (1,000,000) gallons or if the average annual daily withdrawal is to exceed one hundred thousand (100,000) gallons average per day on an annual basis, then a Consumptive Use Permit must be approved prior to the Construction Permit being authorized.

Signature of Drilling Contractor Caesar Blackburn  
Signature of Owner or His Authorized Agent Caesar Blackburn

DO NOT WRITE BELOW THIS LINE—FOR OFFICIAL USE ONLY

GRANTED BY: Reynolds W. Richels DATE: August  
TITLE: Supervisor of Enforcement

THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED BY AN AUTHORIZED OFFICER OF SWFWMD(R). IT SHALL BE KEPT AT THE WELL SITE DURING ALL DRILLING OPERATIONS.



CUP NO. \_\_\_\_\_  
8.15.83 JAL  
SWFWMD(R)  
SF 308(3) Rev. 4/79

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION  
WELL COMPLETION REPORT

OWNER: MARDELIA WEBER SAMAR  
Last Name LALO First Name  
MARDELIA K. WEBER SAMAR  
Number Street  
LAURELWOOD PIA  
City State  
33272  
Area Code Phone Number Zip Code

WELL LOCATION:  
Section 315  
TOWNSHIP N (24-5) RANGE E (4)  
Latitude 26 00 00 N  
Longitude 80 00 00 W  
Latitude in Degrees Longitude in Degrees  
Number Street/Highway  
Lot No. Subdivision  
City County  
MARDELIA

COMMON WELL NUMBER OR NAME: MARDELIA 01

DRILL METHOD:  Rotary  Cable Tool  Jet  Auger  
 Other

SURFACE CASING, CASING, AND LINER MATERIAL:

Steel Dia. (In.)	Steel Wt. (Lb./Ft.)	Ch. (In.)	From (Ft.)	To (Ft.)	Schedule No.	Joints
4"	5.740		0	64		

Describe Material:  
TCW = Threaded and Coupled, TCW = Threaded, Coupled, and Welded,  
W = Welded, B = Bonded (PVC), O = Other

TYPE AND FINISH OF APPROVAL AND GROUT VOLUME OR NUMBER OF 94 LB. BAGS  
4 BAGS From (Ft.) To (Ft.) 0 18

PERMIT:  Open Hole  Perforated or Slotted Casing  Gravel Pack  
 Sandpoint or Screen Attached to Well Casing  Sandpoint or Screen  
Tapered with Packer Inside Casing (Packer Material):

Sealing/Packer Material	Dia. (In.)	Slit Size (In.)	From (Ft.)	To (Ft.)

QUALITY TEST:  None  Bentonite  Chemical  
By:  State Dept.  USGS  Other

WELL TEST, by:  Ground Flow  50 G.P.M.  Arith  
 Baller  Perforated Pump  Test Pump  None  
Discharge Measured By:  Baller  Estimated  Current Meter  
 Orifice  Volumetric  Venturi  Volumetric  Other

Measured Static Water Level 27.0 Ft.  
Measured Pumping Water Level 27.0 Ft.  
After 1 Hour At 50 G.P.M.  
Specific Capacity 1.0 G.P.M./Ft. of Drawdown  
Shooting Pt. (Estimated): TOP 4' CASING  
Which is  Ft.  Above  Below Land Surface  
Stratigraphic Shooting Pt. = 27.0 Ft.  Above  Below MSL

WELL EQUIPMENT:  Open  Cased  Valved  
 Perforated Pump  Temporary Pump  
Type Pump:  Centrifugal  Cylinder  Jet  Submersible  
 Turbine  Other  
Power:  Diesel  Electric  Gasoline  Other  
Horsepower 1/2 Capacity 1/2 G.P.M.  
Installation Depth 64 Ft.

IMS UPDATE

TYPE OF WORK:  
 New Construction  Repair  
 Deepening  Plugging  
 Other

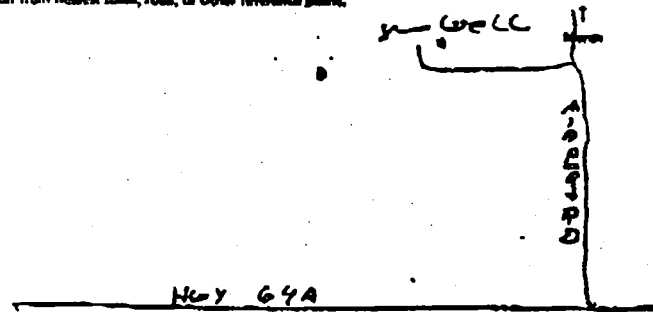
PERMIT NUMBER:  
384468-20

WELL NUMBER

TYPE OF WELL:  Water Well  Test Well  Recovery  Drainage  
 Waste Disposal  Observation  Other

USE:  Domestic  Irrigation  Industrial  Livestock  Public Supply  
 Other: FAIR PRACTICE - WATER MAINS FOR

SKETCH LOCATION OF WELL in relation to local landmarks, giving distance and direction from nearest town, road, or other reference point.

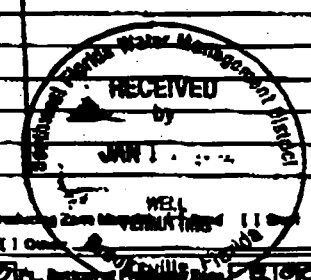


GEOPHYSICAL LOGS: Type: \_\_\_\_\_ Of: \_\_\_\_\_

WELL LOG

Bore Hole (In.)	Casing Size (In.)	Depth (Ft.)		Description
		From	To	
4"	4"	0	18	GRANISH SAND
				SAND CASING IN
4"	4"	18	26	GRANISH ROCK
		26	35	HARD PIPEROCK/CLAY
		35	52	GRANISH GRAY CLAY
				BLACKSPECKS
4"	4"	52	130	GRANISH ROCK WITH BLACKSPECKS
		130	160	GRANISH ROCK
4"		160	200	GRANISH AND BROWN LIME ROCK
				CASING DRIVEN
				181 TO 194

3 clay



Total Depth 200 Ft. Producing Zone 181 TO 194 Ft.  
 Broken Shell  Limestone  Other

Top of Producing Zone 181 Ft. Bottom of Producing Zone 194 Ft.  
 Drill Cuttings Sent to Bureau of Geology  
E.E. 10  
License No. 116 27 823  
Inspector's Signature [Signature]  
Order Number

## SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT RDBS CODE TABLE DESCRIPTIONS

## WELL USE CODES

<u>CODE</u>	<u>DESCRIPTION</u>
A	AGRICULTURE
AL	AQUIFER WATER LEVELS
AQ	AQUICULTURE
AS	AQUIF. AND STORAGE RECOV.
AU	AUGMENTATION
B	PUBLIC SUPPLY
C	DEWATERING
CN	PUBLIC SUPPLY CONV. (TOP 20)
CV	PUBLIC SUPPLY CONV./ RECLASS
D	DOMESTIC
DF	DISCHARGE FLOW
E	ESSENTIAL SERVICES (FIRE PRO.)
EF	EFFLUENT WASTEWATER
F	FOUND. TEST WELL (SOIL BOR.)
G	RECHARGE/ SATELITE
GR	GROUNDING ROD
GT	GEO THERMAL WELL
H	REPAIR OR DEEPEN
HA	REPAIR OR IRRIGATION
T	TESTWELL / PIEZOMETER
U	RECOVERY
V	INVENTORY WELL
W	AIR COND. SUPPLY - HEAT PUMP
WL	WETLAND WATER LEVEL
WQ	WATER QUALITY, GENERAL
Y	PLUGGED
YY	DISMANTLED
Z	SEALING WATER
ZZ	CONVERSION USE CODE ERROR

## WELL USE CODES (CONT'D)

HB	REPAIR PUBLIC SUPPLY
HD	REPAIR DOMESTIC
HY	BACK PLUGGING
I	INDUSTRIAL
J	INJECTION WELL
K	CONNECTION WELLS
L	LIVESTOCK
LL	LAKE WATER LEVEL
M	MINING
N	RETURN AIR/ HEAT
O	OBSERVATION OR MONITOR WELL
P	POWER
PC	PUBLIC SUPPLY CONV. (NO REC.)
Q	DRAINAGE WELL
R	RECREATIONAL
RC	RECHARGE
RF	RAINFALL
RP	REPUMP
RU	REUSE
SF	STREAMFLOW
SR	REPLACEMENT WELL (SARASOTA)
SW	SALINE WATER INTRUSION



SWFWMD WELL INVENTORY

WCP No.	Well No.	Issued	Completed	Section	Township	Range	Diameter	Well Use Code	Owner's Name	Owner's Address	Owner's City	Owner's State	Owner's Zip	Well Location	Reference No.	Well Depth	Casing Mat'l	Case Depth	Latitude	Longitude	Pump (gpm)
326458	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			75042600*	185	Z	55			
326459	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			75042620*	180	Z	57			
326460	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			750426509*	132	Z	63			
326489	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			75043380*	145	Z	57			
326490	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			75043390*	160	Z	60			
326491	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			75043400*	175	Z	55			
326594	1	1/1/70	7/1/79	36	33	25	4	D	R GIFFIARD	NO ADDRESS	NO CITY	FL			75045830*	175	Z	56			
326595	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			75045840*	180	Z	53			
326596	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			75045860*	185	Z	68			
328565	1	1/1/70	7/1/79	36	33	25	4	D	W SMITH	NO ADDRESS	NO CITY	FL			75089260*	205	Z	50			
329744	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			76013130	175	Z	57			
335994	1	1/1/70	7/1/79	36	33	25	4	A	DOUGIAS D	NO ADDRESS	NO CITY	FL			77149070	240	Z	60			
361828	1	2/6/81	4/20/81	36	33	25	4	D	ROSENBERGER, SAM	DANSBY RD	WAUCHULA	FL	33873			208	Z	52			
361829	1	2/6/81	4/28/81	36	33	25	4	D	ROSENBERGER, SAM	DANSBY RD	WAUCHULA	FL	33873			204	Z	53			
366380	1	6/1/81	7/12/81	36	33	25	4	D	HINES, HOWARD	RT 2 LOT 09	WAUCHULA	FL	33873			210	Z	52			
377003	1	9/17/82	11/2/82	36	33	25	4	D	PARKER, J. B.	RT 1, BOX 200	BOWLING GREEN	FL	33834			200	Z	63			
384054	1	7/18/83	10/4/83	35	33	25	4	O	HARDEE COUNTY REGIONAL SANITARY	AIRPORT RD	WAUCHULA	FL	33873			15	Z	12			
384055	1	7/19/83	10/1/83	35	33	25	4	O	HARDEE COUNTY REGIONAL SANITARY	AIRPORT RD	WAUCHULA	FL	33873			11	Z	8			
384056	1	7/18/83	10/11/83	35	33	25	4	O	HARDEE COUNTY REGIONAL SANITARY	AIRPORT RD	WAUCHULA	FL	33873			11	Z	8			
384468	1	8/5/83	10/20/83	35	33	25	4	I	HARDEE COUNTY REGIONAL SANITARY	AIRPORT RD	WAUCHULA	FL	33873			200	Z	54			
408523*	1	9/26/85	7/31/86	36	33	25	4	D	DRAKE, GEORGE W	BOX 1182	WAUCHULA	FL	33873			180	A	84			
414023	1	4/1/86	8/20/86	36	33	25	4	D	DRAKE, GEORGE	1342 HWY S 17	WAUCHULA	FL	33873			220	B	70			
418987	1	7/30/86	1/7/87	36	33	25	4	D	BURNETT, HENRY P	RT 2	WAUCHULA	FL	33873			235	A	107			
435610	1	7/27/87	8/3/87	35	33	25	2	O	HARDEE COUNTY REGIONAL SANITARY	AIRPORT RD	WAUCHULA	FL	33873			20	B	10			
435611	1	7/27/87	8/3/87	35	33	25	2	O	HARDEE COUNTY REGIONAL SANITARY	AIRPORT RD	WAUCHULA	FL	33873			18	B	8			
435612	1	7/27/87	8/4/87	35	33	25	2	O	HARDEE COUNTY REGIONAL SANITARY	AIRPORT RD	WAUCHULA	FL	33873			21	B	11			
435613	1	7/27/87	8/4/87	35	33	25	2	O	HARDEE COUNTY REGIONAL SANITARY	AIRPORT RD	WAUCHULA	FL	33873			21	B	11			
510327	1	2/7/91	4/10/91	35	33	25	4	B	HARDEE COUNTY REGIONAL SANITARY	AIRPORT RD	WAUCHULA	FL	33873			197	A	63			
545871	1	12/7/93	12/10/93	36	33	25	4	D	MANUEL HERRERA	126 CYPRESS ST.	WACHULA	FL	33873			203	A	84			
553344	1	6/2/94	5/8/95	36	33	25	5	D	LEO DAVIS	SUMMER RD	WAUCHULA	FL	33873			175	B	60			
554873	1	7/5/94	7/5/94	36	33	25	2	O	HARDEE COUNTY SOLID WASTE	685 AIRPORT RD	WAUCHULA	FL	33873			15	B	10			
554873	2	7/5/94	7/5/94	36	33	25	2	O	HARDEE COUNTY SOLID WASTE	685 AIRPORT RD	WAUCHULA	FL	33873			15	B	10			
554873	3	7/5/94	7/5/94	36	33	25	2	O	HARDEE COUNTY SOLID WASTE	685 AIRPORT RD	WAUCHULA	FL	33873			15	B	10			
554873	4	7/5/94	7/5/94	36	33	25	2	O	HARDEE COUNTY SOLID WASTE	685 AIRPORT RD	WAUCHULA	FL	33873			15	B	10			
579220	1	5/8/96	5/20/96	34	33	25	4	D	DENTON CASH	RT 2 BOX 21	WAUCHULA	FL	33863	HWY 664A		200	B	80			
579599	1	5/17/96	6/6/96	36	33	25	4	D	PHILLIP WAYNE FARRER	CR 664B	WAUCHULA	FL	33873	CR 664B		205	A	58			22
579861	1	5/23/96	5/30/96	34	33	25	4	D	DENTON CASH	RT 2 BOX 21	WAUCHULA	FL	33863	HERD BRIDGE ROAD		200	B	80			
586779	1	12/31/96	1/8/97	35	33	25	4	A	GENE FIELD	575 AIRPORT RD	WAUCHULA	FL	33873	515 AIRPORT RD		173	A	49			50
597100	1	9/10/97	10/1/97	36	33	25	4	D	SANDRA V. HUMPHRIES	7741 FARR RD	ONA	FL	33865	7741 FARR RD(SUMMER ROA		200	Z	115			
600529*	1	12/15/97	2/13/98	36	33	25	5	D	PAUL DUMONT &	POST OFFICE BOX 2581	WAUCHULA	FL	33873	565 BOYD COWART ROAD		200	B	60			
608876	1	8/5/98	10/8/98	36	33	25	2	A	SANDRA V. HUMPHRIES	7741 FARR ROAD	ONA	FL	33865	7741 FAIR RD		40	C	21			
614259	1	1/7/99	2/10/99	36	33	25	4	A	JAMES SLAYTON	6848 CIRCLE CREEK DRIVE	PINELLAS PARK	FL	33781	SUMMER RD.		277	B	70			
622889	1	7/12/99	7/12/99	36	33	25	4	D	BILL HODGE	754 SUMNER RD	WAUCHULA	FL	33890	754 SUMMER ROAD		220	C	84			
627535	1	11/4/99	11/4/99	35	33	25	5	Y	HARDEE COUNTY SOLID WASTE	685 AIRPORT RD	WAUCHULA	FL	33873	685 AIRPORT RD		10	Z	10			
631797	1	2/21/00	2/23/00	36	33	25	5	D	JOYCE LYERLY	1028 SUMNER RD	WAUCHULA	FL	33873	1028 SUMNER ROAD		157	Z	118			
637035	1	6/1/00	6/8/00	36	33	25	4	D	JACK KERNS	918 SUMMER RD	WAUCHULA	FL	33873	918 SUMMER ROAD		200	C	84			
639295	1	7/13/00	7/19/00	36	33	25	4	D	STEVE ZALEWSKI	CREWS RD	WAUCHULA	FL	33873	2404 GREENLEAF RD		260	C	84			
643154	1	10/12/00	12/22/00	36	33	25	4	D	BOBBY AND ESTER BRAGG	671 SUMNER RD	WAUCHULA	FL	33873	671 SUMNER RD		160	B	76			25
647646	1	1/29/01	1/31/01	36	33	25	4	D	GREGORY MORGAN	2598 GREGORY LN	WAUCHULA	FL	33823	2598 GREGORY LN		280	B	95			15
651055	1	4/6/01	4/17/01	36	33	25	4	D	MARY BARTLEY	1181 FINBAR WAY	WAUCHULA	FL	33873	1181 FINBAR WAY		145	B	110	273419	814554.03	
651056	1	4/6/01	4/19/01	36	33	25	4	D	CARLOS AVILES	510 CYPRESS ST	WAUCHULA	FL	33873	510 CYPRESS ST/BLK I		150	B	110	273342.1	814552.07	
651057	1	4/6/01	4/20/01	36	33	25	4	D	RONNIE BARTLEY	470 CYPRESS ST	WAUCHULA	FL	33873	470 CYPRESS ST		150	B	110	273339	814553	
656331	1	7/18/01	8/28/01	36	33	25	4	D	LARRY FIEGLE	555 SUMMER RD	WAUCHULA	FL	33873	555 SUMMER RD		170	B	118			
659635	1	10/8/01	10/23/01	36	33	25	4	D	CARL & MARYJANE SISSOMS	3998 E MAIN ST	WAUCHULA	FL	33873	498 AIRPORT RD		200	C	84	273343.1	814629.07	
670100	1	5/30/02	6/8/02	36	33	25	4	D	HAROLD LAMBERT	715 BOYD COWART RD	WAUCHULA	FL	33873	715 BOYD COWART RD		270	C	63			
673367	1	8/7/02	8/10/02	36	33	25	4	A	NICK MIRINDA	510 AIRPORT RD	WACHULA	FL	33873	510 AIRPORT RD		200	C	84			
680590*	1	2/7/03		36	33	25	12	A	CHARLES E & GAIL D BEST	PO BOX 203	WAUCHULA	FL	33873	NEAR SR 664B & SUMNER RD			A		273416.5	814544.08	
682600	1	3/26/03		36	33	25	4	Y	MARCELINO BALDERAS	565 CYPRESS ST	WACHULA	FL	33873	565 CYPRESS STREET			A				
682601	1	3/26/03		36	33	25	4	D	MARCELINO BALDERAS	565 CYPRESS ST	WACHULA	FL	33873	565 CYPRESS STREET			C				
311120	1	1/1/70	7/1/79	1	34	25	4	D	CANNON BLDG	NO ADDRESS	NO CITY	FL			72067190	51	Z	21			
311403	1	1/1/70	7/1/79	1	34	25	4	D	CANNON BLDG	NO ADDRESS	NO CITY	FL			72074580	198	Z	37			
311404	1	1/1/70	7/1/79	1	34	25	4	D	CANNON BLDG	NO ADDRESS	NO CITY	FL			72074590	171	Z	39			
312203	1	1/1/70	7/1/79	3	34	25	4	A	K MITCHELL	NO ADDRESS	NO CITY	FL			72094540	232	Z	63			
312962	1	1/1/70	7/1/79	1	34	25	4	D	J A PULLEN	NO ADDRESS	NO CITY	FL			72114200	159	Z	61			

\* Shaded cells with astericks refer to the SWFWMD permits located within this attachment.



**psi** Environmental  
Geotechnical  
Construction  
Consulting • Engineering • Testing

D.F.P.

JAN 30 1997

**Report**  
**Geotechnical Engineering Services**  
**Hardee County Sanitary Landfill**  
**PSI Project No. 757-75054**

FLORIDA DEPARTMENT OF  
ENVIRONMENTAL PROTECTION

JAN 29 2004

SOUTHWEST DISTRICT  
TAMPA

*Information To Build On*

March 10, 1997

DEF  
MAR 30 1997  
TAMPA

Post, Buckley, Schuh & Jernigan, Inc.  
1560 Orange Avenue, Suite 700  
Winter Park, Florida 32789

Attention: Mr. Bob Mackey, P.E.  
Project Manager

RE: Report  
Geotechnical Engineering Services  
Hardee County Sanitary Landfill  
PSI Project No.: 757-75054

Dear Mr. Mackey:

In accordance with our proposal to you dated February 5, 1997, Professional Service Industries, Inc. (PSI) has provided geotechnical engineering services in connection with the referenced project. This report includes an overview of the field work and laboratory testing that we completed for the assignment. Also provided are preliminary recommendations for site preparation and foundation design of the leachate storage tanks.

### PROJECT CONSIDERATIONS

The Hardee County Sanitary Landfill is located in northeast Hardee County, east of U.S. 17 and north of County Road 636. The property is located in Section 35, Township 33 South, Range 25 East. The landfill site is generally rectangular in shape occupying a plan area of approximately 100 acres.

At the present time, geotechnical engineering services have been directed at the northwest corner of the site, where a liner wall will be constructed as well as above ground leachate storage tanks. The liner wall will be located south of the existing dewatering ditch and will consist of installing a High Density Polyethylene (HDPE) liner in a trench. The HDPE liner will be keyed into low permeable clays at depth providing a hydraulic cut off barrier.

The leachate storage tanks are to be built near the maintenance building. They will comprise two 50,000 gallon above ground tanks. It is proposed that the tanks be supported on a shallow foundation system.

A generalized plan view of the facility and the area of interest at this time is included on Sheet 1.

*Information To Build On*

## SUBSOIL AND GROUNDWATER CONDITIONS

### General

To evaluate subsoil and groundwater conditions in the area of interest to this assignment, we drilled/sampled six Standard Penetration Test (SPT) borings. These borings were completed in general accordance with the procedures outlined in ASTM D-1586. The borings were advanced to depths in the range 25 to 40 feet below grade. The approximate locations at which the borings were drilled are indicated on Sheet 1.

In the upper 10 feet, SPT samples were recovered continuously then at 5 foot centers thereafter to boring termination. Samples recovered from the borings were visually stratified in the laboratory by a geotechnical engineer, following guidelines contained in the Unified Soil Classification System (USCS). Records of the materials encountered in the borings are presented as soil profiles on Sheet 2. Sheet 2 includes a legend describing the various materials in USCS format.

### Stratigraphy

The borings disclosed reasonably consistent subsoil conditions in the area of evaluation. For the purpose of discussions, these conditions have been generalized as follows. From the ground surface to depths in the range 12 to 18 feet below grade is a varying sequence of fine sands. These sands grade from being relatively clean to slightly silty and silty/clayey in composition (i.e. SP, SP/SM, SM and SC materials). Based on the SPT blow counts, these materials are in a loose to medium dense condition.

Underlying the upper sands is clays. These clays grade from being sandy to silty in composition and from soft to extremely hard in consistency. There are clay zones that are primarily derived from weathered limestone, with SPT blow counts in excess of 50 blows for a few inches. All four of the proposed liner wall borings were terminated in clay.

### Groundwater

Groundwater level measurements were made in the borings at the time of drilling. These measurements disclosed the water table at depths in the range 4.0 to 7.8 feet below grade. As a result of recharge during the rainy season, the water table will rise some 2 to 3 feet above current levels. The groundwater levels at the site will also be impacted by construction activities.

## LABORATORY TESTING

As noted earlier, the laboratory testing work included the stratification of all soil samples in accordance with USCS procedures. Additionally, we carried out four laboratory permeability tests plus nominal classification tests to determine pertinent engineering characteristics/parameters. All permeability tests were performed in a triaxial cell at a



confining pressure of 5 psi. Results of the laboratory tests are presented in Table 1. This table also includes details on boring numbers and sample depths for the test specimens.

## SUMMARY OF FINDINGS AND RECOMMENDATIONS

### General

The results of the borings and laboratory testing indicate low permeable soils at depth in the area of the proposed liner wall. Subsoils at the site of leachate storage tanks are considered generally suitable for grade support of these structures. In order to enhance foundation performance, the tanks should be supported on subgrade soils that have been densified by surface proof rolling. A design bearing value of 3000 pounds per square foot can be used to size foundations.

### Site Preparation For Storage Tanks

At the outset of construction, the site should be stripped of the existing vegetation cover and topsoils. Next, the subgrade soils should be compacted in-situ by surface rolling with a large self propelled vibratory roller. The roller should be capable of imparting a dynamic drum force of at least 36,000 pounds. The tank subgrade soils should be uniformly compacted with the roller to attain a degree of densification that is at least 95 percent of the materials ASTM D-1557 maximum dry density for a depth of 2 feet.

Proof rolling operations should be observed by a representative of this office. Observations would be made as to the general stability of the subgrade in response to rolling. In the event that yielding/pumping soils are encountered during vibratory compaction, such materials should be removed and replaced with clean granular fill. The replacement fill should also be thoroughly compacted to provide a stable subgrade.

Fill required to raise site grades should comprise clean sand with less than 12 percent by dry weight passing the U.S. Standard Number 200 sieve. The fill should be placed in one foot lifts and be compacted to 95 percent or more of the materials ASTM D-1557 maximum dry density.

### Foundation Support

Results of our evaluations indicate that the subsurface materials have adequate shear strength to support fully loaded tanks. We estimate that foundations designed for a bearing pressure of 3000 psf will have a factor of safety against a bearing capacity failure in excess of three. This value is based on the assumption that the structures will be founded on thoroughly compacted native soils and/or engineered fill. The outside foundations/edges of the tank should be adequately protected by soil as to prevent undermining.



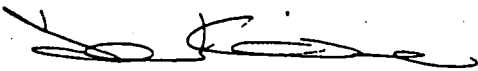


Based on our current understanding of the general loading conditions for the tanks, we anticipate settlement performance being within tolerable structural limits. We would be pleased to address settlement matters more fully when actual design loads are known.

PSI appreciates the opportunity to be of service to you on this assignment and we trust that the foregoing and accompanying attachments are of assistance to you at this time. In the event that you have any questions on the report or if you require additional information, please call.

Very truly yours,

**PROFESSIONAL SERVICE INDUSTRIES, INC.**



Ian Kinnear, P. E.  
Senior Geotechnical Engineer  
FL Registration No. 32614

IK:cd  
IK\75775054.311

Attachments

- Table 1
- Sheets 1 and 2



**TABLE 1**  
**SUMMARY OF LABORATORY TEST RESULTS**  
**HARDEE COUNTY SANITARY LANDFILL**

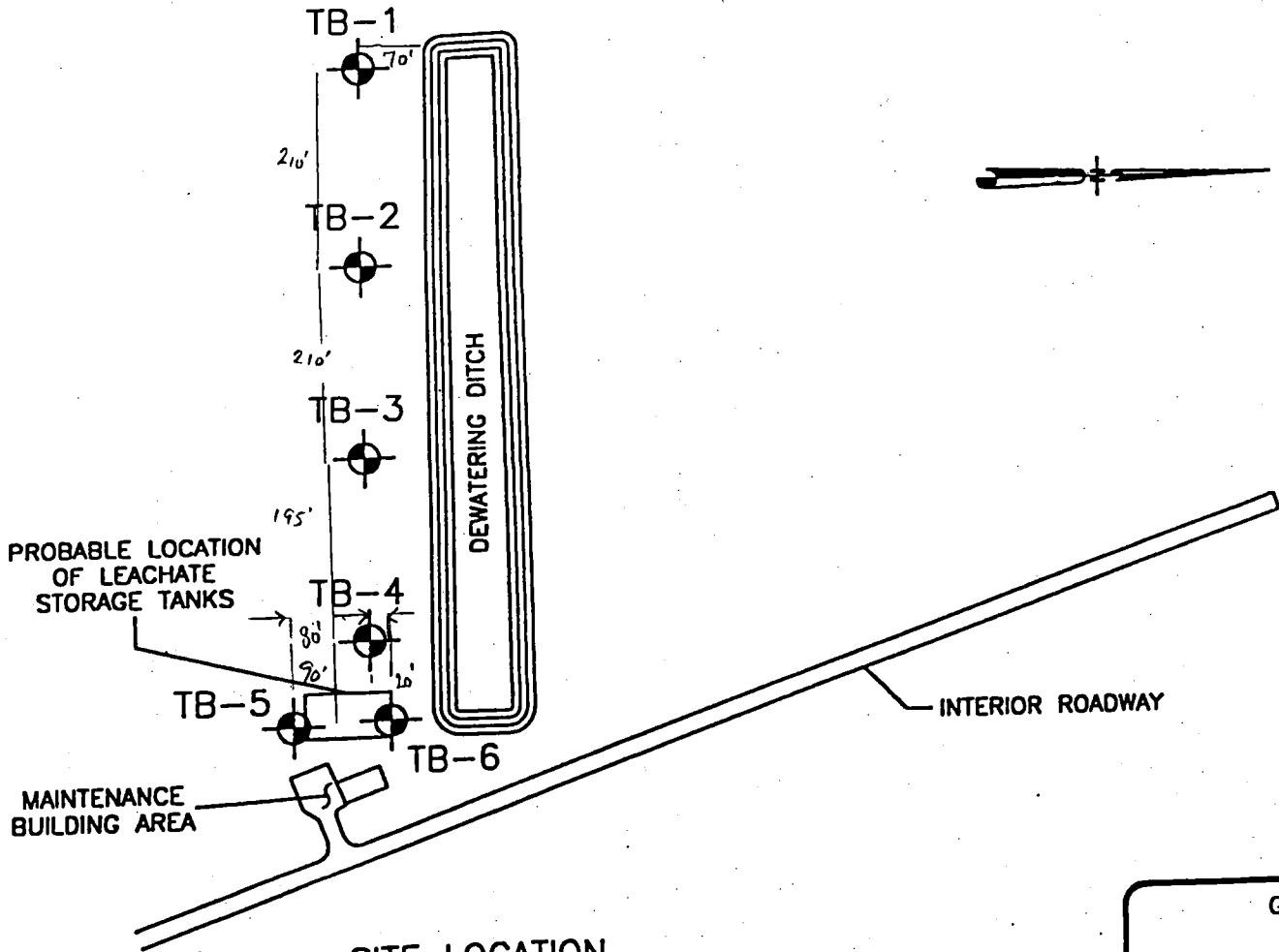
Permeability Test Results			
Boring TB-1 at 15 Feet			
Permeability	=	3.3 x 10 <sup>-7</sup> cm/sec	
Wet Density	=	104.4 pcf	
Moisture Content	=	56.4 %	
Confining Pressure	=	5 psi	
Boring TB-2 at 25 Feet			
Permeability	=	7.7 x 10 <sup>-8</sup> cm/sec	
Wet Density	=	89.0 pcf	
Moisture Content	=	112.7 %	
Confining Pressure	=	5 psi	
Boring TB-3 at 25 Feet			
Permeability	=	4.3 x 10 <sup>-7</sup> cm/sec	
Wet Density	=	93.5 pcf	
Moisture Content	=	80.7 %	
Confining Pressure	=	5 psi	
Boring TB-4 at 17 Feet			
Permeability	=	6.1 x 10 <sup>-8</sup> cm/sec	
Wet Density	=	118.9 pcf	
Moisture Content	=	30.8 %	
Confining Pressure	=	5 psi	

TABLE 1 - Continued

SUMMARY OF LABORATORY TEST RESULTS  
 HARDEE COUNTY SANITARY LANDFILL

Atterberg Limits		
Boring TB-3 at 25 Feet		
LL	=	128 %
PL	=	39 %
PI	=	89 %
-200	=	75 %
Boring TB-5 at 24 Feet		
LL	=	110 %
PL	=	35 %
PI	=	75 %
-200	=	54 %

Moisture Content and No. 200 Wash Sieves		
Boring TB-1 at 15 Feet		
Moisture Content	=	56.4 %
-200	=	53 %
Boring TB-2 at 20 Feet		
Moisture Content	=	105.9 %
-200	=	86 %
Boring TB-2 at 25 Feet		
Moisture Content	=	112.7 %
-200	=	97 %



PROBABLE LOCATION OF LEACHATE STORAGE TANKS

DEWATERING DITCH

INTERIOR ROADWAY

MAINTENANCE BUILDING AREA

SITE LOCATION  
SCALE: 1" = 200'



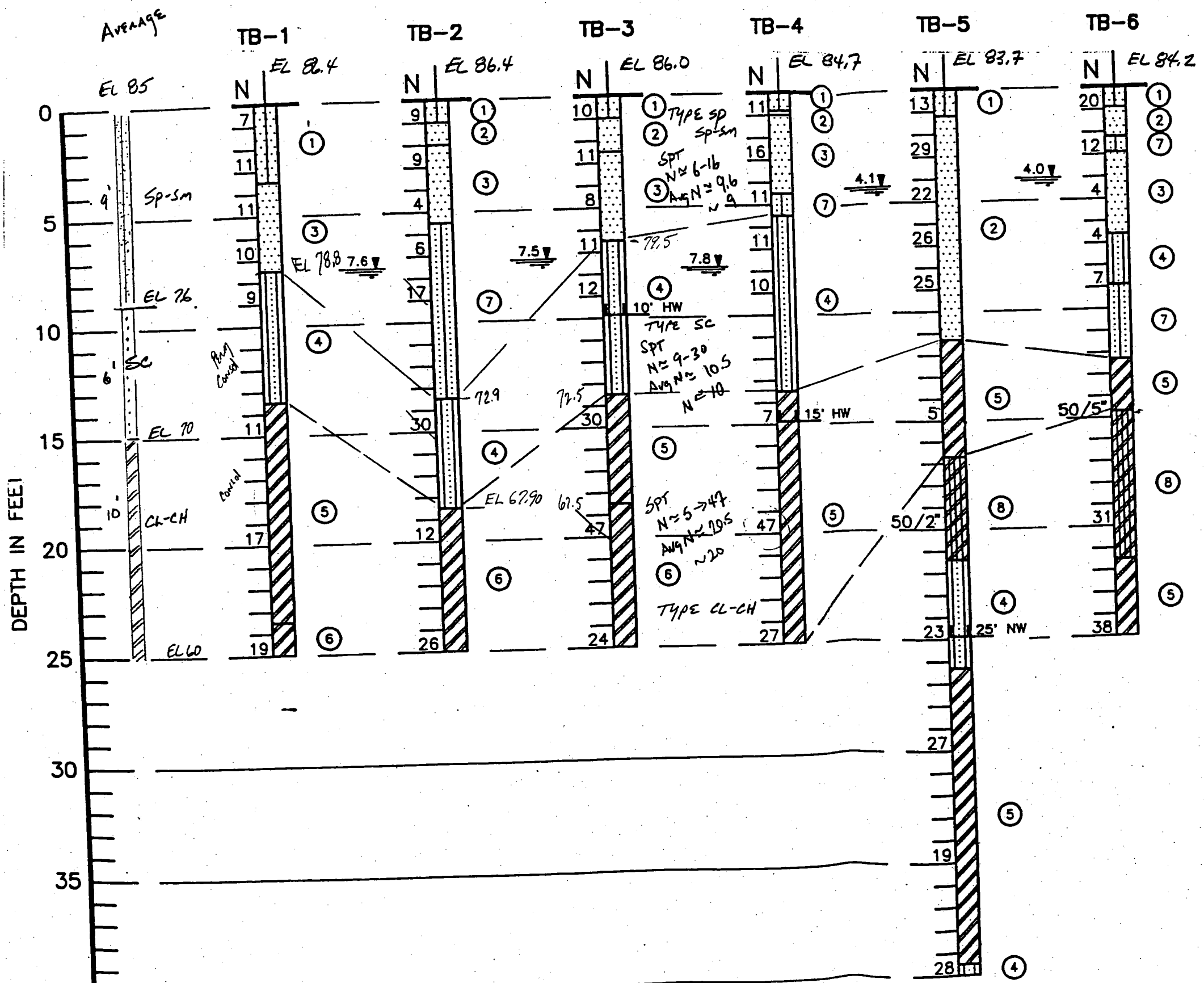
APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING

GEOTECHNICAL ENGINEERING SERVICES  
HARDEE COUNTY LANDFILL  
WACHULA, FLORIDA

**psi** Environmental  
Geotechnical  
Construction  
Consulting • Engineering • Testing

DRAWN: DCB	SCALE: NOTED	PROJ. NO: 757-75054
CHKD: IK	DATE: 2-21-97	SHEET: 1

0.57  
1030 1997



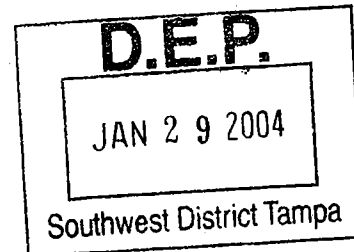
**LEGEND**

- ① GRAY TO BROWN FINE SAND TO SLIGHTLY SILTY FINE SAND TRACE ROOTS, (SP), (SP-SM)
  - ② LIGHT GRAY FINE SAND, (SP)
  - ③ LIGHT BROWN FINE SAND, (SP)
  - ④ GRAY TO BROWN SILTY FINE SAND TO CLAYEY FINE SAND, (SM), (SC)
  - ⑤ GREEN TO GRAY CLAY WITH SAND SEAMS OCCASIONAL PHOSPHATES, (CL)
  - ⑥ GREEN CLAY, (CH)
  - ⑦ LIGHT TO DARK RED-BROWN SLIGHTLY SILTY TO SILTY FINE SAND, OCCASIONAL WEAKLY CEMENTED FINE SAND, (SP-SM), (SM)
  - ⑧ LIGHT GRAY BROWN INDURATED CLAY/SILT TO WEATHERED LIMESTONE
- (SP) UNIFIED SOIL CLASSIFICATION GROUP SYMBOL
- 7.6V DEPTH TO GROUNDWATER LEVEL IN FEET: 2/13/97 TO 2/17/97
- N STANDARD PENETRATION RESISTANCE IN BLOWS PER FOOT
- 50/5" NUMBERS OF BLOWS REQUIRED (50) TO DRIVE SAMPLING SPOON 5 INCHES
- 10' NW/HW DEPTH TO WHICH NW/HW CASING WAS DRIVEN IN FEET, (NOTE: 3" CASING/4" CASING RESPECTIVELY)

GEOTECHNICAL ENGINEER  
HARDEE COUNTY  
WACHULA, FLOR



DRAWN: DCB SCALE: NOTED

**SCS ENGINEERS**January 29, 2004  
File No. 09199033.08Mr. John Morris  
Florida Department of Environmental Protection  
Southwest District  
3804 Coconut Palm Drive  
Tampa, FL 33619Subject: Additional Requested Information  
Hardee County Landfill – Permit No. 38414-002-SO  
Hardee County, Florida

Dear Mr. Morris:


Per our discussion on Wednesday January 28, 2004, SCS Engineers (SCS) is pleased to submit the following replacement items for your use in the completing the FDEP's review of the Hardee County Operations Permit Renewal Application. The following items are attached to this letter:

- Replacement figure for Figure K-1, Monitoring Locations.
- Revised Sheet for Section 3 of the Water Quality and Leachate Monitoring Plan, groundwater parameters.
- A copy of the well completion log and a copy of the boring logs conducted by PSI for the water supply well immediately adjacent to the maintenance building.

A review of the well construction log for the water supply well and the boring logs for that immediate area indicate that the well is approximately 200 feet deep with a confining clay layer at approximately 35 below ground surface. Therefore the water supply well is not a shallow well and was installed in accordance with Rules in effect at the time the well was installed, specifically Rule 17-701.040(2)(c), F.A.C.

Please do not hesitate to contact us if you should have any questions regarding this letter.

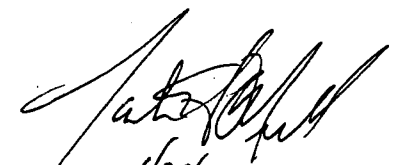
Very truly yours,

  
Joseph H. O'Neill, P.E.  
Project Manager

JHO/JHO

Attachments

Offices Nationwide

  
1/29/04  
052048

**ATTACHMENTS**

**FLORIDA DEPARTMENT OF  
ENVIRONMENTAL PROTECTION**

**JAN 29 2004**

**SOUTHWEST DISTRICT  
TAMPA**

### 3.0 WATER QUALITY AND LEACHATE MONITORING PARAMETERS

#### Groundwater Parameters

Analytical parameters for groundwater should include the following:

Parameters required in current permit	Revised groundwater parameters
Specific Conductivity	Specific Conductivity
pH	pH
Dissolved Oxygen	Dissolved Oxygen
Turbidity	Turbidity
Temperature	Temperature
Total Ammonia -N	Total Ammonia -N
Chlorides	Chlorides
Mercury	Mercury
Nitrate	Nitrate
Iron	Iron
Sodium	Sodium
Total Dissolved Solids (TDS)	Total Dissolved Solids (TDS)
— 40 CFR part 258 Appendix I	EPA 8260 40 CFR part 258 Appendix I
Color and Sheen (observation)	Color and Sheen (observation)
	Sulfate
	Magnesium
	BOD
	COD

#### Surface Water Parameters

- Field Parameters
  - Specific conductivity
  - pH
  - Dissolved oxygen
  - Turbidity
  - Temperature
  - Colors and sheens
- Lab Parameters
  - Zinc

FLORIDA DEPARTMENT OF  
ENVIRONMENTAL PROTECTION

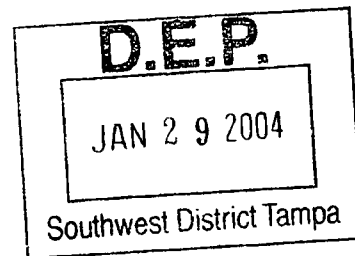
JAN 29 2004

SOUTHWEST DISTRICT  
TAMPA



**SCS ENGINEERS**

January 29, 2004  
File No. 09199033.08



Mr. John Morris  
Florida Department of Environmental Protection  
Southwest District  
3804 Coconut Palm Drive  
Tampa, FL 33619

Subject: Additional Requested Information  
Hardee County Landfill – Permit No. 38414-002-SO  
Hardee County, Florida

Dear Mr. Morris:


Per our discussion on Wednesday January 28, 2004, SCS Engineers (SCS) is pleased to submit the following replacement items for your use in the completing the FDEP's review of the Hardee County Operations Permit Renewal Application. The following items are attached to this letter:

- Replacement figure for Figure K-1, Monitoring Locations.
- Revised Sheet for Section 3 of the Water Quality and Leachate Monitoring Plan, groundwater parameters.
- A copy of the well completion log and a copy of the boring logs conducted by PSI for the water supply well immediately adjacent to the maintenance building.

A review of the well construction log for the water supply well and the boring logs for that immediate area indicate that the well is approximately 200 feet deep with a confining clay layer at approximately 35 below ground surface. Therefore the water supply well is not a shallow well and was installed in accordance with Rules in effect at the time the well was installed, specifically Rule 17-701.040(2)(c), F.A.C.

Please do not hesitate to contact us if you should have any questions regarding this letter.

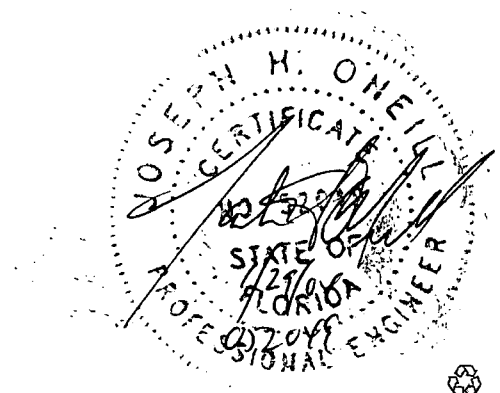
Very truly yours,

  
Joseph H. O'Neill, P.E.  
Project Manager

JHO/JHO

Attachments

Offices Nationwide

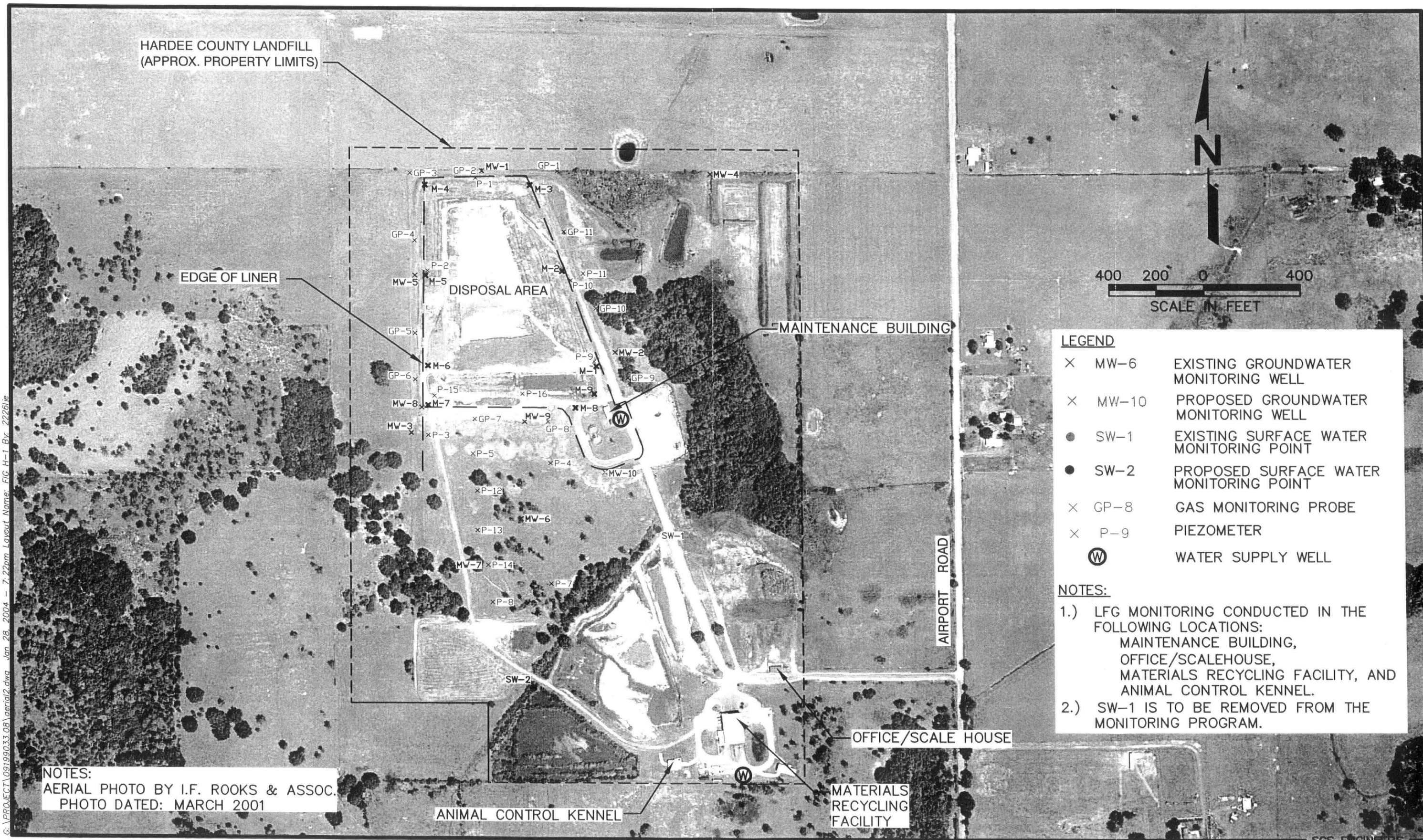


**ATTACHMENTS**

FLORIDA DEPARTMENT OF  
ENVIRONMENTAL PROTECTION

JAN 29 2004

SOUTHWEST DISTRICT  
TAMPA



HARDEE COUNTY LANDFILL  
(APPROX. PROPERTY LIMITS)

EDGE OF LINER

DISPOSAL AREA

MAINTENANCE BUILDING

AIRPORT ROAD



400 200 0 400  
SCALE IN FEET

**LEGEND**

- × MW-6 EXISTING GROUNDWATER MONITORING WELL
- × MW-10 PROPOSED GROUNDWATER MONITORING WELL
- SW-1 EXISTING SURFACE WATER MONITORING POINT
- SW-2 PROPOSED SURFACE WATER MONITORING POINT
- × GP-8 GAS MONITORING PROBE
- × P-9 PIEZOMETER
- ⊙ W WATER SUPPLY WELL

**NOTES:**

- 1.) LFG MONITORING CONDUCTED IN THE FOLLOWING LOCATIONS:  
MAINTENANCE BUILDING,  
OFFICE/SCALEHOUSE,  
MATERIALS RECYCLING FACILITY, AND  
ANIMAL CONTROL KENNEL.
- 2.) SW-1 IS TO BE REMOVED FROM THE MONITORING PROGRAM.

NOTES:  
AERIAL PHOTO BY I.F. ROOKS & ASSOC.  
PHOTO DATED: MARCH 2001

ANIMAL CONTROL KENNEL

OFFICE/SCALE HOUSE

MATERIALS RECYCLING FACILITY

Figure K-1. Monitoring Locations, Hardee County Landfill, Hardee County, Florida



### 3.0 WATER QUALITY AND LEACHATE MONITORING PARAMETERS

#### Groundwater Parameters

Analytical parameters for groundwater should include the following:

Parameters required in current permit	Revised groundwater parameters
Specific Conductivity	Specific Conductivity
pH	pH
Dissolved Oxygen	Dissolved Oxygen
Turbidity	Turbidity
Temperature	Temperature
Total Ammonia -N	Total Ammonia -N
Chlorides	Chlorides
Mercury	Mercury
Nitrate	Nitrate
Iron	Iron
Sodium	Sodium
Total Dissolved Solids (TDS)	Total Dissolved Solids (TDS)
— 40 CFR part 258 Appendix I	<b>EPA 8260</b> <b>40 CFR part 258 Appendix I</b>
Color and Sheen (observation)	Color and Sheen (observation)
	Sulfate
	Magnesium
	BOD
	COD

#### Surface Water Parameters

- Field Parameters
  - Specific conductivity
  - pH
  - Dissolved oxygen
  - Turbidity
  - Temperature
  - Colors and sheens
- Lab Parameters
  - Zinc

FLORIDA DEPARTMENT OF  
ENVIRONMENTAL PROTECTION

**JAN 29 2004**

SOUTHWEST DISTRICT  
TAMPA

**SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (REGULATORY)**  
 5080 U.S. Hwy 41 South, Brooksville, Florida 33812  
 804/798-7211

**APPLICATION FOR A PERMIT TO CONSTRUCT A WELL**

In compliance with the Rules and Regulations of the Southwest Florida Water Management District (Regulatory)

<u>Cassir Blackburn 9050</u>	
DRILLING CONTRACTOR	LICENSE NUMBER
<u>401 South W. Ave</u>	
ADDRESS	STREET OR BOX NO. CITY ZIP CODE
<u>W. Hochberg FLA</u>	

(PLEASE TYPE OR PRINT IN ABOVE SPACE)

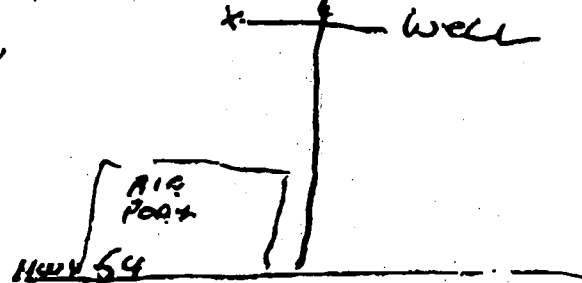
PERMIT NO.: 384468-70  
 STIPULATIONS REQUIRED: \_\_\_\_\_  
 (See Reverse)  
 DATE: Aug 5 1983

Requests authorization to construct, repair, modify a well for:  
 (Circle One)

HARDY COUNTY REGIONAL SANITARY LANDFILL AIRPORT ROAD  
 NAME OF WELL OWNER ADDRESS OF WELL LOCATION STREET OR BOX NO. CITY ZIP CODE  
HARDY CO. COMMERCIALS W. HOCHBERG FLA. 33873  
 OWNERS MAILING ADDRESS STREET OR BOX NO. CITY ZIP CODE

TYPE OF EQUIPMENT: Rotary  
 APPROXIMATE DEPTH: 200ft DIAMETER: 4"  
 PROXIMATE CASED DEPTH: 50ft CASING MATERIAL: DUCTIRON  
 SEAL: Cement PURPOSE: INDUSTRIAL  
 LEGAL DESCRIPTION:  
 QTR. \_\_\_\_\_ QTR. SEC 35 TWP. 33 S. RGE. 25 E.  
 LOT \_\_\_\_\_ BLK. \_\_\_\_\_ UNIT \_\_\_\_\_ SUBDIVISION \_\_\_\_\_  
 COUNTY: HARDY FIRE PROTECTION & WASHING VEHICLES

**LOCATION SKETCH  
 (TO CLOSEST MAIN HIGHWAY)**



I agree to furnish a Completion Report within 30 days after drilling operations cease and to comply with all the provisions of the Rules and Regulations of the SWFWMD(R) relative to well construction. Driller should supply a copy of the Completion Report to the owner.

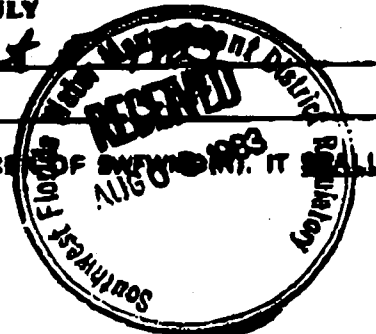
I understand if the withdrawal is from a well having an inside diameter of six inches (6") or more or if the withdrawal during any single day is to exceed one-million (1,000,000) gallons or if the average annual daily withdrawal is to exceed one hundred thousand (100,000) gallons average per day on an annual basis, then a Consumptive Use Permit must be approved prior to the Construction Permit being authorized.

Signature of Drilling Contractor Cassir Blackburn  
 Signature of Owner or His Authorized Agent Cassir Blackburn

**DO NOT WRITE BELOW THIS LINE - FOR OFFICIAL USE ONLY**

GRANTED BY: Joseph W. Richels DATE: August  
 TITLE: Supervisor of Enforcement

**THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED BY AN AUTHORIZED OFFICER OF SWFWMD(R). IT SHALL BE KEPT AT THE WELL SITE DURING ALL DRILLING OPERATIONS.**



CUP NO. \_\_\_\_\_  
 SWFWMD(R)  
 SF 308(3) Rev. 4/79  
8.15.83 JAL

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION  
WELL COMPLETION REPORT

OWNER: MADEIRA WOODS RESORT  
 Lot Name: LALO POND Tract:  
MADEIRA RD. E. K. BARTSCH  
 Number: \_\_\_\_\_ Street: \_\_\_\_\_  
MADEIRA City: \_\_\_\_\_ State: \_\_\_\_\_  
 Area Code: \_\_\_\_\_ Phone Number: 305 272  
 Zip Code: \_\_\_\_\_

WELL LOCATION:  
 Section: 315  
 Township: N 04-S Range: E 04-W  
 Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_  
 Section: \_\_\_\_\_  
 Street/Road: \_\_\_\_\_  
 Lot No.: \_\_\_\_\_ Subdivision: \_\_\_\_\_  
 City: \_\_\_\_\_ County: \_\_\_\_\_

OWNER WELL NUMBER OR NAME: MADEIRA 001

DRILL METHOD:  Rotary  Cable Tool  Jet  Auger  
 Other: \_\_\_\_\_

SURFACE CASING, CASING, AND LINER MATERIAL:

Start Dia. (In.)	End Dia. (In.)	Depth (Ft.)	From (Ft.)	To (Ft.)	Schedule No.	Joint*
4"	4"	0	0	18		

\* Describe Joints:  
 TC = Threaded and Coupled, TCW = Threaded, Coupled, and Welded,  
 W = Welded, S = Seamed PVC, O = Other:

GROUP:  None  West Coast  Other: \_\_\_\_\_

Type and Percent of Analysis and Great Volume or Number of 24 Hr. Tests

From (Ft.)	To (Ft.)
0	18

PERMIT:  Open Hole  Perforated or Slotted Casing  Gravel Pack  
 Sandpoint or Screen Attached to Well Casing  Sandpoint or Screen  
 Threaded with Packer Inside Casing (Packer Material): \_\_\_\_\_

Stratigraphic Column Material

Depth (Ft.)	Start (Ft.)	From (Ft.)	To (Ft.)
0	18		

Other Fluids: \_\_\_\_\_

QUALITY TEST:  None  Bacteria  Chemical  
 By: \_\_\_\_\_ Date: \_\_\_\_\_

Other:  Chlor  Oxid  Sulph  Sely  Iron  Other  
 Conductance: \_\_\_\_\_ Chloride: \_\_\_\_\_  
 Hardness: \_\_\_\_\_  
 pH: \_\_\_\_\_ Temp: \_\_\_\_\_  
 Well Disinfectant:  No  Yes (Date) \_\_\_\_\_

WELL TEST, No:  General Flow  G.P.M.  Air/W  
 Boiler  Perforated Pump  Test Pump  None  
 Discharge Measured By:  Boiler  Estimated  Current Meter  
 Orifice  Tripartite  Venturi  Volumetric  Other

Measured Static Water Level:  -  - 210 Ft.  
 Measured Pumping Water Level:  -  - \_\_\_\_\_ Ft.  
 After \_\_\_\_\_ Hours At \_\_\_\_\_ G.P.M.  
 Specific Capacity: \_\_\_\_\_ (G.P.M./Ft. of Drawdown)  
 Monitoring Pt. (Described): TOP 4" CASING  
 Which is  Ft. Above  Below Land Surface  
 Situation of Monitoring Pt. = \_\_\_\_\_ Ft.  Above  Below MSL

WELL EQUIPMENT:  Open  Capped  Valved  
 Permanent Pump  Temporary Pump  
 Type Pump:  Centrifugal  Cylinder  Jet  Submersible  
 Turbine  Other:  
 Pump:  Diesel  Electric  Gasoline  Other:  
 Horsepower: \_\_\_\_\_ Capacity: \_\_\_\_\_ G.P.M.  
 Installation Depth: \_\_\_\_\_ Ft.

IMS UPDATE

TYPE OF WORK:  New Construction  Repair  
 Deepening  Plugging  
 Other: \_\_\_\_\_

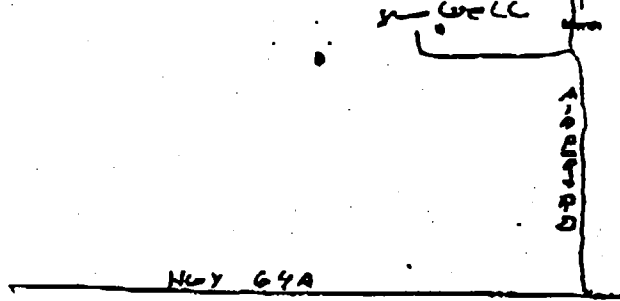
PERMIT NUMBER: 384468-20

WELL NUMBER: \_\_\_\_\_

TYPE OF WELL:  Water Well  Test Well  Recharge  Drainage  
 Waste Disposal  Observation  Other

USE:  Domestic  Irrigation  Industrial  Livestock  Public Supply  
 Other: PERFORATION + MAINTENANCE

SKETCH LOCATION OF WELL in relation to local landmarks, giving distance and direction from nearest town, road, or other reference point.

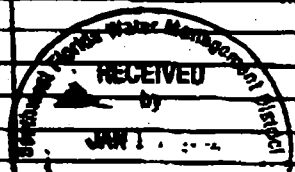


GEOPHYSICAL LOGS: Type: \_\_\_\_\_ By: \_\_\_\_\_

WELL LOG

Bore Hole (In.)	Casing Dia. (In.)	Depth (Ft.)		Remarks
		From	To	
8"	4"	0	18	GRAYSH SAND
				SAND CASING IN
4"	4"	18	26	GRAYSH ROCK
		26	35	HARD BROWN CLAY
		35	52	GRAYSH GRAY CLAY
				BLACKSPECKS
4"	4"	52	130	GRAYSH ROCK with
				BLACKSPECKS
		130	160	GRAYSH ROCK
4"	4"	160	200	GRAYSH AND BROWN
				LIME ROCK
				CASING BOTTEN
				18 FT TO 64'

3 clay



Total Depth: 210 Ft. Producing Zone Measured: \_\_\_\_\_  
 Broken Shell  Linerless  Other: \_\_\_\_\_  
 Top of Producing Zone: 1710 Ft. Bottom of Producing Zone: 2100 Ft.  
 Drill Cuttings Sent to Bureau of Geology  
384468 License No. 1710 20 272  
 Completion Date: \_\_\_\_\_

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT RDBS CODE TABLE DISCRPTIONS

**WELL USE CODES**

<u>CODE</u>	<u>DESCRIPTION</u>
A	AGRICULTURE
AL	AQUIFER WATER LEVELS
AQ	AQUICULTURE
AS	AQUIF. AND STORAGE RECOV.
AU	AUGMENTATION
B	PUBLIC SUPPLY
C	DEWATERING
CN	PUBLIC SUPPLY CONV. (TOP 20)
CV	PUBLIC SUPPLY CONV./ RECLASS
D	DOMESTIC
DF	DISCHARGE FLOW
E	ESSENTIAL SERVICES (FIRE PRO.)
EF	EFFLUENT WASTEWATER
F	FOUND. TEST WELL (SOIL BOR.)
G	RECHARGE/ SATELITE
GR	GROUNDING ROD
GT	GEO THERMAL WELL
H	REPAIR OR DEEPEN
HA	REPAIR OR IRRIGATION
T	TESTWELL / PIEZOMETER
U	RECOVERY
V	INVENTORY WELL
W	AIR COND. SUPPLY - HEAT PUMP
WL	WETLAND WATER LEVEL
WQ	WATER QUALITY, GENERAL
Y	PLUGGED
YY	DISMANTLED
Z	SEALING WATER
ZZ	CONVERSION USE CODE ERROR

**WELL USE CODES (CONT'D)**

HB	REPAIR PUBLIC SUPPLY
HD	REPAIR DOMESTIC
HY	BACK PLUGGING
I	INDUSTRIAL
J	INJECTION WELL
K	CONNECTION WELLS
L	LIVESTOCK
LL	LAKE WATER LEVEL
M	MINING
N	RETURN AIR/ HEAT
O	OBSERVATION OR MONITOR WELL
P	POWER
PC	PUBLIC SUPPLY CONV. (NO REC.)
Q	DRAINAGE WELL
R	RECREATIONAL
RC	RECHARGE
RF	RAINFALL
RP	REPUMP
RU	REUSE
SF	STREAMFLOW
SR	REPLACEMENT WELL (SARASOTA)
SW	SALINE WATER INTRUSION



SWFWMD WELL INVENTORY

WCP No.	Well No.	Issued	Completed	Section	Township	Range	Diameter	Well Use Code	Owner's Name	Owner's Address	Owner's City	Owner's State	Owner's Zip	Well Location	Reference No.	Well Depth	Casing Mat'l	Case Depth	Latitude	Longitude	Pump (gpm)
326458	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			75042600*	185	Z	55			
26459	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			75042620*	180	Z	57			
326460	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			750426509*	132	Z	63			
326489	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			75043380*	145	Z	57			
326490	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			75043390*	160	Z	60			
326491	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			75043400*	175	Z	55			
326594	1	1/1/70	7/1/79	36	33	25	4	D	R GIFFIARD	NO ADDRESS	NO CITY	FL			75045830*	175	Z	56			
326595	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			75045840*	180	Z	53			
326596	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			75045860*	185	Z	68			
328565	1	1/1/70	7/1/79	36	33	25	4	D	W SMITH	NO ADDRESS	NO CITY	FL			75089260*	205	Z	50			
329744	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			76013130	175	Z	57			
335994	1	1/1/70	7/1/79	36	33	25	4	A	DOUGIAS D	NO ADDRESS	NO CITY	FL			77149070	240	Z	60			
361828	1	2/6/81	4/20/81	36	33	25	4	D	ROSENBERGER, SAM	DANSBY RD	WAUCHULA	FL	33873			208	Z	52			
361829	1	2/6/81	4/28/81	36	33	25	4	D	ROSENBERGER, SAM	DANSBY RD	WAUCHULA	FL	33873			204	Z	53			
366380	1	6/11/81	7/12/81	36	33	25	4	D	HINES, HOWARD	RT 2 LOT 09	WAUCHULA	FL	33873			210	Z	52			
377003	1	9/17/82	11/2/82	36	33	25	4	D	PARKER, J. B.	RT 1, BOX 200	BOWLING GREEN	FL	33834			200	Z	63			
384054	1	7/18/83	10/4/83	35	33	25	4	O	HARDEE COUNTY REGIONAL SANITARY	AIRPORT RD	WAUCHULA	FL	33873			15	Z	12			
384055	1	7/19/83	10/1/83	35	33	25	4	O	HARDEE COUNTY REGIONAL SANITARY	AIRPORT RD	WAUCHULA	FL	33873			11	Z	8			
384056	1	7/18/83	10/11/83	35	33	25	4	O	HARDEE COUNTY REGIONAL SANITARY	AIRPORT RD	WAUCHULA	FL	33873			11	Z	8			
384468	1	8/5/83	10/20/83	35	33	25	4	I	HARDEE COUNTY REGIONAL SANITARY	AIRPORT RD	WAUCHULA	FL	33873			200	Z	54			
408523*	1	9/26/85	7/31/86	36	33	25	4	D	DRAKE, GEORGE W	BOX 1182	WAUCHULA	FL	33873			180	A	84			
414023	1	4/1/86	8/20/86	36	33	25	4	D	DRAKE, GEORGE	1342 HWY S 17	WAUCHULA	FL	33873			220	B	70			
418987	1	7/30/86	1/7/87	36	33	25	4	D	BURNETT, HENRY P	RT 2	WAUCHULA	FL	33873			235	A	107			
435610	1	7/27/87	8/3/87	35	33	25	2	O	HARDEE COUNTY REGIONAL SANITARY	AIRPORT RD	WAUCHULA	FL	33873			20	B	10			
435611	1	7/27/87	8/3/87	35	33	25	2	O	HARDEE COUNTY REGIONAL SANITARY	AIRPORT RD	WAUCHULA	FL	33873			18	B	8			
435612	1	7/27/87	8/4/87	35	33	25	2	O	HARDEE COUNTY REGIONAL SANITARY	AIRPORT RD	WAUCHULA	FL	33873			21	B	11			
435613	1	7/27/87	8/4/87	35	33	25	2	O	HARDEE COUNTY REGIONAL SANITARY	AIRPORT RD	WAUCHULA	FL	33873			21	B	11			
510327	1	2/7/91	4/10/91	35	33	25	4	B	HARDEE COUNTY REGIONAL SANITARY	AIRPORT RD	WAUCHULA	FL	33873			197	A	63			
545871	1	12/7/93	12/10/93	36	33	25	4	D	MANUEL HERRERA	126 CYPRESS ST.	WACHULA	FL	33873			203	A	84			
553344	1	6/2/94	5/8/95	36	33	25	5	D	LEO DAVIS	SUMMER RD	WAUCHULA	FL	33873			175	B	60			
554873	1	7/5/94	7/5/94	36	33	25	2	O	HARDEE COUNTY SOLID WASTE	685 AIRPORT RD	WAUCHULA	FL	33873			15	B	10			
554873	2	7/5/94	7/5/94	36	33	25	2	O	HARDEE COUNTY SOLID WASTE	685 AIRPORT RD	WAUCHULA	FL	33873			15	B	10			
554873	3	7/5/94	7/5/94	36	33	25	2	O	HARDEE COUNTY SOLID WASTE	685 AIRPORT RD	WAUCHULA	FL	33873			15	B	10			
554873	4	7/5/94	7/5/94	36	33	25	2	O	HARDEE COUNTY SOLID WASTE	685 AIRPORT RD	WAUCHULA	FL	33873			15	B	10			
579220	1	5/8/96	5/20/96	34	33	25	4	D	DENTON CASH	RT 2 BOX 21	WAUCHULA	FL	33863	HWY 664A		200	B	80			
579599	1	5/17/96	6/6/96	36	33	25	4	D	PHILLIP WAYNE FARRER	CR 664B	WAUCHULA	FL	33873	CR 664B		205	A	58			22
579861	1	5/23/96	5/30/96	34	33	25	4	D	DENTON CASH	RT 2 BOX 21	WAUCHULA	FL	33863	HERD BRIDGE ROAD		200	B	80			
586779	1	12/31/96	1/8/97	35	33	25	4	A	GENE FIELD	575 AIRPORT RD	WAUCHULA	FL	33873	515 AIRPORT RD		173	A	49			50
597100	1	9/10/97	10/1/97	36	33	25	4	D	SANDRA V. HUMPHRIES	7741 FARR RD	ONA	FL	33865	7741 FARR RD(SUMMER ROA		200	Z	115			
600529*	1	12/15/97	2/13/98	36	33	25	5	D	PAUL DUMONT &	POST OFFICE BOX 2581	WAUCHULA	FL	33873	565 BOYD COWART ROAD		200	B	60			
608876	1	8/5/98	10/8/98	36	33	25	2	A	SANDRA V. HUMPHRIES	7741 FARR ROAD	ONA	FL	33865	7741 FAIR RD		40	C	21			
614259	1	1/7/99	2/10/99	36	33	25	4	A	JAMES SLAYTON	6848 CIRCLE CREEK DRIVE	PINELLAS PARK	FL	33781	SUMMER RD.		277	B	70			
622889	1	7/12/99	7/12/99	36	33	25	4	D	BILL HODGE	754 SUMNER RD	WAUCHULA	FL	33890	754 SUMMER ROAD		220	C	84			
627535	1	11/4/99	11/4/99	35	33	25	5	Y	HARDEE COUNTY SOLID WASTE	685 AIRPORT RD	WAUCHULA	FL	33873	685 AIRPORT RD		10	Z	10			
631797	1	2/21/00	2/23/00	36	33	25	5	D	JOYCE LYERLY	1028 SUMNER RD	WAUCHULA	FL	33873	1028 SUMNER ROAD		157	Z	118			
637035	1	6/1/00	6/8/00	36	33	25	4	D	JACK KERNS	918 SUMMER RD	WAUCHULA	FL	33873	918 SUMMER ROAD		200	C	84			
639295	1	7/13/00	7/19/00	36	33	25	4	D	STEVE ZALEWSKI	CREWS RD	WAUCHULA	FL	33873	2404 GREENLEAF RD		260	C	84			
643154	1	10/12/00	12/22/00	36	33	25	4	D	BOBBY AND ESTER BRAGG	671 SUMNER RD	WAUCHULA	FL	33873	671 SUMNER RD		160	B	76			25
647646	1	1/29/01	1/31/01	36	33	25	4	D	GREGORY MORGAN	2598 GREGORY LN	WAUCHULA	FL	33823	2598 GREGORY LN		280	B	95			15
651055	1	4/6/01	4/17/01	36	33	25	4	D	MARY BARTLEY	1181 FINBAR WAY	WAUCHULA	FL	33873	1181 FINBAR WAY		145	B	110	273419	814554.03	
651056	1	4/6/01	4/19/01	36	33	25	4	D	CARLOS AVILES	510 CYPRESS ST	WAUCHULA	FL	33873	510 CYPRESS ST/BLK 1		150	B	110	273342.1	814552.07	
651057	1	4/6/01	4/20/01	36	33	25	4	D	RONNIE BARTLEY	470 CYPRESS ST	WAUCHULA	FL	33873	470 CYPRESS ST		150	B	110	273339	814553	
656331	1	7/18/01	8/28/01	36	33	25	4	D	LARRY FIEGLE	555 SUMMER RD	WAUCHULA	FL	33873	555 SUMMER RD		170	B	118			
659635	1	10/8/01	10/23/01	36	33	25	4	D	CARL & MARYJANE SISSOMS	3998 E MAIN ST	WAUCHULA	FL	33873	498 AIRPORT RD		200	C	84	273343.1	814629.07	
670100	1	5/30/02	6/8/02	36	33	25	4	D	HAROLD LAMBERT	715 BOYD COWART RD	WAUCHULA	FL	33873	715 BOYD COWART RD		270	C	63			
673367	1	8/7/02	8/10/02	36	33	25	4	A	NICK MIRINDA	510 AIRPORT RD	WACHULA	FL	33873	510 AIRPORT RD		200	C	84			
680590*	1	2/7/03		36	33	25	12	A	CHARLES E & GAIL D BEST	PO BOX 203	WAUCHULA	FL	33873	NEAR SR 664B & SUMNER RD			A		273416.5	814544.08	
682600	1	3/26/03		36	33	25	4	Y	MARCELINO BALDERAS	565 CYPRESS ST	WACHULA	FL	33873	565 CYPRESS STREET			A				
682601	1	3/26/03		36	33	25	4	D	MARCELINO BALDERAS	565 CYPRESS ST	WACHULA	FL	33873	565 CYPRESS STREET			C				
311120	1	1/1/70	7/1/79	1	34	25	4	D	CANNON BLDG	NO ADDRESS	NO CITY	FL			72067190	51	Z	21			
311403	1	1/1/70	7/1/79	1	34	25	4	D	CANNON BLDG	NO ADDRESS	NO CITY	FL			72074580	198	Z	37			
311404	1	1/1/70	7/1/79	1	34	25	4	D	CANNON BLDG	NO ADDRESS	NO CITY	FL			72074590	171	Z	39			
312203	1	1/1/70	7/1/79	3	34	25	4	A	K MITCHELL	NO ADDRESS	NO CITY	FL			72094540	232	Z	63			
312962	1	1/1/70	7/1/79	1	34	25	4	D	J A PULLEN	NO ADDRESS	NO CITY	FL			72114200	159	Z	61			

\* Shaded cells with astericks refer to the SWFWMD permits located within this attachment.



**psi** Environmental  
Geotechnical  
Construction  
Consulting • Engineering • Testing

D.F.M.

JAN 30 1997

**Report**  
**Geotechnical Engineering Services**  
**Hardee County Sanitary Landfill**  
**PSI Project No. 757-75054**

FLORIDA DEPARTMENT OF  
ENVIRONMENTAL PROTECTION

JAN 29 2004

SOUTHWEST DISTRICT  
TAMPA

*Information To Build On*

March 10, 1997

DEF  
MAR 30 1997  
TAMPA

Post, Buckley, Schuh & Jernigan, Inc.  
1560 Orange Avenue, Suite 700  
Winter Park, Florida 32789

Attention: Mr. Bob Mackey, P.E.  
Project Manager

RE: Report  
Geotechnical Engineering Services  
Hardee County Sanitary Landfill  
PSI Project No.: 757-75054

Dear Mr. Mackey:

In accordance with our proposal to you dated February 5, 1997, Professional Service Industries, Inc. (PSI) has provided geotechnical engineering services in connection with the referenced project. This report includes an overview of the field work and laboratory testing that we completed for the assignment. Also provided are preliminary recommendations for site preparation and foundation design of the leachate storage tanks.

### PROJECT CONSIDERATIONS

The Hardee County Sanitary Landfill is located in northeast Hardee County, east of U.S. 17 and north of County Road 636. The property is located in Section 35, Township 33 South, Range 25 East. The landfill site is generally rectangular in shape occupying a plan area of approximately 100 acres.

At the present time, geotechnical engineering services have been directed at the northwest corner of the site, where a liner wall will be constructed as well as above ground leachate storage tanks. The liner wall will be located south of the existing dewatering ditch and will consist of installing a High Density Polyethylene (HDPE) liner in a trench. The HDPE liner will be keyed into low permeable clays at depth providing a hydraulic cut off barrier.

The leachate storage tanks are to be built near the maintenance building. They will comprise two 50,000 gallon above ground tanks. It is proposed that the tanks be supported on a shallow foundation system.

A generalized plan view of the facility and the area of interest at this time is included on Sheet 1.

*Information To Build On*

## SUBSOIL AND GROUNDWATER CONDITIONS

### General

To evaluate subsoil and groundwater conditions in the area of interest to this assignment, we drilled/sampled six Standard Penetration Test (SPT) borings. These borings were completed in general accordance with the procedures outlined in ASTM D-1586. The borings were advanced to depths in the range 25 to 40 feet below grade. The approximate locations at which the borings were drilled are indicated on Sheet 1.

In the upper 10 feet, SPT samples were recovered continuously then at 5 foot centers thereafter to boring termination. Samples recovered from the borings were visually stratified in the laboratory by a geotechnical engineer, following guidelines contained in the Unified Soil Classification System (USCS). Records of the materials encountered in the borings are presented as soil profiles on Sheet 2. Sheet 2 includes a legend describing the various materials in USCS format.

### Stratigraphy

The borings disclosed reasonably consistent subsoil conditions in the area of evaluation. For the purpose of discussions, these conditions have been generalized as follows. From the ground surface to depths in the range 12 to 18 feet below grade is a varying sequence of fine sands. These sands grade from being relatively clean to slightly silty and silty/clayey in composition (i.e. SP, SP/SM, SM and SC materials). Based on the SPT blow counts, these materials are in a loose to medium dense condition.

Underlying the upper sands is clays. These clays grade from being sandy to silty in composition and from soft to extremely hard in consistency. There are clay zones that are primarily derived from weathered limestone, with SPT blow counts in excess of 50 blows for a few inches. All four of the proposed liner wall borings were terminated in clay.

### Groundwater

Groundwater level measurements were made in the borings at the time of drilling. These measurements disclosed the water table at depths in the range 4.0 to 7.8 feet below grade. As a result of recharge during the rainy season, the water table will rise some 2 to 3 feet above current levels. The groundwater levels at the site will also be impacted by construction activities.

## LABORATORY TESTING

As noted earlier, the laboratory testing work included the stratification of all soil samples in accordance with USCS procedures. Additionally, we carried out four laboratory permeability tests plus nominal classification tests to determine pertinent engineering characteristics/parameters. All permeability tests were performed in a triaxial cell at a



confining pressure of 5 psi. Results of the laboratory tests are presented in Table 1. This table also includes details on boring numbers and sample depths for the test specimens.

## SUMMARY OF FINDINGS AND RECOMMENDATIONS

### General

The results of the borings and laboratory testing indicate low permeable soils at depth in the area of the proposed liner wall. Subsoils at the site of leachate storage tanks are considered generally suitable for grade support of these structures. In order to enhance foundation performance, the tanks should be supported on subgrade soils that have been densified by surface proof rolling. A design bearing value of 3000 pounds per square foot can be used to size foundations.

### Site Preparation For Storage Tanks

At the outset of construction, the site should be stripped of the existing vegetation cover and topsoils. Next, the subgrade soils should be compacted in-situ by surface rolling with a large self propelled vibratory roller. The roller should be capable of imparting a dynamic drum force of at least 36,000 pounds. The tank subgrade soils should be uniformly compacted with the roller to attain a degree of densification that is at least 95 percent of the materials ASTM D-1557 maximum dry density for a depth of 2 feet.

Proof rolling operations should be observed by a representative of this office. Observations would be made as to the general stability of the subgrade in response to rolling. In the event that yielding/pumping soils are encountered during vibratory compaction, such materials should be removed and replaced with clean granular fill. The replacement fill should also be thoroughly compacted to provide a stable subgrade.

Fill required to raise site grades should comprise clean sand with less than 12 percent by dry weight passing the U.S. Standard Number 200 sieve. The fill should be placed in one foot lifts and be compacted to 95 percent or more of the materials ASTM D-1557 maximum dry density.

### Foundation Support

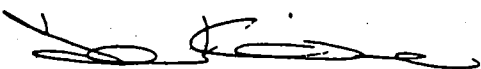
Results of our evaluations indicate that the subsurface materials have adequate shear strength to support fully loaded tanks. We estimate that foundations designed for a bearing pressure of 3000 psf will have a factor of safety against a bearing capacity failure in excess of three. This value is based on the assumption that the structures will be founded on thoroughly compacted native soils and/or engineered fill. The outside foundations/edges of the tank should be adequately protected by soil as to prevent undermining.

Based on our current understanding of the general loading conditions for the tanks, we anticipate settlement performance being within tolerable structural limits. We would be pleased to address settlement matters more fully when actual design loads are known.

PSI appreciates the opportunity to be of service to you on this assignment and we trust that the foregoing and accompanying attachments are of assistance to you at this time. In the event that you have any questions on the report or if you require additional information, please call.

Very truly yours,

**PROFESSIONAL SERVICE INDUSTRIES, INC.**



Ian Kinnear, P. E.  
Senior Geotechnical Engineer  
FL Registration No. 32614

IK:cd  
IK\75775054.311

Attachments

- Table 1
- Sheets 1 and 2



**TABLE 1**

**SUMMARY OF LABORATORY TEST RESULTS  
 HARDEE COUNTY SANITARY LANDFILL**

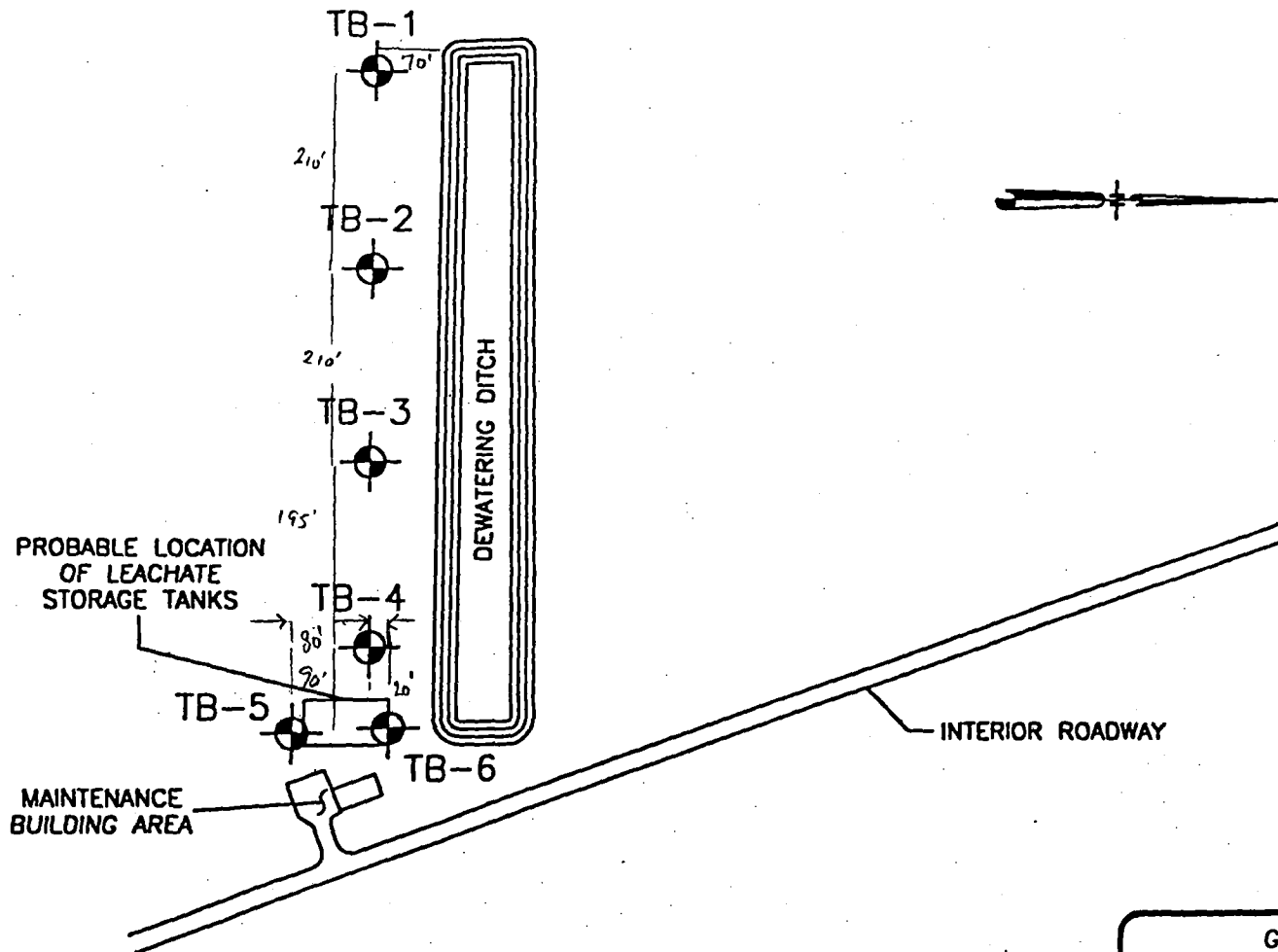
<b>Permeability Test Results</b>			
<b>Boring TB-1 at 15 Feet</b>			
Permeability	=	3.3 x 10 <sup>-7</sup> cm/sec	
Wet Density	=	104.4 pcf	
Moisture Content	=	56.4 %	
Confining Pressure	=	5 psi	
<b>Boring TB-2 at 25 Feet</b>			
Permeability	=	7.7 x 10 <sup>-8</sup> cm/sec	
Wet Density	=	89.0 pcf	
Moisture Content	=	112.7 %	
Confining Pressure	=	5 psi	
<b>Boring TB-3 at 25 Feet</b>			
Permeability	=	4.3 x 10 <sup>-7</sup> cm/sec	
Wet Density	=	93.5 pcf	
Moisture Content	=	80.7 %	
Confining Pressure	=	5 psi	
<b>Boring TB-4 at 17 Feet</b>			
Permeability	=	6.1 x 10 <sup>-8</sup> cm/sec	
Wet Density	=	118.9 pcf	
Moisture Content	=	30.8 %	
Confining Pressure	=	5 psi	

TABLE 1 - Continued

SUMMARY OF LABORATORY TEST RESULTS  
 HARDEE COUNTY SANITARY LANDFILL

Atterberg Limits		
Boring TB-3 at 25 Feet		
LL	=	128 %
PL	=	39 %
PI	=	89 %
-200	=	75 %
Boring TB-5 at 24 Feet		
LL	=	110 %
PL	=	35 %
PI	=	75 %
-200	=	54 %

Moisture Content and No. 200 Wash Sieves		
Boring TB-1 at 15 Feet		
Moisture Content	=	56.4 %
-200	=	53 %
Boring TB-2 at 20 Feet		
Moisture Content	=	105.9 %
-200	=	86 %
Boring TB-2 at 25 Feet		
Moisture Content	=	112.7 %
-200	=	97 %



SITE LOCATION  
SCALE: 1"=200'



APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING

GEOTECHNICAL ENGINEERING SERVICES

HARDEE COUNTY LANDFILL

WACHULA, FLORIDA

**psi** Environmental  
Geotechnical  
Construction  
Consulting • Engineering • Testing

DRAWN: DCB

SCALE: NOTED

PROJ. NO: 757-75054

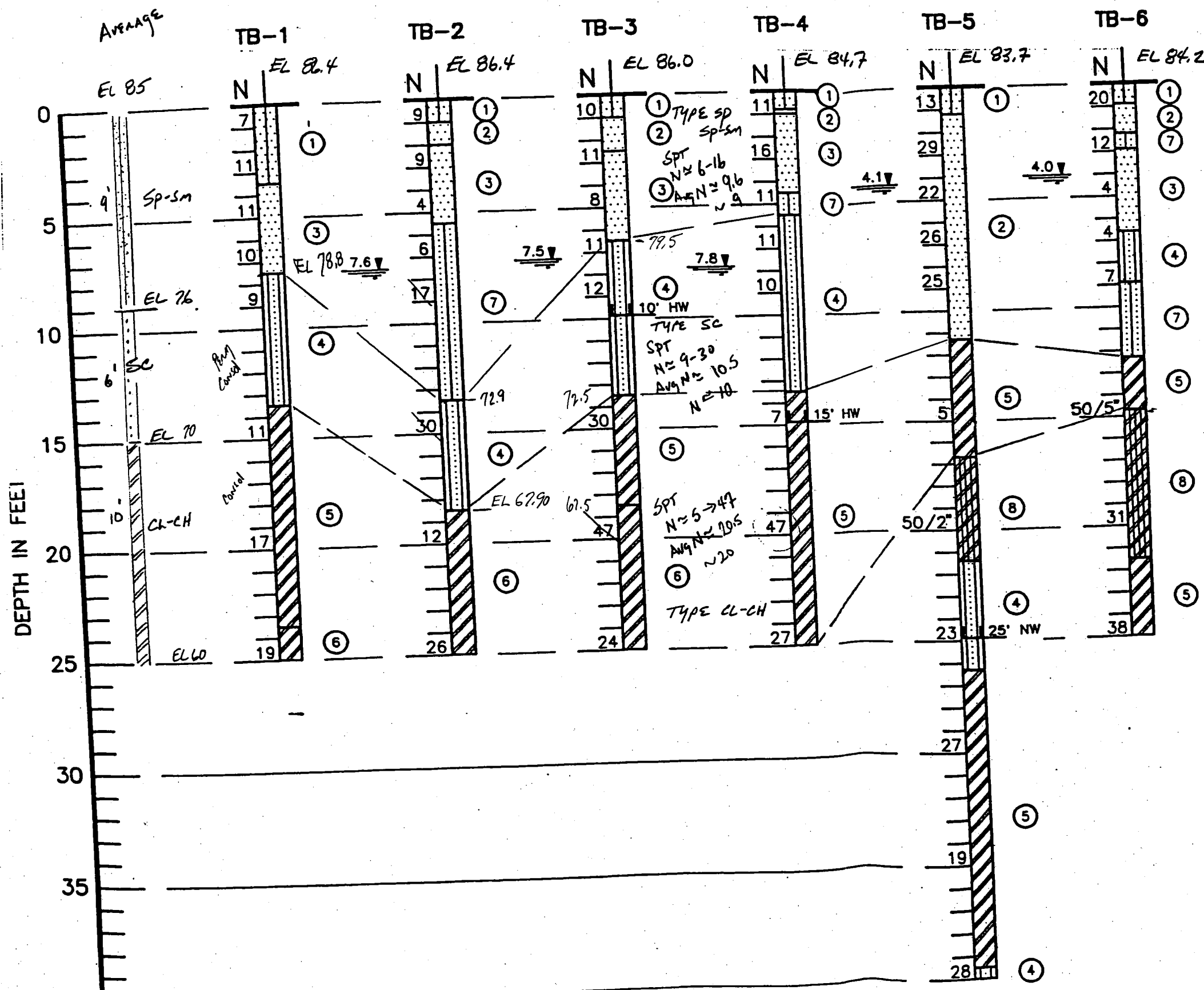
CHKD: IK

DATE: 2-21-97

SHEET: 1



0.57  
1/30/97



**LEGEND**

- ① GRAY TO BROWN FINE SAND TO SLIGHTLY SILTY FINE SAND TRACE ROOTS, (SP), (SP-SM)
  - ② LIGHT GRAY FINE SAND, (SP)
  - ③ LIGHT BROWN FINE SAND, (SP)
  - ④ GRAY TO BROWN SILTY FINE SAND TO CLAYEY FINE SAND, (SM), (SC)
  - ⑤ GREEN TO GRAY CLAY WITH SAND SEAMS OCCASIONAL PHOSPHATES, (CL)
  - ⑥ GREEN CLAY, (CH)
  - ⑦ LIGHT TO DARK RED-BROWN SLIGHTLY SILTY TO SILTY FINE SAND, OCCASIONAL WEAKLY CEMENTED FINE SAND, (SP-SM), (SM)
  - ⑧ LIGHT GRAY BROWN INDURATED CLAY/SILT TO WEATHERED LIMESTONE
- (SP) UNIFIED SOIL CLASSIFICATION GROUP SYMBOL
- 7.6' ▽ DEPTH TO GROUNDWATER LEVEL IN FEET: 2/13/97 TO 2/17/97
- N STANDARD PENETRATION RESISTANCE IN BLOWS PER FOOT
- 50/5" NUMBERS OF BLOWS REQUIRED (50) TO DRIVE SAMPLING SPOON 5 INCHES
- 11' 10" NW/HW DEPTH TO WHICH NW/HW CASING WAS DRIVEN IN FEET, (NOTE: 3" CASING/4" CASING RESPECTIVELY)

GEOTECHNICAL ENGINEER  
 HARDEE COUNTY  
 WACHULA, FLOR

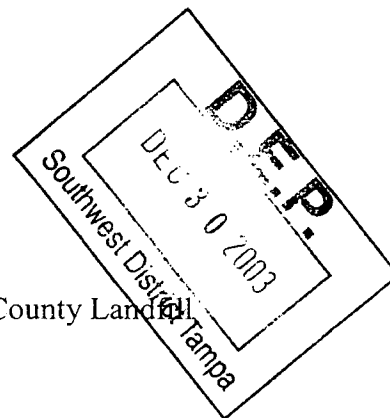
**DSI** Env  
 Geo  
 Cons  
 Consulting • Engineer

DRAWN: DCB SCALE: NOTED

**SCS ENGINEERS**

December 30, 2003  
File No. 09199033.08

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



Subject: Submittal of Modified Information for the Hardee County Landfill  
Renewal of Operations Permit No. 38414-002-SO  
Hardee County, Florida

Dear Mr. Ford,

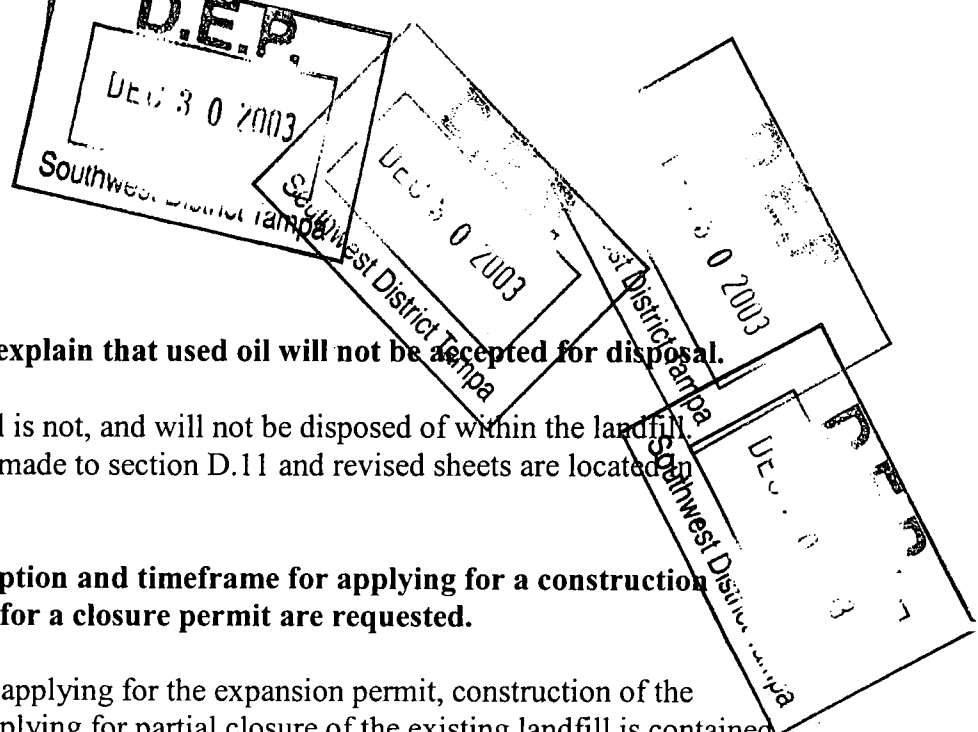
On behalf of Hardee County, SCS Engineers (SCS) is submitting the following modified information to the Florida Department of Environmental Protection (FDEP) as outlined in SCS's letter dated October 22, 2003. This modified information is intended to replace specific portions of the information previously submitted to the FDEP regarding the first Request for Additional Information (RAI). As outlined in the October 22, 2003 letter, with this submittal, the County respectively requests that "time clock be turned back on" for FDEP's review of the operations permit renewal application. With this submittal, FDEP should be able to complete their review and approval of the Operation Renewal Permit Application. SCS has been working with the FDEP to prepare the modified information below and believes this submittal adequately addresses all remaining outstanding issues. Outlined below are the original comments made by FDEP in RAI No.1, typed in bold, and the modified information and responses submitted by SCS. The numbering of the comments and responses remains as outlined in RAI No.1.

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

1. **62-701.300. Revisions to Section D are requested as follows:**
  - a) **Section D.2. - To explain that yard trash and the leachate storage tanks are subject to the prohibitions and to describe compliance with the prohibitions.**

**Response:** Changes have been made to Section D.2 in reference to Rule 62-701.300(12) and (16), F.A.C. Revised sheets are located in Attachment A.





- b) **Section D.11. - To explain that used oil will not be accepted for disposal.**

**Response:** Used oil is not, and will not be disposed of within the landfill. Changes have been made to section D.11 and revised sheets are located in Attachment A.

2. **62-701.320(5)(b). A description and timeframe for applying for a construction permit for expansion and for a closure permit are requested.**

**Response:** A Schedule for applying for the expansion permit, construction of the proposed expansion, and applying for partial closure of the existing landfill is contained in Attachment B.

7. **62-701.330(3)(d) and (j). Revisions to the operational drawings are requested to show the additional information listed below:**

- a) **The typical liner system detail, including the bottom and side liners, leachate collection/conveyance system, waste limits, future final cover, and the adjacent stormwater conveyances;**

**Response:** Please refer to the revised drawings contained in Attachment C.

- b) **The direction of filling for each working face disposal area;**

**Response:** Please refer to the revised drawings contained in Attachment C.

- c) **The design details for the typical slopes and perimeter berms to be maintained to drain stormwater and to contain leachate in the vicinity of each working face disposal area;**

**Response:** Please refer to the revised drawings contained in Attachment C.

- d) **Cross-sections to show lifts of waste as filling progresses including details for permanent terraces and permanent drainage devices;**

**Response:** Please refer to the revised drawings contained in Attachment C.

- e) **Sheet 4 - to show the correct manhole numbers, and with the precise location of the perimeter liner, manholes, and leachate collection/conveyance system;**

**Response:** Please refer to the revised drawings contained in Attachment C.

- f) **Sheet 5 - to show the slope of the terrace swale (at elevation +135 NGVD) with the direction of flow, and the related drainage features to convey the stormwater down the slope, and to show passive gas vent typical cross-section details and locations on the final cover plan view.**

**Response:** Please refer to the revised drawings contained in Attachment C. The passive gas venting system will be installed during partial closure of the landfill. Details of the vents will be submitted with the closure permit application.

- g) **Sheet 8 - to show the top liner on the cover system detail, to include a note on the south slope partial reconstruction detail to ensure that asbestos will not be disturbed due to waste excavation, and to include a note on the typical waste place detail to describe the placement of loose waste over bales.**

**Response:** Please refer to the revised drawings contained in Attachment C.

- h) **Sheet 9 - to include a note to describe that only clean soil fill will be used over intermediately covered areas as needed prior to the final grading of slopes and terraces.**

**Response:** Please refer to the revised drawings contained in Attachment C.

9. **62-701.400(4)(a). Documentation to demonstrate that the entire existing leachate collection and removal system complies with each of the requirements in Rule 62-701.400(4)(a) is requested. Additionally, the following items are requested:**

**Response:** Please refer to the leachate collection system report contained in Attachment D.

- a) **A comprehensive inspection report as required by Specific Condition #17.g., signed and sealed by a professional engineer.**

**Response:** SCS has prepared a Leachate Collection and Removal System Inspection Report, a copy is contained in Attachment D.

- b) **A drawing to scale showing all distances between manholes to match the distances indicated by Florida Jetclean Inc., or a an appropriate explanation for each discrepancy.**

**Response:** As stated in the video provided by Florida Jetclean Inc., the counter,

which measures the pipe length, was not consistently operating correctly. In addition, the locations of the manholes are currently being surveyed to confirm the exact locations relative to the landfill. The distances are shown on the scaled figure located in Attachment E. Florida JetClean has reviewed the tape again and found a significant measurement deviation when measuring from Manhole No. 7 to the lift station. This was due to the camera falling into the liftstation and subsequent efforts (involving the camera being moved back and forth) to recover the camera. SCS had the manhole locations surveyed and the distances are shown on Figure 1 in Attachment D. There remains minor measurement differences between the Florida JetClean and the surveyed distances; however, JETCLEAN and SCS has reviewed the tapes, in their entirety, and is confident that all leachate collection lines have been video tape their entire length.

**c) A drawing to scale showing the correct numbering for each manhole.**

**Response:** Please refer to Figure 1 in the Leachate Collection and Removal System Inspection Report, located in Attachment D.

**d) A corrected Florida Jetclean report to include the correct numbering for each manhole.**

**Response:** The manholes, specifically Manhole No. 8 (the lift station) and No. 9, were mistakenly mislabeled in the field. The confusion was made during construction when a manhole was moved. Manhole No. 9 was mistakenly called Manhole No. 8 on the JETCLEAN videos. Manhole No. 8 was referred to as the lift station.

See Figure 1, Note 1 and the description notes for Manholes 8 and 9 of the Leachate Collection and Removal System Inspection Report, located in Attachment E. The JETCLEAN Report matches the text embedded on the video tape, therefore SCS is proposing the Figure and the Leachate Collection and Removal System Inspection Report, located in Attachment D, are sufficient to clarify the discrepancy.

**e) An explanation with conclusions and recommendations for each location of each pipe "separation" and "egg-shaped" distortion.**

**Response:** Refer to the Leachate Collection and Removal System Inspection Report, located in Attachment D.

**10. 62-701.400(6)(c)9. Documentation to demonstrate that each leachate storage tank has been inspected as required, and that each complies with the requirements in**

**Rule 62-701.400(6) (c) is requested. Additionally, the following items are requested:**

**Response:** Rule 62-701.400(6)(c) refers to the tank materials and operations of the tanks. The tank material and tank operations have been previously reviewed and approved by FDEP.

- a) **A comprehensive inspection report as required by Specific Condition #17.j., signed and sealed by a professional engineer.**

**Response:** Please refer to the Leachate Tank Inspection Reports contained in Attachment E.

- b) **Confirmation that the proposed repair materials are compatible with the original coatings.**

**Response:** A confirmation by Columbian TecTank is located in Attachment E. Columbian TecTank certifies that the coating used by Columbian TecTank (Trico Bond 478) during the tank inspection is not only compatible with the existing coating (Thermo-Thane 7000) it is the same coating.

- c) **The schedule for completing repairs and certification.**

**Response:** Refer to response to part (a) above.

15. **62-701.500(1). Revisions to Section L.1 are requested to describe or reference a training plan with the listed courses and hours of training for operators and spotters to demonstrate compliance with 62-701.320(15).**

**Response:** The section for describing the training plan with listed courses and hours for operators and spotter has been changed to Section L.2.a. The revised Section L is located in Attachment F.

16. **62-701.500(2). Revisions to the Operations Plan are requested to include the document title and date on each page. Revisions to the Section entitled Background Information are requested as follows:**

**Response:** Changes have been made to the Operations Plan to reflect the document title and date on each page. The revised Section L is located in Attachment F.

- a) **include section numbers by each subheading;**

**Response:** The revised Section L is located in Attachment F.

- b) **delete references to unrelated C&D debris disposal practices;**

**Response:** The revised Section L is located in Attachment F.

- c) **provide reference to the MRF operation plan on file with the Department rather than resubmit (this application does not include a review of the MRF operations plan which is permitted separately);**

**Response:** The MRF Operations Plan is referenced within Section L.1.d the Operations Plan. The revised Section L is located in Attachment F.

- **include a description for the storage of batteries, paint, used oil and other special wastes under cover with spill containment.**

**Response:** The batteries, paint, used oil and other special wastes are stored in the Household Hazardous Waste Collection Center (HHWCC). The section for Special waste handling and disposal is described in Section L.2.d. The revised Section L is located in Attachment F.

17. **62-701.500(2)(b). 1) Revisions to Section L.2.b. are requested for the following items:**

- a) **to describe procedures for responding to spills.**

**Response:** The section for responding to spills has been changed to Section L.2.c. The revised Section L is located in Attachment F.

- b) **to describe agreements with adjacent counties for the disposal of waste in the event that the facility must remain closed for more than 48 hours is requested.**

**Response:** The section for Landfill Shutdown contingency plans has been changed to Section L.2.c. The revised Section L is located in Attachment F.

- c) **to describe procedures for managing "hotloads".**

**Response:** The section for describing procedures for managing "hotloads" has

been changed to Section L.2.c. The revised Section L is located in Attachment F.

**18. 62-701.500(2)(c). Revisions to Section L.2.c. are requested to describe the following items:**

**a) procedures for the disposal of asbestos;**

**Response:** The section describing asbestos has been changed to Section L.2.d. The revised Operations Plan is located in Attachment F.

**b) for inspection of each load and the procedures for the removal each type of unacceptable waste from the working face;**

**Response:** The section for inspections and procedures for removal of unacceptable waste has been changed to Section L.2.d. The revised Section L is located in Attachment F.

**c) procedures for the disposal of contaminated soil.**

**Response:** The section for inspections and procedures for disposal of contaminated soil has been changed to Section L.2.d. The revised Section L is located in Attachment F.

**19. 62-701.500(2)(f). Revisions to Section L.2.f. are requested to describe the procedures for the daily disposal of both loose waste and baled waste at one or two working faces.**

**Response:** The section for procedures for daily disposal of both loose and baled waste has been changed to Section L.2.g. The revised Section L is located in Attachment F.

**20. 62-701.500(2)(j). Revision to Section L.2.j. is requested to include a procedures for inspecting the overfill protection system for each tank.**

**Response:** As part of the Leachate Management Program, Hardee County personnel monitor the amount of liquid entering the tanks at the control panel. Routine inspections of the overfill protection system for each tank are included in Section L.2.k. The revised Section L is contained in Attachment F.

**21. 62-701.500(6). Revisions to Section L.6 are requested to describe a loose waste disposal load checking program and procedures for managing all unacceptable waste and special wastes.**



**Response:** The section for the disposal load checking program is described in Section L.6. Procedures for managing all unacceptable waste and specials wastes are described in Section L.2.d. The revised Section L is located in Attachment F.

**22. 62-701.500(7)(a). Revisions to Section L.7.a. are requested for the following items:**

- a) to describe a lift of bales not more than three high;**

**Response:** Changes have been made to Section L.7.a. The revised Section L is contained in Attachment F.

- b) to provide a figure for the bale layout;**

**Response:** Changes have been made to Section L.7.a. The revised Section L is contained in Attachment F.

- c) to describe compaction procedures for loose waste.**

**Response:** Changes have been made to Section L.7.a. The revised Section L is contained in Attachment F.

**23. 62-701.500(7)(c). Revision to Section L.7.d. are requested for the following items:**

- a) to describe the typical minimum top slope to drain;**

**Response:** Changes to Section L.7.c and L.7.g have been made to describe the minimum slopes for drainage. References to slopes have been removed from Section L.7.d. The revised Section L is contained in Attachment F.

- b) to describe a lift of bales not more than three high;**

**Response:** Changes have been made to describe bale heights has been made to Section L.7.d. The revised Section L is contained in Attachment F.

- c) to describe loose waste added to achieve the designed slopes.**

**Response:** Changes have been made to describe loose waste has been made to Section L.7.d. The revised Section L is contained in Attachment F.

**24. 62-701.500(7)(d). Revisions to Section L.7.d. are requested to describe a berm around the working face to contain leachate, and one or two working faces.**

**Response:** Changes have been made to describe berms around the working face has been made to Section L.7.d. The revised Section L is contained in Attachment F.

25. **62-701.500(7)(e) and (f). Revisions to Sections L.7.e. and L.7.f. are requested to describe the initial cover as “6-inches of compacted cover material”, and to describe all other proposed initial cover materials.**

**Response:** Changes have been made to describe compacted cover soil and other proposed cover materials has been made to Section L.7.e and L.7.f. The revised Section L is contained in Attachment F.

26. **62-701.500(7)(g). Revisions to Section L.7.g. are requested to describe the following items:**

- a) **to describe the typical minimum top slope to drain;**

**Response:** Changes have been made to describe the minimum slopes for drainage has been made to Section L.7.g. The revised Section L is contained in Attachment F.

- b) **to describe the construction of a berm around the working face to contain leachate;**

**Response:** Changes have been made to describe placement of the berm around the working face to contain leachate has been made to Section L.7.g. The revised Section L is contained in Attachment F.

- c) **to explain that soil with any waste cannot be used as intermediate cover, or anywhere outside of the bermed working face disposal area.**

**Response:** Soils containing any waste cannot be used as intermediate cover and must be placed within the lined and bermed working face to prevent stormwater runoff contamination. Changes have been made to been made to Section L.7.g. Section L is located in Attachment F.

27. **62-701.500(7)(h). Revisions to Section L.7.h. are requested to describe a timeframe for applying for a closure permit and for completing closure, and to describe the areas that are already completely filled to match the proposed cross-sections.**

**Response:** Changes have been made to describe the time frame for applying for closure

permits and completing closure has been made to Section L.7.h. The revised Section L is contained in Attachment F.

28. **62-701.500(7)(j). Revisions to Section L.7.h. are requested to describe the removal of litter from outside of the working face within 24 hours.**

**Response:** Changes have been made to describe typical minimum slopes for drainage has been made to Section L.7.j. The revised Section L is contained in Attachment F.

29. **62-701.500(8). a) Revisions to Section L.8.a. are requested to describe the landfill performance criteria to demonstrate that all leachate is removed from the landfill. b) Revisions to Section L.8.b. are requested to describe the design of the existing leachate collection system and the method of filtering the contained surface leachate prior to pumping it to a manhole. c) Revisions to Section L.8.B. are requested to describe the tank and truck loading procedures and tank inspections.**

**Response:**

- a) Refer to Attachment F for revisions to the Operations Plan. Revision include a discussion on how to use the interior piezometers to estimate leachate levels within the disposal area.
- b) Surface water runoff that comes in contact with solid waste is considered leachate. Surface water flows to low areas, which allows for percolation. If this low area is needed for operational purposes, the liquid is pumped to the nearest manhole to minimize pumping the surface debris into the manhole. The County uses a screened suction intake or will place hay bales or silt fence around the suction intake. Changes have been made to Section L.8.b., located in Attachment F.
- c) Refer to Attachment F for revisions to the Operations Plan.
30. **62-701.500(9) and 62-701.530. Revisions to Section L.9. are requested for the following items:**
- a) **to describe precautions to be taken when entering or, servicing areas where dangerous gases may have accumulated;**

**Response:** Changes have been made to Section L.9 for procedures for entering areas where gases may have accumulated. The revised Section L is in Attachment F.

**b) to describe the gas monitoring location within buildings;**

**Response:** Gas monitoring will be conducted at foundation penetrations, enclosed spaces such as ground-level cabinets, or electrical control boxes, outlets and openings to conduits. Changes have been made to Section L.9, located in Attachment F.

**c) to reference the gas monitoring report form;**

**Response:** The LFG Monitoring Form is located in the revised Section L contained in Attachment F.

**d) to provide a detail for the construction of the gas probes;**

**Response:** The Department has previously revised and approved the construction of the gas probes at Hardee County. Please refer to the Post, Buckley, Schuh, & Jernigan drawings dated June 1997, which is on file at the Department, for a detail of the gas probes.

**e) to describe the gas monitoring sampling procedures;**

**Response:** Changes have been made to Section L.9 of the Operations Plan contained in Attachment F. The LFG is monitored in accordance with Rule 62-701.530, F.A.C. The permit requires that LFG be monitored quarterly and all results submitted to the Department. LFG is monitored with the following procedure:

- (i) Calibrate the field instrument, or check the calibration per the instrument's factory settings.
- (ii) Monitor probes (GP-1 through GP-11) and on-site structures, which include the maintenance building, materials recovery facility, scalehouse, and animal control kennel for methane per Rule 62-701.530(2), F.A.C.
- (iii) Record data on the LFG Monitoring Form, located in Appendix P of the Operations Plan.

**f) to describe the type of gas monitoring meter.**

**Response:** Changes have been made to Section L.9 of the Operations Plan contained in Attachment F.

Mr. Kim Ford, P.E.  
December 30, 2003  
Page 12

31. **62-701.500(10). Revisions to Section L.10. are requested a) to describe the entire stormwater system design and operation, and b) to provide references for all record drawings for the entire stormwater management system. Documents on file with the Department may be referenced rather than resubmitted.**

**Response:** Changes have been made to Section L.10 of the Operations Plan contained in Attachment F.

- a) Changes have been made to Section L.10 of the Operations Plan contained in Attachment F.
- b) The stormwater management system has been previously reviewed and approved by FDEP. In the past consecutive permitting processes, FDEP has approved the stormwater management system at Hardee County Landfill. SCS previously submitted the Wade Trim drawing set, which appears to coincide with the existing stormwater management system at Hardee County Landfill.

32. **62-701.500(11)(f). Revisions to Section L.11.f. are requested to describe the removal of litter from outside of the working face within 24 hours.**

**Response:** Changes have been made to Section L.11.f., located in Attachment F, to reflect Rule 62-701.500(7)(i), F.A.C.

We believe that, with this submittal in hand, the FDEP should now be able to draft the Operation Permit renewal and the Notice of Intent to issue this permit. The landfill expansion schedule contained in Attachment B is contingent on the approval of this Operation Permit renewal and the associated Operations Plans, so time is of the essence.

Please call with any questions.

Very truly yours,



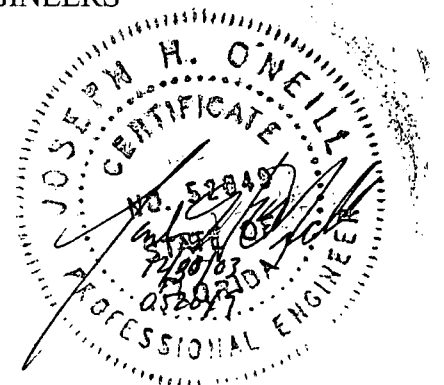
Joseph H. O'Neill, P.E.  
Project Manager  
SCS ENGINEERS



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

cc. Janice Williamson, Hardee County

Attachments



**SECTION D**  
**PROHIBITIONS**

**D.1 SITING**

The landfill disposal area remains the same as previously permitted. No additional siting or changes in the limits of the previously permitted disposal area is requested at this time.

Per Rule 62-701.300(2)(b) – No waste shall be stored or disposed of by being placed within 500 feet of an existing or approved potable water well unless storage or disposal takes place at a facility for which a complete permit application was filed or which was originally permitted before the potable water well was in existence.

The water well located immediately south of the maintenance building, refer to Sheet 3 of the Operations Drawings, was installed in 1983 (refer to SWFWMD Well Construction Permit No. 384468-20) and was included as part of the original construction drawings for the waste disposal area for the Facility. Therefore the waste disposal area is within 500 feet of the existing well; however, the well was part of the original facility permit. Currently, the water well is used for fire protection and dust control.

**D.2 EXEMPTIONS**

There are five general exemptions contained in Rules 62-701.300(12) through (16), FAC.

Paragraph (12) applies to yard trash.

Per Rule 62-701.300(12), the Yard Trash Processing Area, as shown on Sheet 3 of the Operations Drawings, is;

- 100 feet from an off-site potable water well.
  - a. There are no known potable water wells within 100 feet of the processing area.
- 50 feet from a water body.
  - b. The processing area is separated from the wetland limits by a 50 foot offset and a 20 foot perimeter road.
- 200 feet from a well serving a community water supply.
  - c. There are no community water supply wells within 200 feet of the processing area.

The facility is therefore in compliance with Rule 62-701.300(12).

Paragraph (13) applies to tanks and offsets from wells.

The water well, located immediately south of the maintenance building, only provides water to the four water hydrants located on the eastside of the landfill. The water is used for fire protection and dust control.

The following offsets are applicable for the permit application;

- a) Tanks are to be offset 500 from community water systems.

Per the following FDEP drinking water definitions;

- Community water systems – means a public water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.
- Non-Transient Non-Community water system – means a public water system that is not a community water system and that regularly serves at least 25 of the same persons over 6 months per year.

The water well, located immediately south of the maintenance building, does not serve employees or personnel at the facility therefore the facility is in compliance with Rule 62-701.300(12),

- b) Tanks are to be offset 100 feet from other potable wells.

The primary containment tanks on the leachate storage tanks are located 100 feet to the west of the well located immediately south of the maintenance building. The tanks were permitted and constructed after the installation of the well (well installation occurred in 1983, refer to SWFWMD Well Construction Permit No. 384468-20). The well was identified on the PBS&J Drawings, specifically Sheet C-2, dated April 1998. The PBS&J Drawing were for the construction of the tanks.

The well is only used for supplying water to the four water hydrants located on the eastside of the landfill.

The facility is therefore in compliance with Rule 62-701.300(13).

Paragraph (14) applies to waste stored indoors.

This exemption does not apply to this permit application. Waste is not stored indoors.

Paragraph (15) applies to storage in vehicles.

This exemption does not apply to this permit. The County does not store waste in vehicles.

Paragraph (16) relates to existing facilities.

The landfill was permitted prior to May 27, 2001, and remains subject to the prohibitions that were in effect at the time the construction permit was issued.

### **D.3 BURNING**

The County does not burn waste at the landfill. The County takes active steps to prevent the burning of waste, including load inspections and stockpiling cover soil to smother any fire that might break out in the in-place waste.

### **D.4 HAZARDOUS WASTE**

Hazardous waste is not accepted for disposal in the Class I landfill.

### **D.5 PCB DISPOSAL**

PCB's are not accepted for disposal in the Class I landfill.

### **D.6 BIOMEDICAL WASTE**

Biomedical wastes are not accepted for disposal within the Class I landfill. The Hardee County Landfill has a Household Sharps Collection Program (permitted through the Florida Department of Health; Permit No. 25-64-00334), that allows citizens to deliver their biomedical waste products (needles) in approved sharps containers to the landfill. The sharps containers are collected and stored in a locked room at the Animal Control Facility located at the landfill. The sharps containers are then transported, offsite, to the Hardee County Fire and Rescue Department where a private waste hauler disposes of the waste in an approved facility.

### **D.7 CLASS I SURFACE WATERS**

There are no Class I surface waters within 3000 feet of the landfill.

### **D.8 SPECIAL WASTE**

Special wastes include lead-acid batteries, used oil, yard trash, white goods, and whole waste tires. These wastes are not accepted for disposal in the Class I landfill.

### **D.9 WASTE-TO-ENERGY FACILITIES RESTRICTIONS**

These restrictions do not apply to this project.

### **D.10 LIQUIDS**

Bulk liquids and noncontainerized liquids are not accepted for disposal in the Class I landfill.



## **D.11 USED OIL**

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

Used oil, generated by residents only, is collected and stored in containers in the Household Hazardous Waste Center. The used oil is collected by a private waste disposal service for proper offsite recycling.

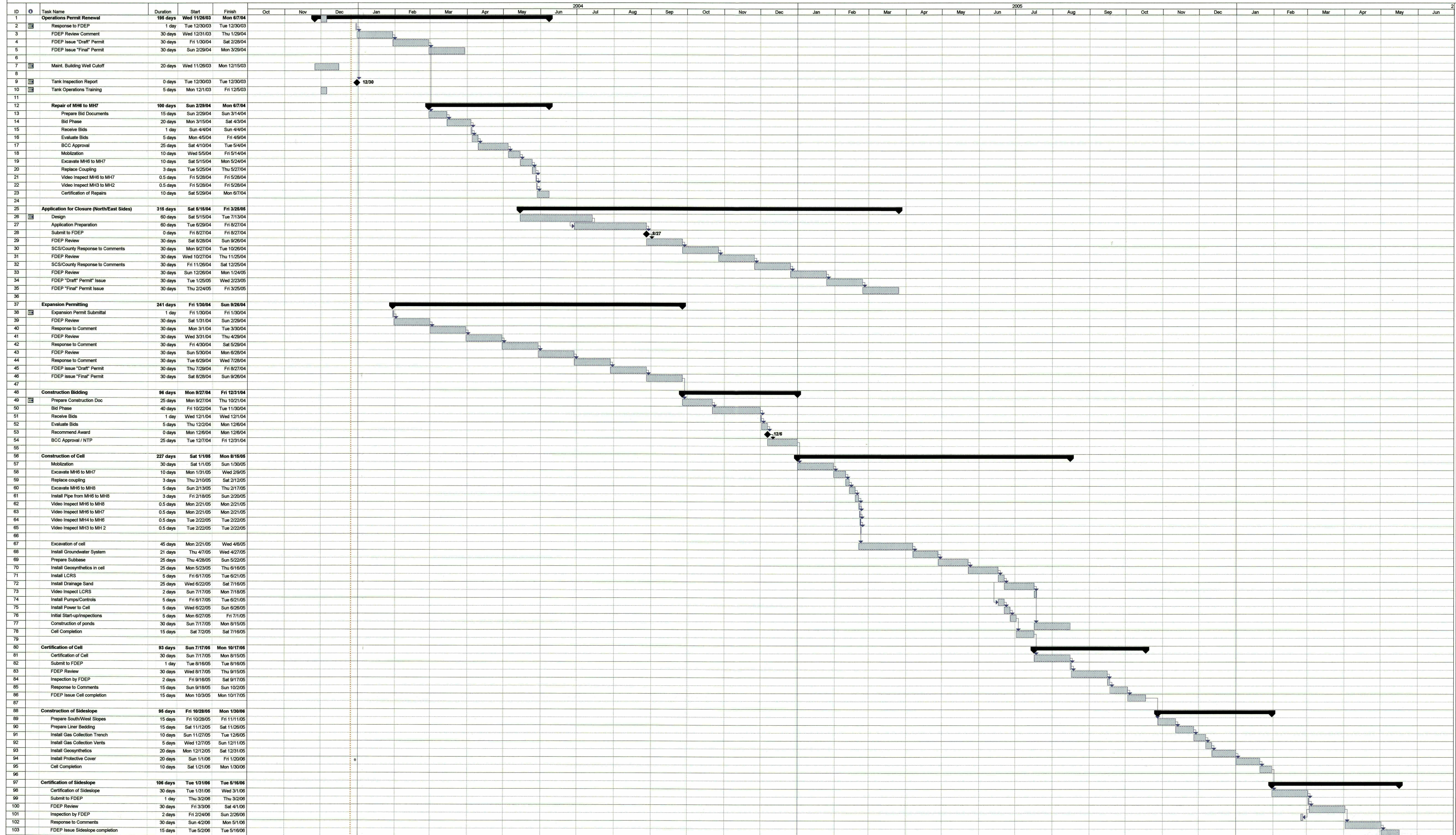
**ATTACHMENT B**

**SCHEDULE**

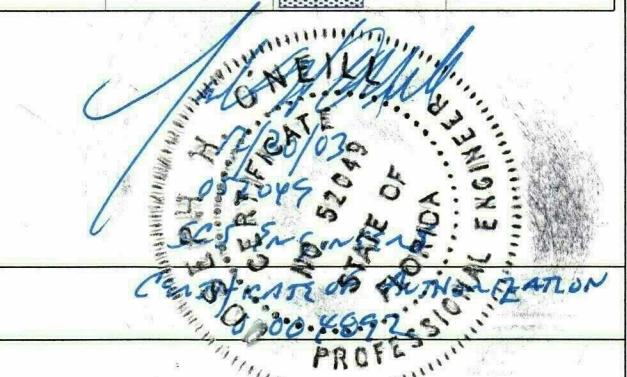


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## HARDEE COUNTY LANDFILL PROJECTED PERMITTING AND CONSTRUCTION SCHEDULE



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION  
 DEC 30 2003  
 SOUTHWEST DISTRICT TAMPA





**ATTACHMENT C**  
**OPERATIONS DRAWINGS**  
(SEE ATTACHED 24"x36 Drawings)

FLORIDA DEPARTMENT OF  
ENVIRONMENTAL PROTECTION

DEC 30 2003

SOUTHWEST DISTRICT  
TAMPA

**ATTACHMENT D**

**LEACHATE COLLECTION & REMOVAL SYSTEM REPORT**

**FLORIDA DEPARTMENT OF  
ENVIRONMENTAL PROTECTION**

**DEC 30 2003**

**SOUTHWEST DISTRICT  
TAMPA**

**SCS ENGINEERS**

December 30, 2003  
File No. 09199033.08

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

Subject: Leachate Collection and Removal System Inspection Report  
Renewal of Operations Permit No. 38414-002-SO  
Hardee County, Florida

FLORIDA DEPARTMENT OF  
ENVIRONMENTAL PROTECTION

DEC 30 2003

SOUTHWEST DISTRICT  
TAMPA

Dear Mr. Ford,

On behalf of Hardee County (COUNTY), SCS Engineers (SCS) is pleased to submit the following Leachate Collection and Removal System (LCRS) inspection report for the existing LCRS for the Hardee County Landfill located in the Hardee County, Florida. The following inspection report is a summary of the pipeline jetcleaning and video inspections conducted by Florida JetClean, Inc. (JETCLEAN), information collected from previous drawings submitted on the LCRS, and on-site observations conducted by SCS.

### **BACKGROUND INFORMATION**

The original sideslope LCRS, comprising of Manholes No. 1 through No. 6 and the associated piping, was designed by Briley, Wild and Associates, Incorporated in 1987. Construction was completed in July 1988. The expansion of the LCRS, comprising of Manhole No. 6 through No. 9 and the associated piping, was design by Post, Buckley, Schuh and Jernigan, Incorporated (PBS&J) in December of 1998. Construction was completed in January 2000. Please refer to the Record Drawings previously submitted to the FDEP.

### **REGULATORY REQUIREMENTS**

Per Rule 62-701.400(4)(a) F.A.C., the following requirements for the LCRS were to be designed (by others) into the LCRS. SCS has reviewed the available information and drawings on the LCRS and presents the following information and conclusions:

- 1) Chemically Resistant Piping: The LCRS system piping comprises of an eight-inch diameter corrugated polyethylene pipe. Polyethylene piping is compatible with typical municipal solid waste leachate.



- 2) **Mechanical Properties:** The mechanical properties of the pipe were addressed in previously submitted and approved applications to the Department. The inspection and video report conducted by JETCLEAN, contained in Attachment A, demonstrates that the leachate collection system can withstand the pressures exerted by waste, cover materials, and landfill equipment since none of the pipelines were reported to be collapsed.
- 3) **Granular Pack to Prevent Clogging:** According to drawings prepared by Briley Wild and Associates and PBS&J, the designs included a granular pack that surrounds the leachate collection pipe.
- 4) **Method for Testing and Unclogging Pipes:** All the pipelines were pressure jetcleaned and video taped by JETCLEAN, therefore the existing pipeline system meets the regulatory requirements. Should the pipelines become clogged, the COUNTY will contract with a pressure jetcleaning service to remove the debris. The leachate can bypass the section of clogged pipeline by traveling in the granular pack the surrounds all the pipelines.

## **LCRS INSPECTION AND INTERPRETATIONS**

The manholes, specifically Manhole No. 8 (the lift station) and No. 9, were mistakenly mislabeled in the field prior to the arrival of JETCLEAN. The confusion was made during construction (January of 2000) when a manhole was moved. Manhole No. 9 was mistakenly called Manhole No. 8 on the JETCLEAN videos. Manhole No. 8 was referred to as the lift station. See Figure 1, Note 1 and the description notes for Manholes 8 and 9 for the correct manhole numbering and corrections noted for the JETCLEAN report. Refer to Attachment A for a copy of the report submitted by JETCLEAN.

Based upon a review of the report and video tapes submitted by JETCLEAN, SCS has made the following interpretations;

Based upon a review of the video the following conclusions and recommendations are made for each item noted in the JETCLEAN report:

### Manhole 3 toward Manhole 2 – Possible separation at 7 feet

**Conclusion:** The pipe is approximately 7 to 8 feet below ground surface with no visible tree or stumps in the area, therefore roots are unlikely. It was concluded that this may be mold or miscellaneous debris or roots from initial installation.

**Recommendation:** The pipe system was design and installed by Briley Wild and Associates in 1988. No clogging was evident during the video conducted by JetClean in 2003, so the system is function adequately.

Manhole 3 toward Manhole 2 – Possible separation at 237 feet

Conclusion: The pipe may be separated along one side however it does not appear to be completely separated especially along the flowline. The camera was able to traverse through the pipe in this area. The size of the separation (if one is present) cannot be accurately estimated since an orange colored material covers the area. The orange colored material along the separation is probably iron mold which is consistent with slow seepage in high iron soils.

Recommendation: The pipe system was design and installed by Briley Wild and Associates in 1988. No clogging was evident during the video conducted by JetClean in 2003, so the system is function adequately.

Manhole 2 toward Manhole 3 – Possible separation at 152 feet

Conclusion: Same as described in Manhole 3 to 2 (Separation at 237 feet).

Recommendation: Same as described in Manhole 3 to 2 (Separation at 237 feet).

Manhole 7 toward Lift Station – Pipe “Egg-Shaped”

Conclusion: During construction, the pipeline was being video taped when the camera became stuck in the pipe. The pipeline was excavated to retrieve the camera. During the re-construction of the pipeline, the pipe may have been slightly misshaped as a new snap coupling was applied. (Refer the PBS&J Construction Certification Documents (dated Jul 2000) – Volume 1 of 2 Section 1.24).

Recommendation: The pipe flowline is continuous and no clogs were reported in the pipeline during the 2003 videotaping. The pipe is buried below approximately 12 to 13 feet of soil, and heavy truck traffic and landfill equipment has traversed the area since the pipe was installed in January of 2000. If the pipe had sustained significant structural damage, then failure would have probably occurred during backfill and compaction of the pipe trench. The recommendation is to leave the pipe in-place since a video camera can pass through the opening.

Manhole 7 toward Manhole 6 – Pipe separated

Conclusion: During construction, the pipeline was video taped and a restriction was noted. PSB&J approved the pipeline (Refer to Field Notes dated January 21, 2000 in PBS&J Construction Certification Documents Volume 1 of 2). It does appear that the pipe is separated. No clogs were reported in the 2003 video taping of the pipeline. Leachate is flowing from Manhole 6 to Manhole 7.



Recommendation: No clogs were reported in the pipeline during the 2003 videotaping. The pipe is buried below approximately 12 to 13 feet of soil, and heavy truck traffic and landfill equipment has traversed the area since the pipe was installed in January of 2000. Leachate can still flow within the pipe. At this time the recommendation is to leave the pipe in-place, since the leachate collection system is functioning adequately (conveying leachate and no reports of clogging) at the time. The County has planned to repair this section of the pipe in conjunction with future expansion plans.

As the camera travels along the length of the pipeline, several dips in the pipeline are evident. Some dips in the pipeline have standing water that submerges the camera as it passes through these areas. The camera then travels out of these areas and into the "dry" pipe. These dips were probably caused during construction of the pipeline. The corrugated plastic pipe used for construction is general installed in long lengths and is very flexible. A review of the original design slopes, 0.20 percent generally, and the flexibility of the pipe probably resulted in the construction installation dips that are indicated in the video. Since the pressure jetcleaning nozzle and the camera were able to pass through these locations, the pipe still remains structurally intact. The standing water is limited to the dip in the pipes and is not indicative of a submerged LCRS since the camera travels out of the dip and into "dry" pipeline and manholes.

## **OVERALL CONCLUSIONS**

Based upon the information contained or referenced in this report, the existing leachate collection and removal system appears to be function adequately. The majority of the system has been in operation since 1988, the only exception are the pipelines from Manhole No. 6, 7, 8, and 9 which have been in operation since January of 2000. No clogs or pipe collapses have been observed in the pipelines which indicates that the system is conveying the leachate toward the lift station. The small dips in the leachate collection lines, where the JETCLEAN video camera is submerged in the pipeline, are probably due to the very flexible nature of the pipe used and not settlement or structural failures in the system.

The main area of concern is the pipe separation note in the JETCLEAN report from Manhole 6 to Manhole 7. This separation probably occurred during construction. A possible separation was noted from Manhole No. 3 to Manhole No. 2, however a review of the videotape did not clearly indicate any separation or pipe failure.

The pipeline from Manhole No. 6 to No. 7, and the separation, has been in operation since construction in January of 2000. Although not an ideal situation, no collapse or clogging of the pipeline has been reported to date. Leachate has been conveyed through the pipeline into Manhole No. 7 and eventually into the lift station. This is evident since no back-up of leachate has been observed in the upstream manholes, specifically Manholes No. 4 and 5. However, the

Mr. Kim Ford, P.E.  
December 30, 2003  
Page 5

COUNTY and SCS are recommending that this separation in the pipeline be repaired to ensure long-term integrity of the system.

## **RECOMMENDATIONS**

Due to the scope of the work to conduct the repairs, the COUNTY is recommending that the repair work be performed by a contractor with more equipment and personnel than the COUNTY currently has available. Thus the following schedules were developed to accomplish the repair work while attempting to minimize contracting and bidding cost to the COUNTY.

### **Option 1 - Repair to be conducted this year**

The repair work will be completed on the pipeline separation prior to any placement of waste over the pipeline. The repair work on the pipeline will commence should Option 2 be canceled or delayed beyond January 2005. The repair work will include excavating the pipeline, removing the gravel pack around the separation, installing a new section of pipe, and video taping the repaired pipeline as well as verifying the area noted on the JETCLEAN video tape from Manhole No. 2 to 3.

### **Option 2 - Repairs to be conducted as part of the overall construction of the proposed expansion area.**


As part of the upcoming expansion work, the COUNTY is recommending that the repair work on the pipe separation between Manhole No. 6 and 7 be conducted during the construction of the proposed expansion area. As part of the expansion work, an additional LCRS pipeline will be installed that will link Manhole No. 6 directly Manhole No. 8 (lift station). The pipe separation between Manhole No. 6 and No. 7 will also be repaired. Upon completion of the repairs and installation of the additional LCRS pipeline, all the leachate collection lines (all existing and new pipelines) will be video tapped.

The COUNTY and SCS are recommending that Option 2 be implemented due to the cost savings of only having to bid and mobilize one contractor for completing the repairs on the pipeline and conducting the expansion work. Should the expansion area work be cancelled or delayed beyond January 2005, then the COUNTY remains committed to repairing the pipeline separation and video taping the repairs. A separate contract will be awarded to complete the work.


Mr. Kim Ford, P.E.  
December 30, 2003  
Page 6

Please call with any questions.

Very truly yours,



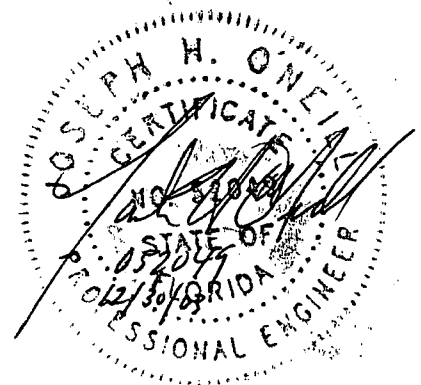
Joseph H. O'Neill, P.E.  
Project Manager



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

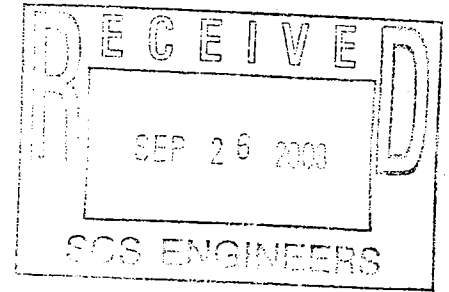
cc. Janice Williamson, Hardee County

Attachments



**ATTACHMENT A**

**LCRS Inspection Report by Florida JetClean, Incorporated**



# FLORIDA JETCLEAN INC.

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## HIGH PRESSURE WATER JETTING-PIPELINE TV INSPECTION-PIPE LOCATING

---

37 Windward Island  
Clearwater Fl 33767  
www.floridajetclean.com

TEL : 727-462-5516  
800-226-8013  
FAX : 727-442-2222

### FAX/MEMORANDUM

DATE : 9/25/2003  
TO : Joe McNeill  
FROM : Graeme Towns  
SUBJECT : Hardee County Landfill

Thank you for the copy of the tape received for review in connection with footage discrepancies.

Our findings are as follows.

1. The major difference is Item # 7. on the Video Log (MH 7 to Lift Station) and we find that an incorrect footage has been recorded on the report. This was a result of reading the final tape footage after recovering the camera from a fall into the lift station (with cable length adjustments to retrieve the camera). Examination of the tape will show a correct recorded footage of 613' and not the 562' shown in the report. This equates to a 9' difference and is roughly in line with the other footage variations.
2. All other line segments as shown extend from manhole to manhole as recorded and seen on screen.

Revised corrected reports are enclosed and we regret the confusion.

Regards,

A handwritten signature in cursive script that reads "Graeme Towns".

# FLORIDA JETCLEAN INC.

---

HIGH PRESSURE WATER JETTING  
VIDEO PIPELINE INSPECTION  
POUGH DIG POINT REPAIRS

37 WINDWARD ISLAND  
CLEARWATER, FL 33767-2322  
TEL: 800-226-8013 FAX: 727-442-2222


## HARDEE COUNTY LANDFILL LEACHATE COLLECTION SYSTEM MAINTENANCE - 2003 REPORT

All pipes jetcleaned fully without obstruction and video inspected fully from manhole to manhole.

While sections of the pipe were submerged during inspection, this is common in leachate piping and as long as the camera passes through the submerged areas, it is reasonable to assume that pipe integrity exists.

The Video Log records line segment details.

FLORIDA JETCLEAN INC.  
37 WINDWARD ISLAND  
CLEARWATER FL 33767-2322  
TEL 800-226-8013

  
9/25/03

# FLORIDA JETCLEAN INC.

---

HIGH PRESSURE WATER JETTING  
VIDEO PIPELINE INSPECTION  
NO DIG POINT REPAIRS

37 WINDWARD ISLAND  
CLEARWATER, FL 33767-2322  
TEL: 800-226-8013 FAX: 727-442-2222

## HARDEE COUNTY LANDFILL LEACHATE COLLECTION SYSTEM MAINTENANCE - 2003 JETCLEANING LOG

### 4/14/03 - 8" CORRUGATED HDPE

1. Manhole 3 toward Manhole 4	420'
2. Manhole 3 toward Manhole 2	389'
3. Manhole 4 toward Manhole 5	389'
4. Manhole 2 toward Manhole 1	445'
5. Manhole 1 toward Manhole 8	114'
6. Manhole 8 toward lift station	94'
7. Manhole 7 toward lift station	613'
8. Manhole 7 toward Manhole 6	146'
9. Manhole 6 toward Manhole 5	392'

# FLORIDA JETCLEAN INC.

HIGH PRESSURE WATER JETTING  
VIDEO PIPELINE INSPECTION  
POUGH POINT REPAIRS

37 WINDWARD ISLAND  
CLEARWATER, FL 33767-2322  
TEL: 800-226-8013 FAX: 727-442-2222

## HARDEE COUNTY LANDFILL LEACHATE COLLECTION SYSTEM MAINTENANCE - 2003 VIDEO LOG

4/14/03 - 8" CORREGATED HDPE

### TAPE 1

1. Manhole 3 toward Manhole 4      420'      Submerged at mouth until 38'. 49' submerged until 58'. 135' submerged until 165'. 200' submerged until 205'. 326' submerged until 347'. 411' submerged until 418'. 420' Manhole 4.
  
2. Manhole 3 toward Manhole 2      237'      Submerged at mouth of pipe until 5'. 7' possible separation and roots. 30' submerged until 66'. 82' submerged until 90'. 117' submerged until 125'. 160' submerged until 162'. 169' submerged until 181'. 188' submerged until 192'. 201' submerged until 210'. 220' submerged until 230'. 237' possible separation. Will do reverse set-up. Video also in reverse.
  
3. Manhole 2 toward Manhole 3      152'      73' submerged until 80'. 85' submerged until 89'. 97' submerged until 106'. 112' submerged until 136'. 152' possible separation. See # 2 for reverse set-up. Video also in reverse.
  
4. Manhole 4 toward Manhole 5      388'      144' submerged until 152'. 168' submerged until 170'. 182' leachate on lens. No visual until Manhole 5 at 388'. Video in reverse. Clear picture.

4/16/03

5. Manhole 2 toward Manhole 1      445'      All video in reverse. 445' submerged until 30'. Brief picture at 55', 48' and 40'. 8' submerged until 3'.



6. Manhole 1 toward Manhole 8	114'	114' Manhole 8.
7. Manhole 8 toward lift station	94'	94' lift station
8. Manhole 7 toward lift station	613'	4' submerged until 20'. 60' submerged until 76'. 239' pipe egg-shaped. 268' submerged until 400'. 403' submerged until 417'. 424' submerged until 434'. 535' submerged until 537'. 562' lift station. Also in reverse. ✓
9. Manhole 7 toward Manhole 6	132'	132' pipe separated. Will do reverse set-up. ✓
10. Manhole 6 toward Manhole 7	18'	14' submerged until 16'. 18' pipe separated. See # 9.
11. Manhole 6 toward Manhole 5	392'	Submerged at mouth of pipe until 20'. 28' submerged until 38'. 48' submerged until 58'. 64' submerged until 103'. 129' submerged until 136'. 144' submerged until 168'. 175' submerged until 180'. 185' submerged until 204'. 215' submerged until 222'. 224' submerged until 245'. 260' submerged until 263'. 264' submerged until 323'. 324' submerged until 339'. Continue on Tape 2.

3

**TAPE 2**

11. Manhole 6 toward Manhole 5	392'	All video in reverse from Manhole 5.
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# FLORIDA JETCLEAN INC.

HIGH PRESSURE WATER JETTING  
VIDEO PIPELINE INSPECTION  
AND DIG POINT REPAIRS

37 WINDWARD ISLAND  
CLEARWATER, FL 33767-2322  
TEL: 800-226-8013 FAX: 727-442-2222

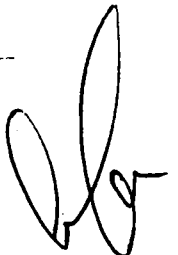
## HARDEE COUNTY LANDFILL LEACHATE COLLECTION SYSTEM MAINTENANCE - 2003 REPORT

All pipes jetcleaned fully without obstruction and video inspected fully from manhole to manhole.

While sections of the pipe were submerged during inspection, this is common in leachate piping and as long as the camera passes through the submerged areas, it is reasonable to assume that pipe integrity exists.

The Video Log records line segment details.

FLORIDA JETCLEAN INC.  
37 WINDWARD ISLAND  
CLEARWATER FL 33767-2322  
TEL 800-226-8013



9/25/03

# FLORIDA JETCLEAN INC.

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HIGH PRESSURE WATER JETTING  
VIDEO PIPELINE INSPECTION  
AND DIG POINT REPAIRS

37 WINDWARD ISLAND  
CLEARWATER, FL 33767-2322  
TEL: 800-226-8013 FAX: 727-442-2222

## HARDEE COUNTY LANDFILL LEACHATE COLLECTION SYSTEM MAINTENANCE - 2003 JETCLEANING LOG

### 4/14/03 - 8" CORRUGATED HDPE

1. Manhole 3 toward Manhole 4	420'
2. Manhole 3 toward Manhole 2	389'
3. Manhole 4 toward Manhole 5	389'
4. Manhole 2 toward Manhole 1	445'
5. Manhole 1 toward Manhole 8	114'
6. Manhole 8 toward lift station	94'
7. Manhole 7 toward lift station	613'
8. Manhole 7 toward Manhole 6	146'
9. Manhole 6 toward Manhole 5	392'

# FLORIDA JETCLEAN INC.

HIGH PRESSURE WATER JETTING  
VIDEO PIPELINE INSPECTION  
NO DIG POINT REPAIRS

37 WINDWARD ISLAND  
CLEARWATER, FL 33767-2322  
TEL: 800-226-8013 FAX: 727-442-2222

## HARDEE COUNTY LANDFILL LEACHATE COLLECTION SYSTEM MAINTENANCE - 2003 VIDEO LOG

4/14/03 - 8" CORREGATED HDPE

### TAPE 1

- |                               |      |   |
|-------------------------------|------|---|
| 1. Manhole 3 toward Manhole 4 | 420' | Submerged at mouth until 38'. 49' submerged until 58'. 135' submerged until 165'. 200' submerged until 205'. 326' submerged until 347'. 411' submerged until 418'. 420' Manhole 4.  |
| 2. Manhole 3 toward Manhole 2 | 237' | Submerged at mouth of pipe until 5'. 7' possible separation and roots. 30' submerged until 66'. 82' submerged until 90'. 117' submerged until 125'. 160' submerged until 162'. 169' submerged until 181'. 188' submerged until 192'. 201' submerged until 210'. 220' submerged until 230'. 237' possible separation. Will do reverse set-up. Video also in reverse. |
| 3. Manhole 2 toward Manhole 3 | 152' | 73' submerged until 80'. 85' submerged until 89'. 97' submerged until 106'. 112' submerged until 136'. 152' possible separation. See # 2 for reverse set-up. Video also in reverse.   |
| 4. Manhole 4 toward Manhole 5 | 388' | 144' submerged until 152'. 168' submerged until 170'. 182' leachate on lens. No visual until Manhole 5 at 388'. Video in reverse. Clear picture.  |

4/16/03

- |                               |      |   |
|-------------------------------|------|---|
| 5. Manhole 2 toward Manhole 1 | 445' | All video in reverse. 445' submerged until 30'. Brief picture at 55', 48' and 40'. 8' submerged until 3'. |
|-------------------------------|------|---|

6. Manhole 1 toward Manhole 8	114'	114' Manhole 8.
7. Manhole 8 toward lift station	94'	94' lift station
8. Manhole 7 toward lift station	613'	4' submerged until 20'. 60' submerged until 76'. 239' pipe egg-shaped. 268' submerged until 400'. 403' submerged until 417'. 424' submerged until 434'. 535' submerged until 537'. 562' lift station. Also in reverse.
9. Manhole 7 toward Manhole 6	132'	132' pipe separated. Will do reverse set-up.
10. Manhole 6 toward Manhole 7	18'	14' submerged until 16'. 18' pipe separated. See # 9.
11. Manhole 6 toward Manhole 5	392'	Submerged at mouth of pipe until 20'. 28' submerged until 38'. 48' submerged until 58'. 64' submerged until 103'. 129' submerged until 136'. 144' submerged until 168'. 175' submerged until 180'. 185' submerged until 204'. 215' submerged until 222'. 224' submerged until 245'. 260' submerged until 263'. 264' submerged until 323'. 324' submerged until 339'. Continue on Tape 2.

3

**TAPE 2**

11. Manhole 6 toward Manhole 5	392'	All video in reverse from Manhole 5.
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# FLORIDA JETCLEAN INC.

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HIGH PRESSURE WATER JETTING  
VIDEO PIPELINE INSPECTION  
POUGHKEEPSA POINT REPAIRS

37 WINDWARD ISLAND  
CLEARWATER, FL 33767-2322  
TEL: 800-226-8013 FAX: 727-442-2222


## HARDEE COUNTY LANDFILL LEACHATE COLLECTION SYSTEM MAINTENANCE - 2003 REPORT

All pipes jetcleaned fully without obstruction and video inspected fully from manhole to manhole.

While sections of the pipe were submerged during inspection, this is common in leachate piping and as long as the camera passes through the submerged areas, it is reasonable to assume that pipe integrity exists.

The Video Log records line segment details.

FLORIDA JETCLEAN INC.  
37 WINDWARD ISLAND  
CLEARWATER FL 33767-2322  
TEL 800-226-8013

  
9/25/03

# FLORIDA JETCLEAN INC.

---

HIGH PRESSURE WATER JETTING  
VIDEO PIPELINE INSPECTION  
MUD DIG POINT REPAIRS

37 WINDWARD ISLAND  
CLEARWATER, FL 33767-2322  
TEL: 800-226-8013 FAX: 727-442-2222

## HARDEE COUNTY LANDFILL LEACHATE COLLECTION SYSTEM MAINTENANCE - 2003 JETCLEANING LOG

### 4/14/03 - 8" CORRUGATED HDPE

1. Manhole 3 toward Manhole 4	420'
2. Manhole 3 toward Manhole 2	389'
3. Manhole 4 toward Manhole 5	389'
4. Manhole 2 toward Manhole 1	445'
5. Manhole 1 toward Manhole 8	114'
6. Manhole 8 toward lift station	94'
7. Manhole 7 toward lift station	613'
8. Manhole 7 toward Manhole 6	146'
9. Manhole 6 toward Manhole 5	392'



# FLORIDA JETCLEAN INC.

HIGH PRESSURE WATER JETTING  
VIDEO PIPELINE INSPECTION  
NO DIG POINT REPAIRS

37 WINDWARD ISLAND  
CLEARWATER, FL 33767-2322  
TEL: 800-226-8013 FAX: 727-442-2222

## HARDEE COUNTY LANDFILL LEACHATE COLLECTION SYSTEM MAINTENANCE - 2003 VIDEO LOG

### 4/14/03 - 8" CORRUGATED HDPE

#### TAPE 1

- |                               |      |   |
|-------------------------------|------|---|
| 1. Manhole 3 toward Manhole 4 | 420' | Submerged at mouth until 38'. 49' submerged until 58'. 135' submerged until 165'. 200' submerged until 205'. 326' submerged until 347'. 411' submerged until 418'. 420' Manhole 4.  |
| 2. Manhole 3 toward Manhole 2 | 237' | Submerged at mouth of pipe until 5'. 7' possible separation and roots. 30' submerged until 66'. 82' submerged until 90'. 117' submerged until 125'. 160' submerged until 162'. 169' submerged until 181'. 188' submerged until 192'. 201' submerged until 210'. 220' submerged until 230'. 237' possible separation. Will do reverse set-up. Video also in reverse. |
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### 4/16/03

- |                               |      |   |
|-------------------------------|------|---|
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|-------------------------------|------|---|

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3

**TAPE 2**

11. Manhole 6 toward Manhole 5	392'	All video in reverse from Manhole 5.
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**FIGURE 1**  
**DRAWING OF LCRS SYSTEM**

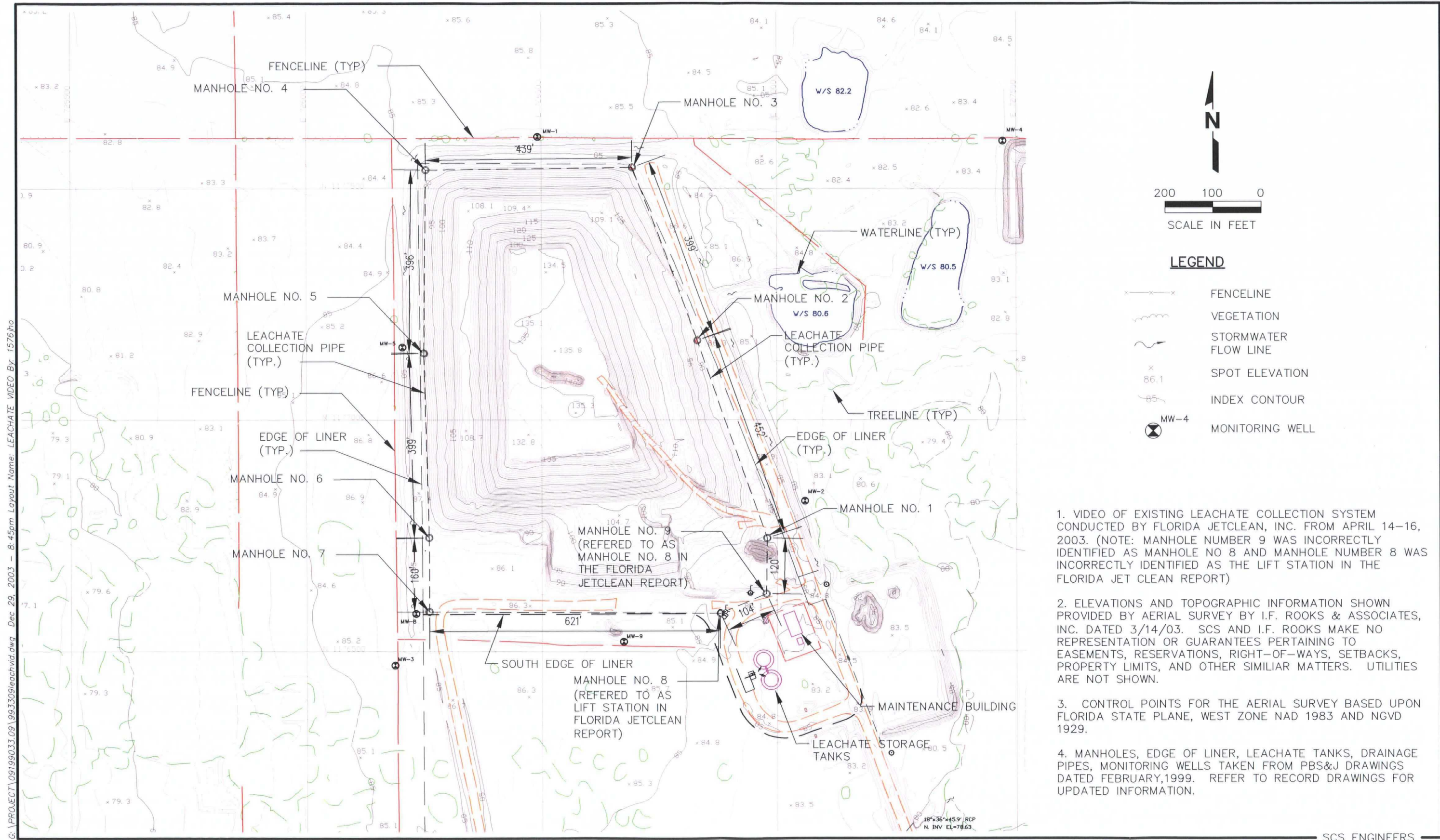


Figure 1. Leachate Collection and Removal System Layout, Hardee County Landfill, Hardee County, Florida.

FLORIDA DEPARTMENT OF  
ENVIRONMENTAL PROTECTION

DEC 30 2003

SOUTHWEST DISTRICT  
TAMPA

**ATTACHMENT E**

**LEACHATE STORAGE TANK INSPECTION REPORT**

## SCS ENGINEERS

December 30, 2003  
File No. 09199033.08

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

FLORIDA DEPARTMENT OF  
ENVIRONMENTAL PROTECTION

DEC 30 2003

SOUTHWEST DISTRICT  
TAMPA

Subject: Leachate Tanks Inspection Report – Tanks No. 1 and No. 2  
Renewal of Operations Permit No. 38414-002-SO  
Hardee County, Florida

Dear Mr. Ford,

On behalf of Hardee County (COUNTY), SCS Engineers (SCS) is pleased to submit the following leachate tank inspection report for Leachate Tanks No. 1 and No. 2 at the Hardee County Landfill located in the Hardee County, Florida. The following inspection report is a summary of inspections conducted by TEAM Consultants, Incorporated (TEAM), maintenance conducted by TEAM, and on-site observations conducted by SCS. The tank inspections conducted by TEAM are included in Attachment A. The report outlined below addresses the regulatory requirements outlined in Rule 62-701.400(6)(c)8 and (c)9, F.A.C. for each leachate storage tank.

### LEACHATE STORAGE TANK NO. 1

The tank design and systems were designed by Post, Buckley, Schuh and Jernigan, Incorporated located in Orlando Florida.

#### Overfill Protection System:

On December 8, 2003, a representative from Milltronics was onsite to instruct COUNTY personnel on the operations and maintenance program for the Milltronics leveling transducers and MultiRanger Control Device. The leveling transducers and the MultiRanger Control Device monitor leachate levels in the tank and control leachate pump and alarm systems. As part of the instruction, the leachate leveling controls, the automatic pump shut-off control and high level alarm system at the leachate pump station, and the low level pump shut-off controls at the truck loading station were checked and are operating correctly.



#### Exterior of the Tank:

TEAM conducted a structural inspection of the tank. Overall the tank was structurally adequate. TEAM noted that some fiberboard was missing from underneath the interior tank ring and some minor corrosion was noted on the tank ring bolts. TEAM conducted ultrasonic reading of the floor for possible corrosion due to water possibly ponding under the tank. According to the manufacturer of the tank (A.O. Smith), the original floor metal thickness was 1/8 inch (0.125 inches). According to TEAM's ultrasonic measurements, the metal thickness on the floor ranged from 0.122 to 0.139 inches. Therefore no corrosion was evident and the metal floor has retained its original thickness.

TEAM noted some minor corrosion on the interior of the fill pipe into the primary tank and some minor corrosion on the overflow weir which discharges into the secondary containment (only used as an emergency back-up system if the overflow protection system is inoperable). Only minor corrosion was noted by TEAM during the inspection and the tanks were reported to be in overall good serviceable condition.

TEAM completed repairs to pipes and overflow weir. As part of daily inspections, the COUNTY will pump out standing water from the secondary containment area. The tank floors and bolts will be monitored for corrosion during subsequent inspections.

#### Interior of the Tank:

TEAM conducted Dry Film Thickness (DFT) measurements on the coating on the interior and exterior of the tanks. The interior and exterior of the secondary containment tank had DFT measurements of from 6 to 9 mils. The exterior of the primary containment tank had DFT measurements of 6 to 9 mils. The interior of the primary containment tank had DFT measurements of 4.5 to 7.5 mils. The interior floor of the primary containment tank had DFT thickness measurements of 4 to 6 mils. TEAM noted that several areas on the interior of the tanks, primarily on the bolted lap joints had minor corrosion. These areas were prepared in accordance with the manufacturer's recommendation and re-coated by TEAM with Themothane 7000 which is equivalent to the original coating Trico Bond 478 Epoxy. Please refer to Attachment B for documentation on epoxy coating equivalency. Refer to Attachment C for documentation from TEAM that the coating have been repaired.

The tanks have been in operations since 1999 and the coatings appear to be adequate for the protecting the underlying metal to date. Only minor corrosion was noted in bolted lap joints, possible due to initial damage to the coatings during construction. The areas have been re-coated and should be inspected during the next tank inspection to insure protection of the structural metal.



Mr. Kim Ford, P.E.  
December 30, 2003  
Page 3

Miscellaneous:

The secondary containment system comprises of a second open top, steel bolted tank. A small electric pump removes rainwater that collects in the secondary containment system. SCS activated the pump and the pump was operable.

Conclusion:

Based upon the inspection reports, maintenance, training, and on-site observation conducted on Leachate Storage Tank No. 1, the tank and equipment appears to be functioning adequately to contain and manage the leachate as originally designed. Refer to Attachment D for a letter from the County stating that repairs have been completed.

**LEACHATE STORAGE TANK NO. 2**

The tank design and systems were designed by Post, Buckley, Schuh and Jernigan, Incorporated located in Orlando Florida.

Overfill Protection System:

On December 8, 2003, a representative from Milltronics was onsite to instruct COUNTY personnel on the operations and maintenance program for the Milltronics leveling transducers and MultiRanger Control Device. The leveling transducers and the MultiRanger Control Device monitor leachate levels in the tank and control leachate pump and alarm systems. As part of the instruction, the leachate leveling controls, the automatic pump shut-off control and high level alarm system at the leachate pump station, and the low level pump shut-off controls at the truck loading station were checked and are operating correctly.

Exterior of the Tank:

TEAM conducted a structural inspection of the tank. Overall the tank was structurally adequate. TEAM noted that some fiberboard was missing from underneath the interior tank ring and some minor corrosion was noted on the tank ring bolts. TEAM conducted ultrasonic reading of the floor for possible corrosion due to water possibly ponding under the tank. According to the manufacturer of the tank (A.O. Smith), the original floor metal thickness was 1/8 inch (0.125 inches). According to TEAM's ultrasonic measurements, the metal thickness on the floor ranged from 0.120 to 0.140 inches. Therefore no corrosion was evident and the metal floor has retained its original thickness.

TEAM noted some minor corrosion on the interior of the fill pipe into the primary tank and some minor corrosion on the overflow weir which discharges into the secondary containment (only used as an emergency back-up system if the overflow protection system is inoperable). Only minor corrosion was noted by TEAM during the inspection and the tanks were reported to be in overall good serviceable condition.

TEAM completed repairs to pipes and overflow weir. As part of daily inspections, the COUNTY will pump out standing water from the secondary containment area. The tank floors and bolts will be monitored for corrosion during subsequent inspections.

#### Interior of the Tank:

TEAM conducted Dry Film Thickness (DFT) measurements on the coating on the interior and exterior of the tanks. The interior and exterior of the secondary containment tank had DFT measurements of from 6 to 9 mils. The exterior of the primary containment tank had DFT measurements of 6 to 9 mils. The interior walls of the primary containment tank had DFT measurements of 3.5 to 6.5 mils. The interior floor of the primary containment tank had DFT thickness measurements of 4 to 6 mils. TEAM noted that several areas on the interior of the tanks, primarily on the bolted lap joints had minor corrosion. These areas were prepared in accordance with the manufacturer's recommendation and re-coated by TEAM with Themothane 7000 which is equivalent to the original coating Trico Bond 478 Epoxy. Please refer to Attachment B for documentation on epoxy coating equivalency. Refer to Attachment C for documentation from TEAM that the coating have been repaired.

The tanks have been in operations since 1999 and the coatings appear to be adequate for the protecting the underlying metal to date. Only minor corrosion was noted in bolted lap joints, possible due to initial damage to the coatings during construction. The areas have been re-coated and should be inspected during the next tank inspection to insure protection of the structural metal.

#### Miscellaneous:

The secondary containment system comprises of a second open top, steel bolted tank. A small electric pump removes rainwater that collects in the secondary containment system. SCS activated the pump and the pump was operable.

#### Conclusion:

Based upon the inspection reports, maintenance, training, and on-site observation conducted on Leachate Storage Tank No. 2, the tank and equipment appears to be functioning adequately to

Mr. Kim Ford, P.E.  
December 30, 2003  
Page 5

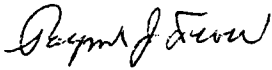
contain and manage the leachate as originally designed. Refer to Attachment D for a letter from the County stating that repairs have been completed.

Please call with any questions.

Very truly yours,



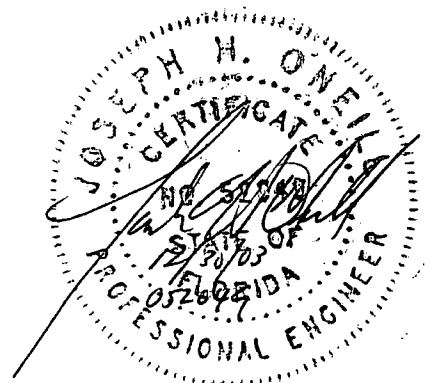
Joseph H. O'Neill, P.E.  
Project Manager



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

cc. Janice Williamson, Hardee County

Attachments



**ATTACHMENT A**

**TEAM Consultants, Inc. Leachate Tank Inspection Reports  
Tank No. 1 and No. 2**

# ABOVEGROUND STORAGE TANK INSPECTION REPORT

## LEACHATE TANK #1

PREPARED FOR:

**HARDEE COUNTY SOLID WASTE LANDFILL  
WAUCHULA, FLORIDA**

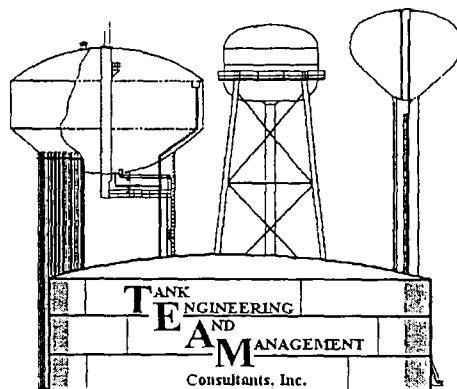
PREPARED BY:

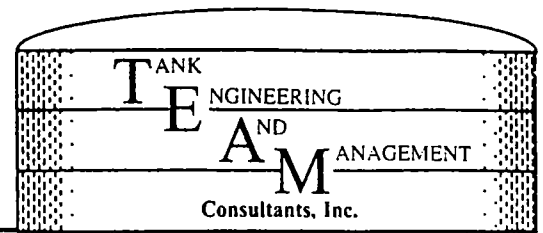
**TANK ENGINEERING AND MANAGEMENT CONSULTANTS, INC.**

1419 West Waters Ave., Suite 114

Tampa, Florida 33604

Phone (813) 935-6679 Fax (813) 931-8458





October 15, 2003

Hardee County Solid Waste  
685 Airport Rd.  
Wauchula, FL

Attn: Janice Williamson

RE: Assessment Inspection of  
78,300 Gallon Leachate Tank  
Tank 1  
TEAM Project No: 03-0462

Gentlemen:

As authorized by your P.O. No. 46361, *Tank Engineering And Management Consultants, Inc.*, has performed an inspection of the 78,300 gallon Leachate Tank "Tank 1" owned by Hardee County Solid Waste Landfill in Wauchula, FL.

#### **EXECUTIVE SUMMARY**

A complete Out-of-Service inspection was performed on the above referenced tank by *Tank Engineering And Management Consultants, Inc. (TEAM)*, during the month of September 2003. This inspection was performed to meet the requirements of Florida Department of Environmental Protection (FDEP) Rule 62-701. Since no inspection standard is set forth in the FDEP Rule, TEAM Consultants performed this inspection using typical tank standards from API and AWWA, as necessary. TEAM performed an engineering evaluation using these same standards.

Originally the tank was constructed to store landfill leachate. Hardee County Landfill personnel indicated the tank would be used to store the same product when it is returned to service.

This tank was found to be in overall good condition. Minor coating failures were noted on the interior where previous coating repairs had been performed.

This report was prepared by Jeff Kitchen, API-653 Certified Above Ground Tank Inspector, No. 22467, and reviewed by James E. Pandolph, P. E..

#### **INSPECTION EQUIPMENT**

1. Ultrasonic Thickness Measurements (UTM's) were taken on the bottom plates. UTM's were taken with a Panametrics 26DL Plus instrument operating on a dual transducer, "pulse echo" technique with "coating eliminator" software. The instrument calibration was verified before and after the testing was performed.
2. Coating thickness measurements were taken using a Mikrotest IV FM, magnetic coating thickness gauge.

**GENERAL:**

The following information was observed or was furnished to us:

**Structure:** Open Top, Bolted, Steel Storage Tank with Bolted Steel Secondary Containment Tank  
**Dimensions:** (Inner) 29 ft. dia. x 16 ft. High – (Outer) 41 ft. dia. x 8 ft. High  
**Capacity:** (Inner) 78,300 Gallon – (Outer) 87,300 Gallons  
**Location:** Wauchula, Florida  
**Manufacturer:** A.O. Smith Engineered Storage Systems – Parsons, KS  
**Year Built:** 1999

The tank is constructed of bolted steel panels. The nameplate on this tank indicates it was designed in accordance with API-12B specifications. This tank rests on a monolithic slab. According to Hardee County personnel, the original coating was Trico Bond 478 Epoxy.

**REGULATORY:**

This tank inspection was performed to comply with the FDEP Rule 62-701.400, F.A.C. The requirements of this section include:

*62-701.400(6)(c)2 – "Bottoms of steel tanks that rest on earthen material shall be cathodically protected with either sacrificial anodes or an impressed current system which is designed, fabricated, and installed in accordance with the engineering plan submitted to the Department."*

This tank rests on a concrete slab, therefore cathodic protection is not required.

*62-701.400(6)(c)5 – "All aboveground tanks shall have a secondary containment system which may consist of dikes, liners, pads, ponds, impoundments, curbs, ditches, sumps, or other systems capable of containing the stored leachate. The design volume for the secondary containment system shall be 110 percent of the volume of either the largest tank within the containment system or the total volume of all interconnected tanks, whichever is greater."*

This tank is constructed as a double wall tank. The dimensions and capacities are listed on the manufacturer's nameplate. The inner tank is rated for a nominal capacity of 78,300 gallons. The outer tank is rated for a nominal capacity of 87,300 Gallons, which is greater than 110% of the inner tank. Therefore, this tank complies with the secondary containment requirements.

*62-701.400(6)(c)7 – "A system shall be designed to contain and remove storm water from the secondary containment area. Provisions shall be included for the removal of any accumulated precipitation and be initiated within 24 hours or when 10 percent of the storage capacity is reached; whichever occurs first. Disposal of this stormwater shall be in accordance with the requirements of Rule 62-701.400(9), F.A.C."*

This tank is equipped with a drain sump and electric sump pump in the secondary containment. The sump pump discharges outside the tank. The Landfill operators are responsible for draining the secondary containment and properly disposing of the water.

**GENERAL:**

The following information was observed or was furnished to us:

**Structure:** Open Top, Bolted, Steel Storage Tank with Bolted Steel Secondary Containment Tank  
**Dimensions:** (Inner) 29 ft. dia. x 16 ft. High – (Outer) 41 ft. dia. x 8 ft. High  
**Capacity:** (Inner) 78,300 Gallon – (Outer) 87,300 Gallons  
**Location:** Wauchula, Florida  
**Manufacturer:** A.O. Smith Engineered Storage Systems – Parsons, KS  
**Year Built:** 1999

The tank is constructed of bolted steel panels. The nameplate on this tank indicates it was designed in accordance with API-12B specifications. This tank rests on a monolithic slab. According to Hardee County personnel, the original coating was Trico Bond 478 Epoxy.

**REGULATORY:**

This tank inspection was performed to comply with the FDEP Rule 62-701.400, F.A.C. The requirements of this section include:

*62-701.400(6)(c)2 – "Bottoms of steel tanks that rest on earthen material shall be cathodically protected with either sacrificial anodes or an impressed current system which is designed, fabricated, and installed in accordance with the engineering plan submitted to the Department."*

This tank rests on a concrete slab, therefore cathodic protection is not required.

*62-701.400(6)(c)5 – "All aboveground tanks shall have a secondary containment system which may consist of dikes, liners, pads, ponds, impoundments, curbs, ditches, sumps, or other systems capable of containing the stored leachate. The design volume for the secondary containment system shall be 110 percent of the volume of either the largest tank within the containment system or the total volume of all interconnected tanks, whichever is greater."*

This tank is constructed as a double wall tank. The dimensions and capacities are listed on the manufacturer's nameplate. The inner tank is rated for a nominal capacity of 78,300 gallons. The outer tank is rated for a nominal capacity of 87,300 Gallons, which is greater than 110% of the inner tank. Therefore, this tank complies with the secondary containment requirements.

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This tank is equipped with a drain sump and electric sump pump in the secondary containment. The sump pump discharges outside the tank. The Landfill operators are responsible for draining the secondary containment and properly disposing of the water.



62-701.400(6)(c)8 – "All aboveground tanks shall be equipped with an overflow prevention system which includes level sensors and gauges, high level alarms, or automatic shutoff controls. The overflow control equipment shall be inspected weekly by the facility operator to ensure it is in good working order."

This tank is equipped with a sonar-type level indication device with a digital readout outside the tank. The inner tank is also equipped with an overflow pipe which drains into the secondary containment tank.

62-701.400(6)(c)9 – "The exposed exterior of all aboveground tanks shall be inspected weekly by the facility operator for adequacy of the cathodic protection system, leaks, corrosion, and maintenance deficiencies. Interior inspection of tanks shall be performed whenever the tank is drained or at a minimum of every three years. If the inspection reveals a tank or equipment deficiency, leak, or any other deficiency which could result in failure of the tank to contain the leachate, remedial measures shall be taken immediately to eliminate the leak or correct the deficiency. Inspection reports shall be maintained and made available to the Department upon request for the lifetime of the liquid storage system."

According to the Landfill operations staff, they perform weekly inspections as required. TEAM Consultants' inspection, including this subsequent report, satisfies the interior inspection requirement. As required, the deficiencies found during this inspection were repaired before returning the tank to service. This report was submitted to the Owner for their records.

#### STRUCTURAL:

This tank is in overall good condition. One area of concern is the underside of the inner tank floor. The inner tank is supported above the concrete slab on fiber board, which is presumably asphalt impregnated to prevent corrosion. However, this area seems to stay wet due to rain water. If water is allowed to stay under the tank for long periods of time, corrosion may begin on any areas of thin or missing coating. Due to this suspicion, the floor thickness was checked at numerous locations with an ultrasonic thickness meter during this inspection. Most of the readings were taken around outer edge of the floor to check for underside corrosion as a result of ponding water. According to the manufacturer, this floor was originally 1/8" thick. All readings taken ranged from 0.122" to 0.139". Based on the readings taken, the floor thickness appears to be acceptable at this time, but it should be monitored during future inspections.

1/8" =  
0.125"

Another area of possible concern are the bolts at the base of the shell on the inner tank. These bolts were not coated during original construction. Over the course of time, they have begun to corrode due to submersion in water. These bolts should be coated in the near future to avoid more costly repairs later.

✓

#### COATINGS:

On a pre-manufactured, bolted tank, the panels are coated at the factory before being shipped to the site. Therefore, the quality control is usually much better than a field applied coating. Dry Film Thickness (DFT) readings were taken over each area of the tank shell and floor. The interior and exterior of the outer tank shell measured 6-9 mils DFT of coating. The exterior of the inner tank also measured 6-9 mils DFT of coating. The interior of the inner tank measured 4.5 – 7.5 mils DFT

on the shell and 4-6 mils DFT on the floor.

The coatings on the tank are in overall good condition. However, several areas of coating failure and minor corrosion were noted on the interior of the inner tank. These areas were found mostly on the plate edges at the bolted lap joints. Other areas with corrosion were found on the nozzle connections. These areas appear to have been touched-up recently, but the new paint is beginning to peel off and fail.

#### **ACCESSORIES:**

1. **Shell Manways:** Access into the secondary containment is provided by a 24 inch diameter shell manway. Another 24 inch manway is located in the shell of the inner tank for access to the interior. Both manways appeared to be in good condition.
2. **Fill Pipe:** The tank is filled through a 4 inch pipe that penetrates the shell of the inner tank near the high product level. Minor corrosion was observed on the interior of the pipe near the discharge.
3. **Suction Pipe:** This tank is equipped with two 8 inch suction pipes. One pulls from the inner tank and the other pulls from the secondary containment (outer) tank. These two suction pipes are connected together outside the tank before going to the truck fill area via an underground pipe.
4. **Overflow:** A 4 inch overflow pipe is located on the inner tank. A weir funnel is positioned at the high product level. The pipe then penetrates the inner tank shell and elbows down into a rubber hose which discharges into the secondary containment tank. Minor corrosion was noted on the inlet weir.
5. **Interconnect Pipe:** An 8 inch pipe is located near the high product level and connects Tank 2 and Tank 1.
6. **Drain Sump:** A sump is located in the secondary containment tank floor and is equipped with an electric sump pump which discharges outside the tank through a 1 inch pipe. It appears that the sump pump is only operated by a manual switch. The piping and connections appeared to be in good condition. The operation of the pump was not checked during this inspection.
7. **Ladders:** A metal caged ladder is fixed to the exterior of the inner tank. A plastic composite ladder is fixed to the inner tank interior. Both ladders are equipped with anti-slip rungs. Both ladders appear to be in good condition.
8. **Catwalk:** A catwalk is positioned between Tank 2 and Tank 1 above the secondary containment wall. The catwalk appears to be in good condition.
9. **Liquid Level Indicator:** This tank is equipped with sonar-type level indicator. The level sensor is connected to a monitor mounted outside the containment area. According to Hardee County Landfill personnel, the level indicator is not connected to the pumping system as a control device. The operation of the level indicator was not checked during this inspection.

#### **REPAIRS:**

**REQUIREMENTS** – These items are required to maintain the structural integrity of the tank system:

- No urgent deficiencies were noted as part of this inspection.

**RECOMMENDATIONS** – These items are recommended to extend the life of the storage tank:

- Clean and coat the shell and bottom bolts in the interstitial space (between the inner and outer tank).
- The condition of the piping underground should be checked in the near future. The County might also consider installing a cathodic protection system on the buried pipe for future corrosion protection.

**CONCLUSION:**


This leachate storage tank was found to be in good overall condition. After the recommended repairs are made and with continued maintenance, this tank should provide excellent service for many years.

We appreciate the opportunity of performing this inspection service for you.

Should you have any questions regarding the information contained herein, please do not hesitate to contact us.

Sincerely,

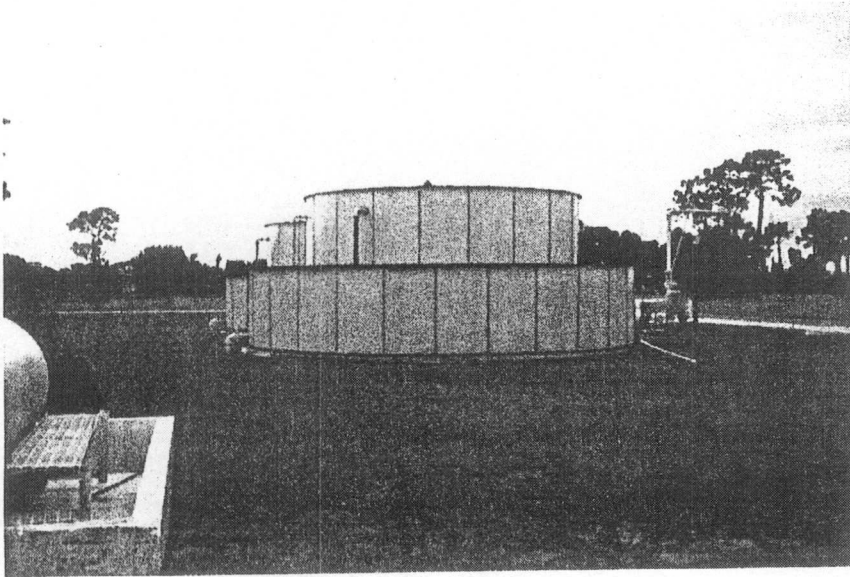
*Tank Engineering And Management Consultants, Inc.,*



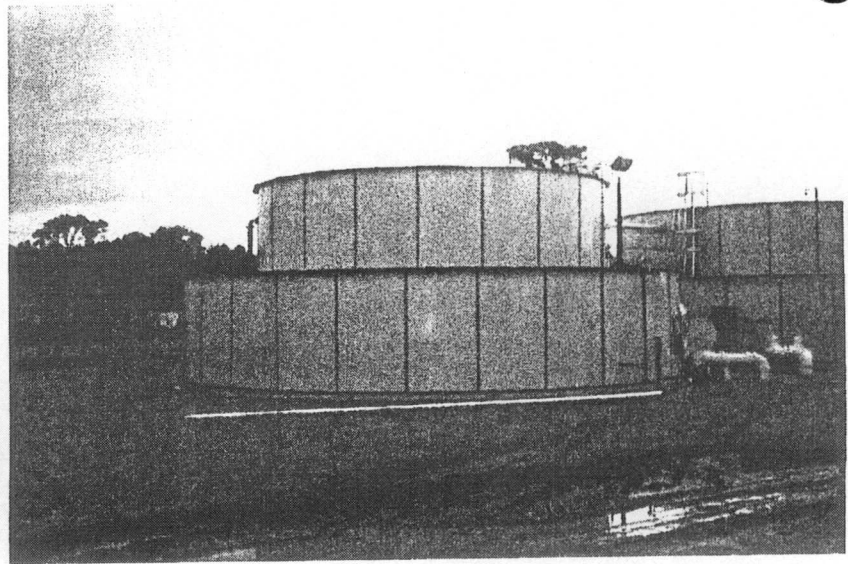
Jeff Kitchen  
API-653 Certified Inspector No. 22467  
NACE Certified Corrosion Technologist



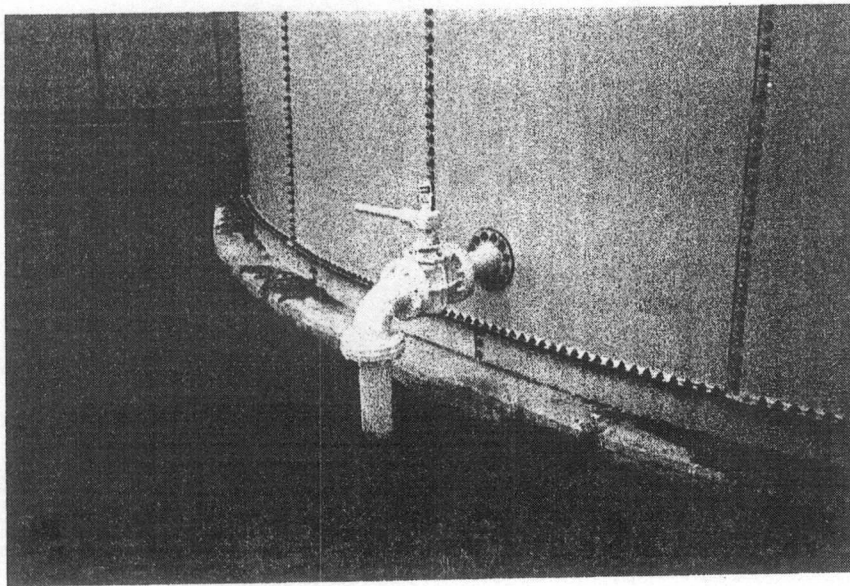
James E. Pandolph, P.E.  
Florida P.E. License No. 17067



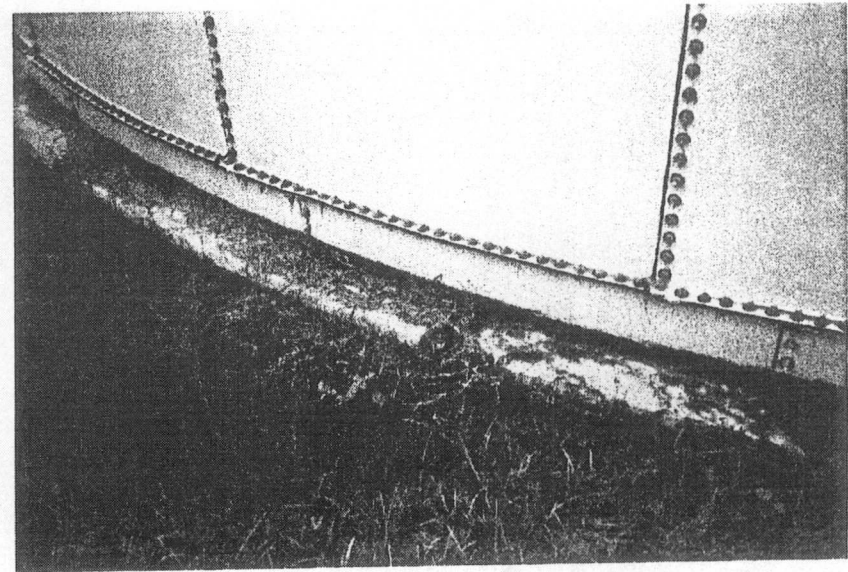
1. Tank overall.



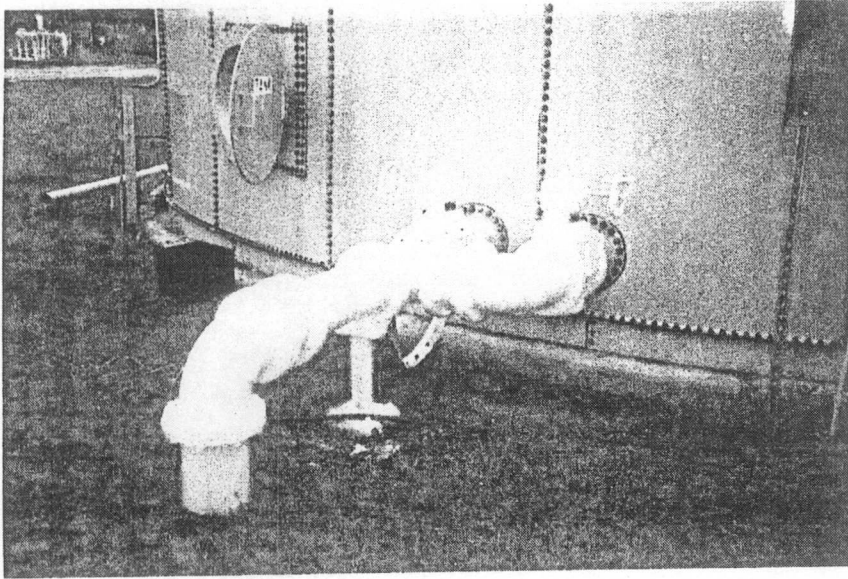
2. Tank overall.



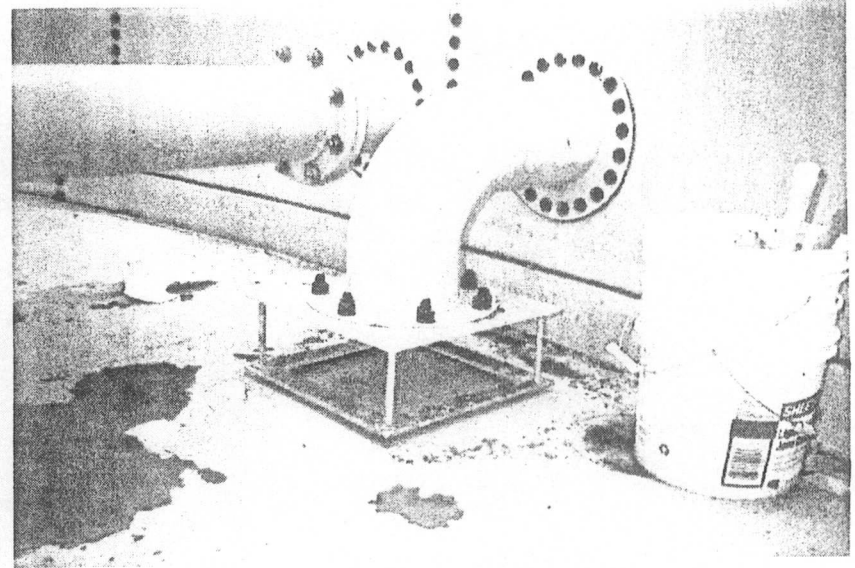
3. Inlet pipe exterior.



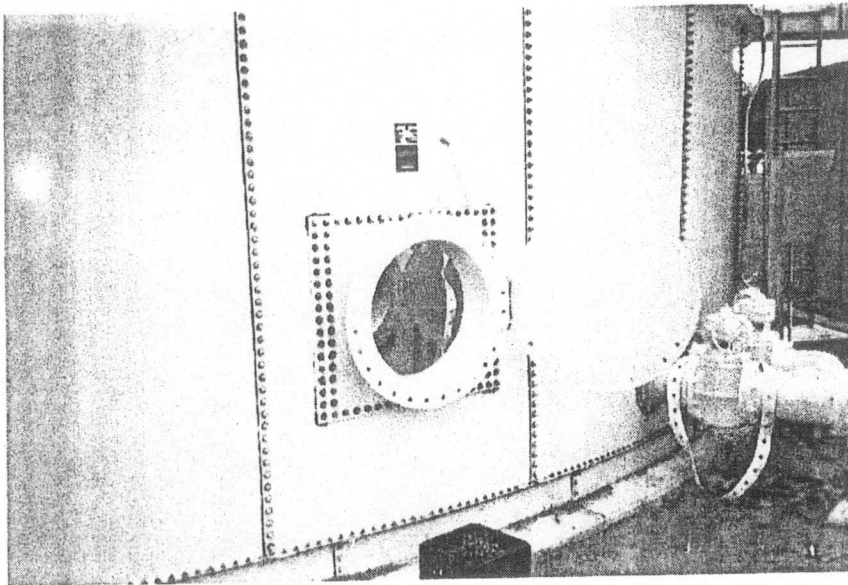
4. Dead grass around base of tank.



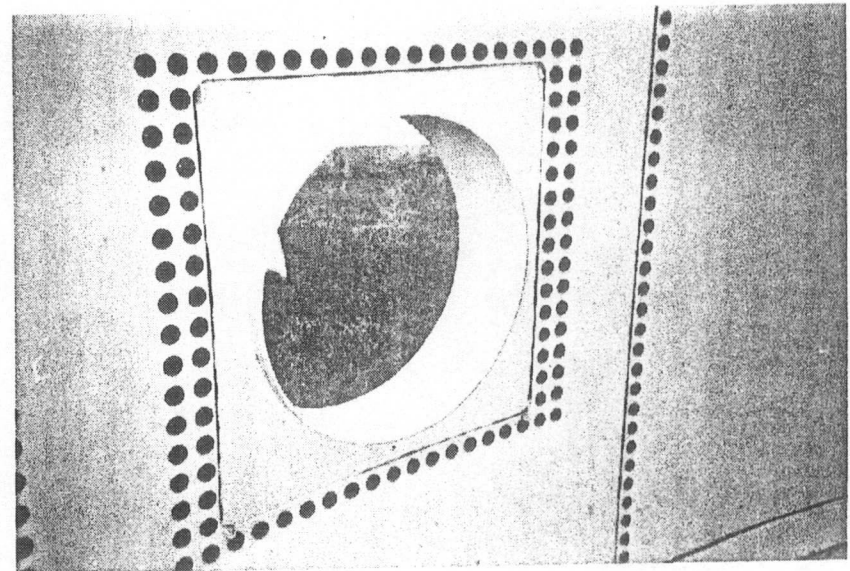
5. Suction pipes, exterior.



6. Interstice suction.

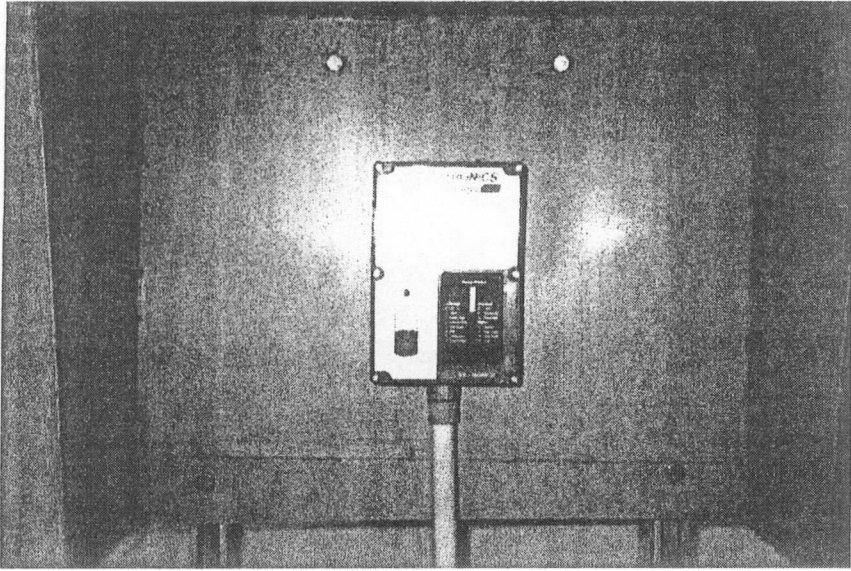


7. Outer manway.

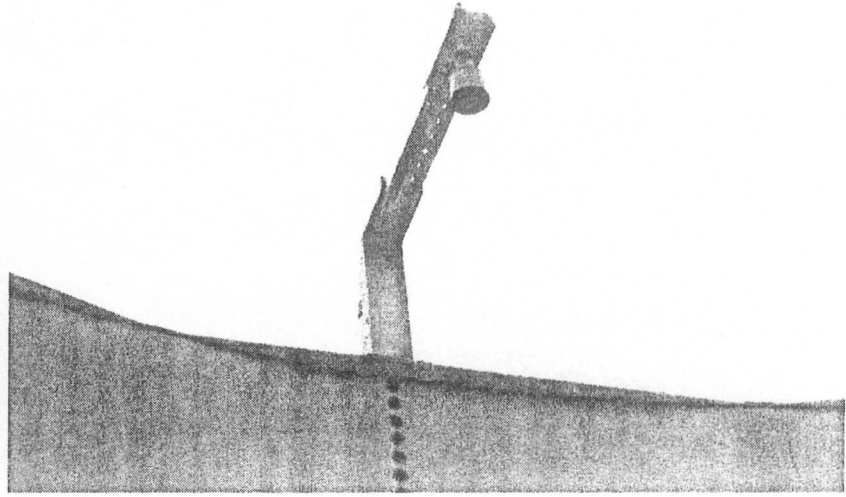


8. Outer manway interior.

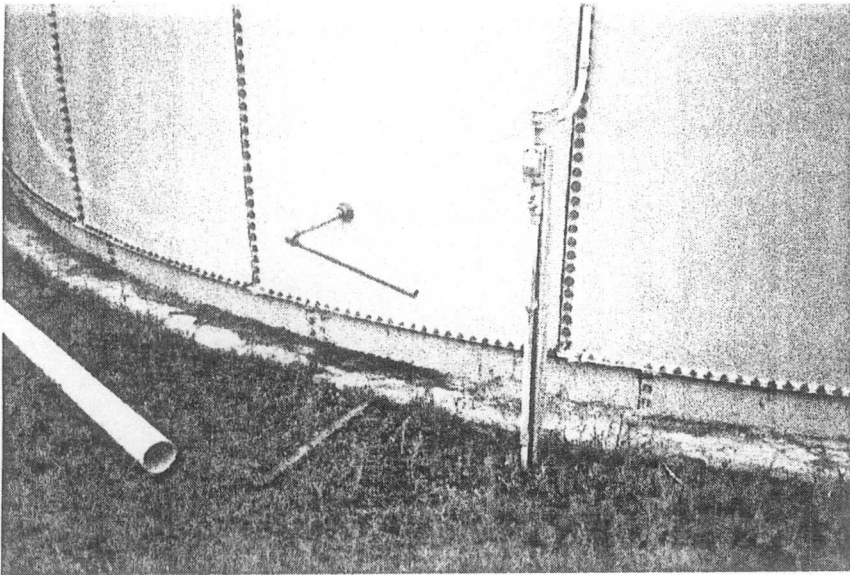




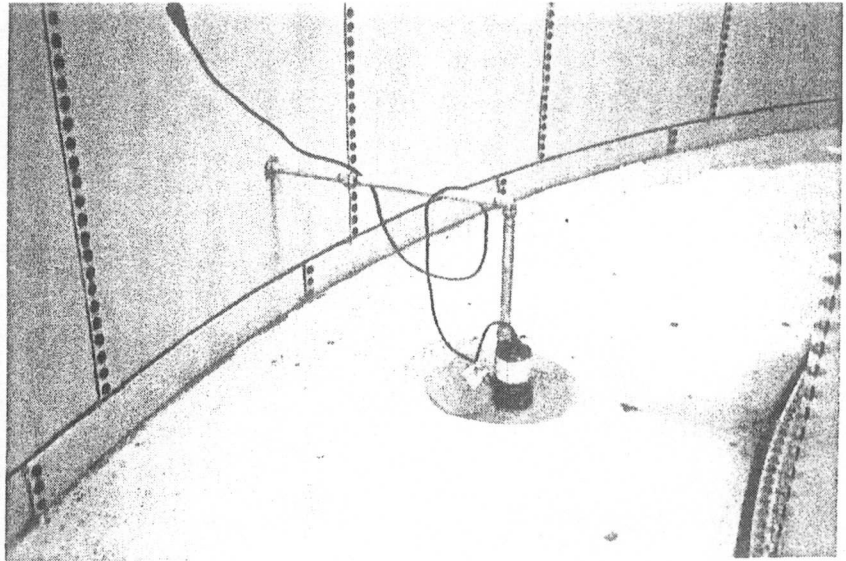
9. Level indicator.



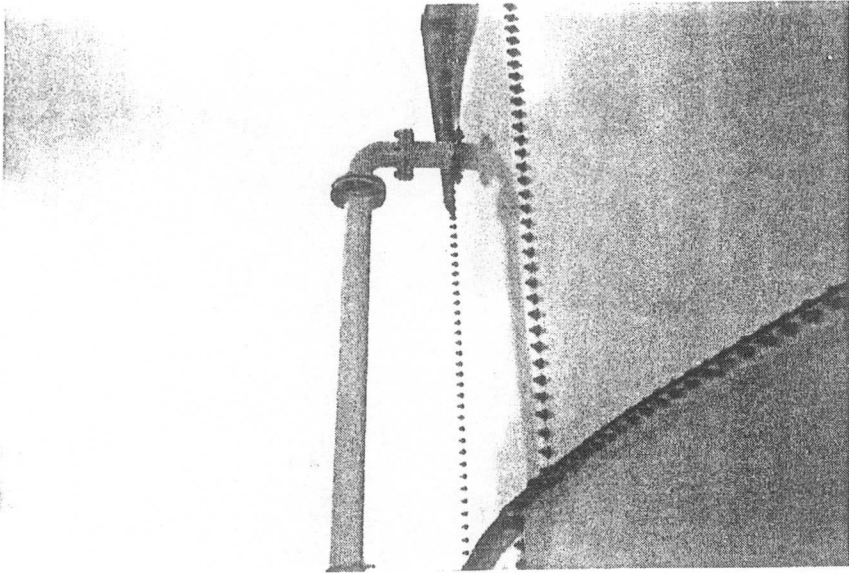
10. Sonar head.



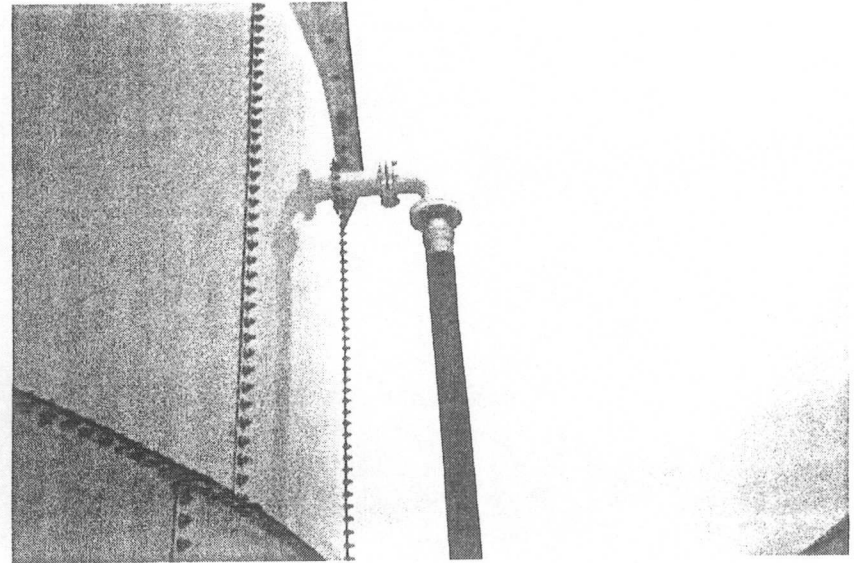
11. Sump discharge and power switch.



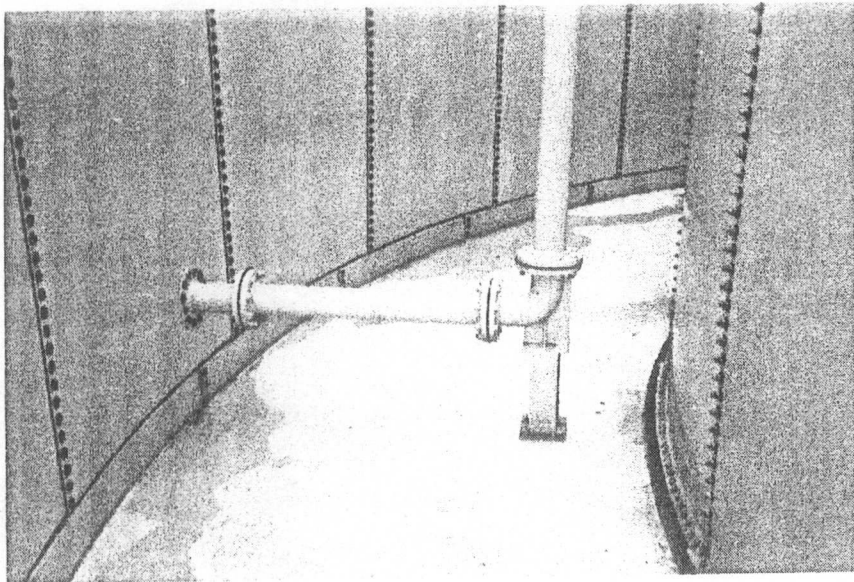
12. Secondary containment sump and pump.



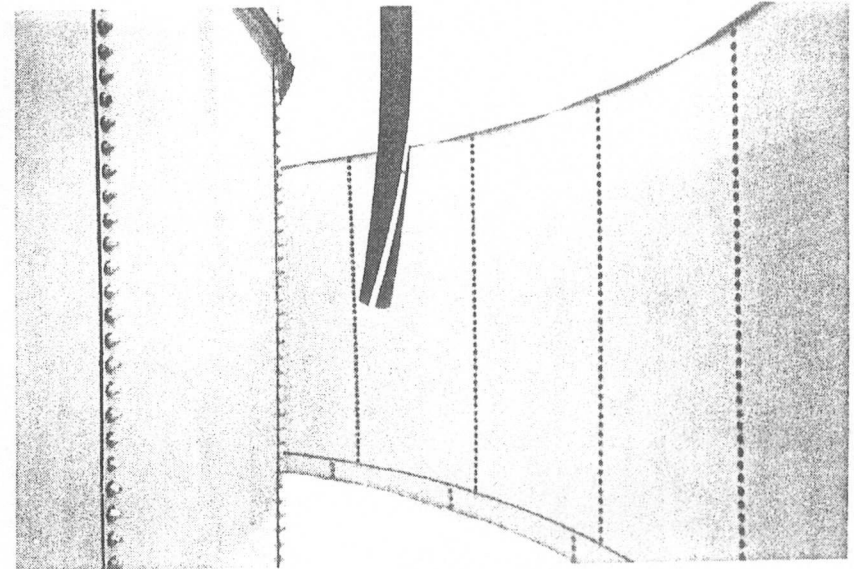
13. Fill line exterior at top.



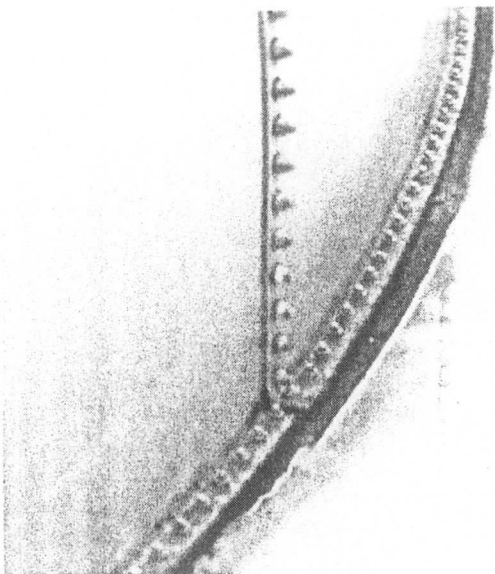
14. Overflow exterior at top.



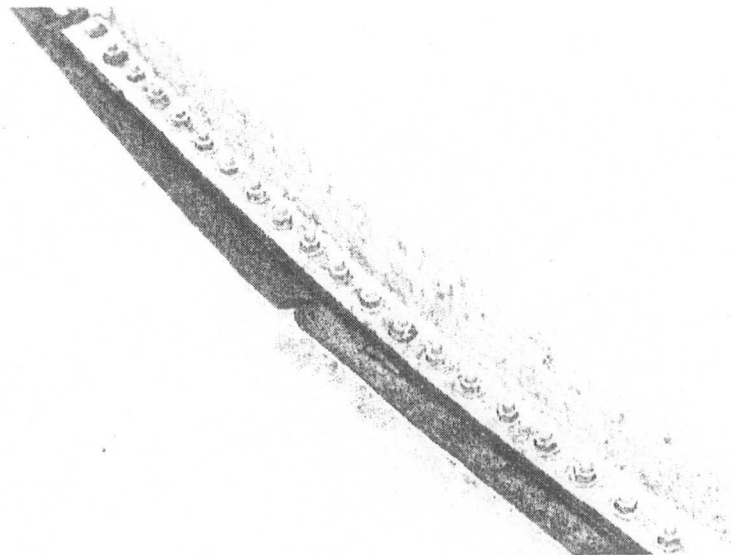
15. Fill line exterior at base.



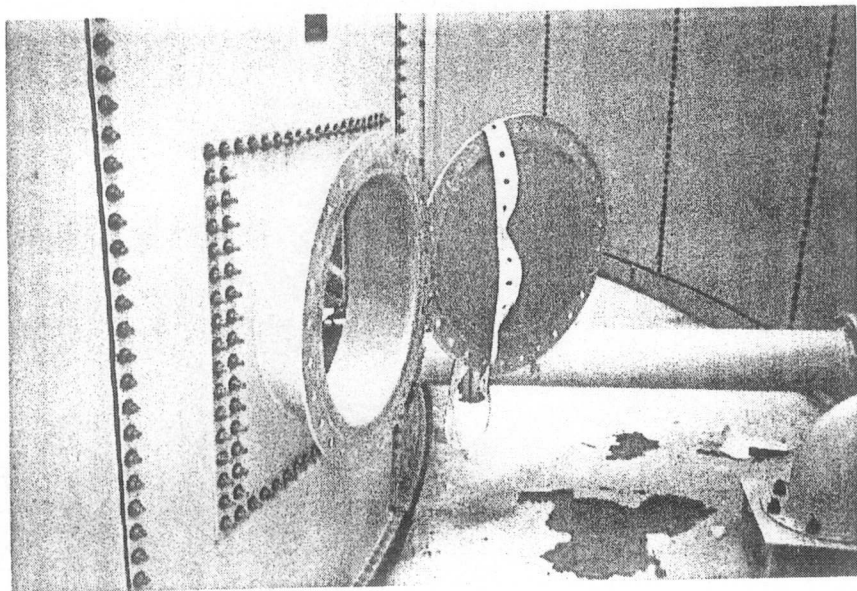
16. Overflow discharge.



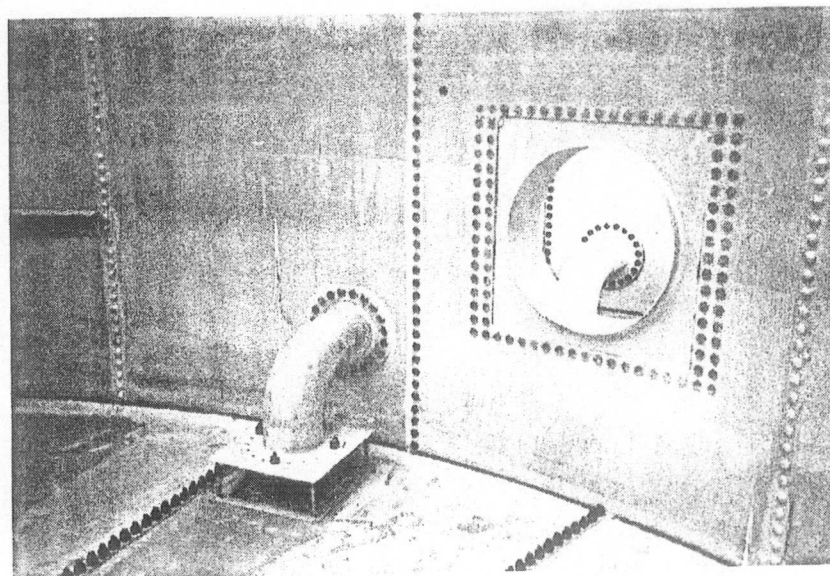
17. Chime corrosion and standing water.



18. Chime Corrosion.

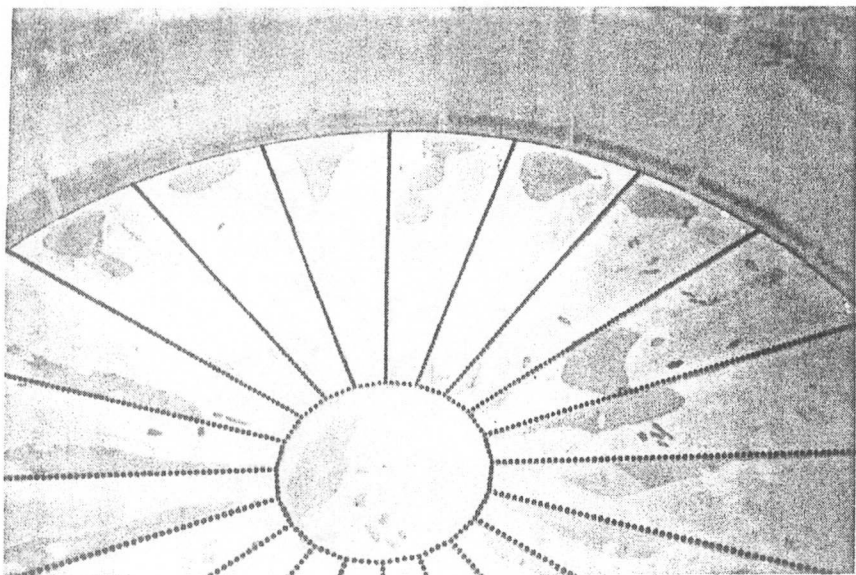


19. Manway of inner tank.

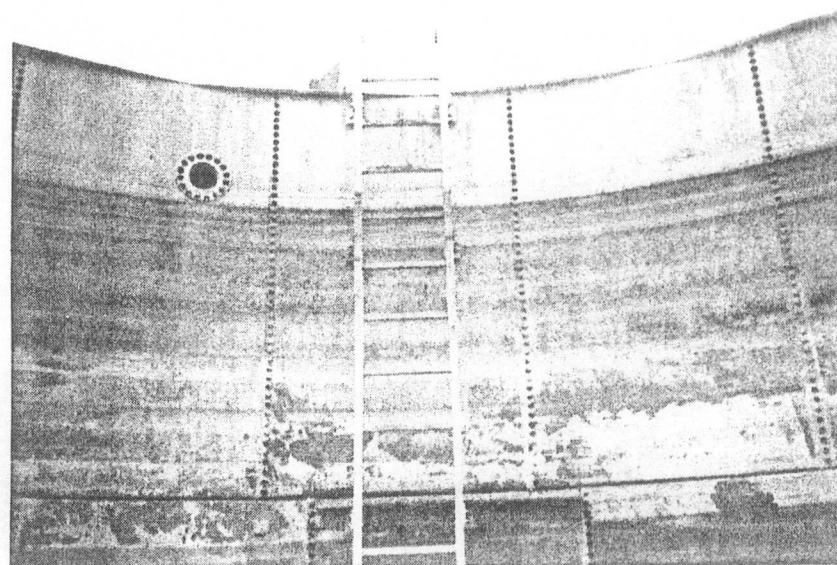


20. Interior manway and suction nozzle.





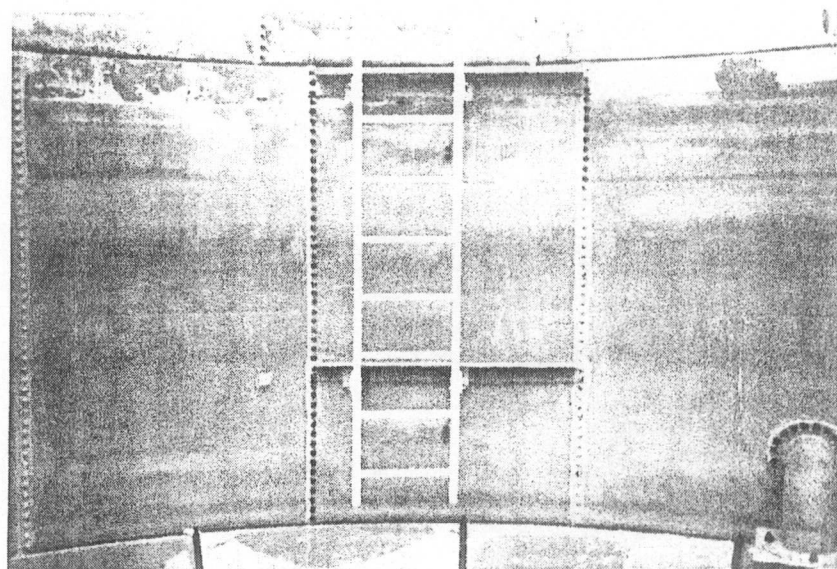
21. Floor overall.



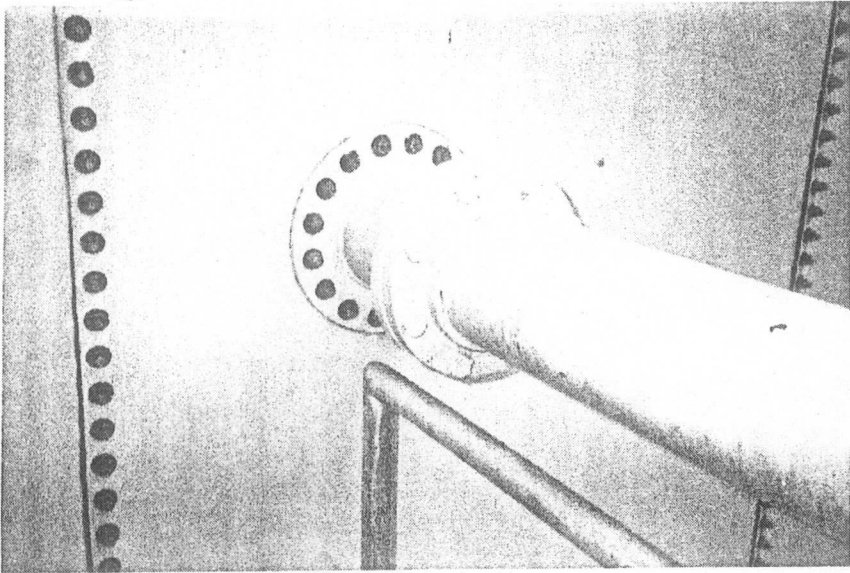
22. Interior ladder, upper half.



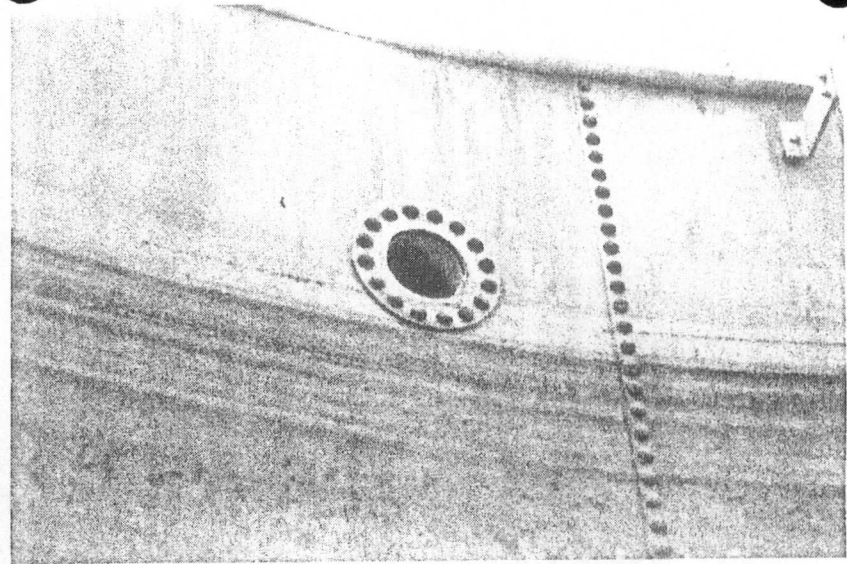
23. Coating failure on floor.



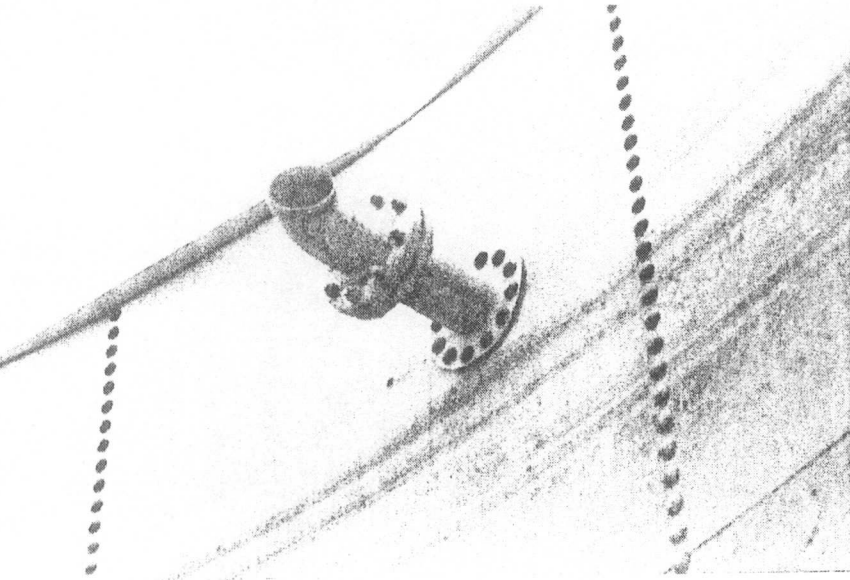
24. Interior ladder, lower half.



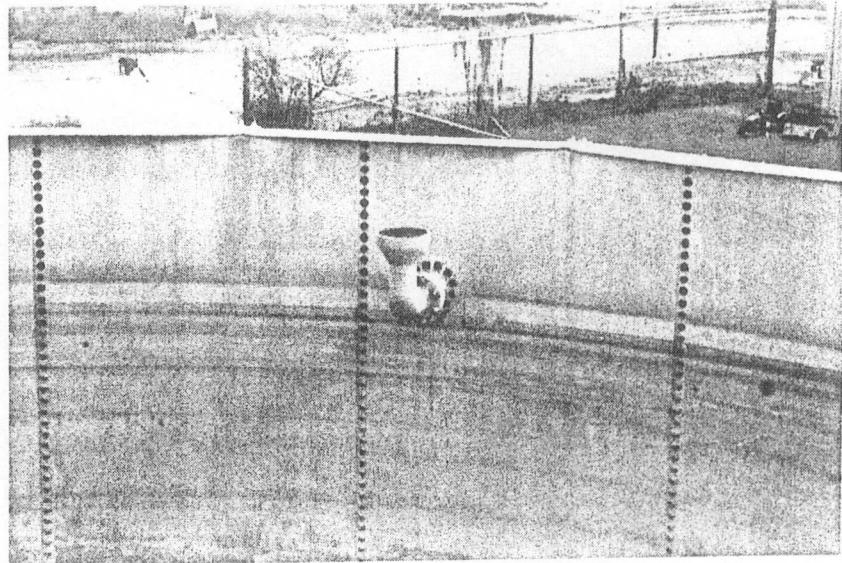
25. Interconnect nozzle, exterior.



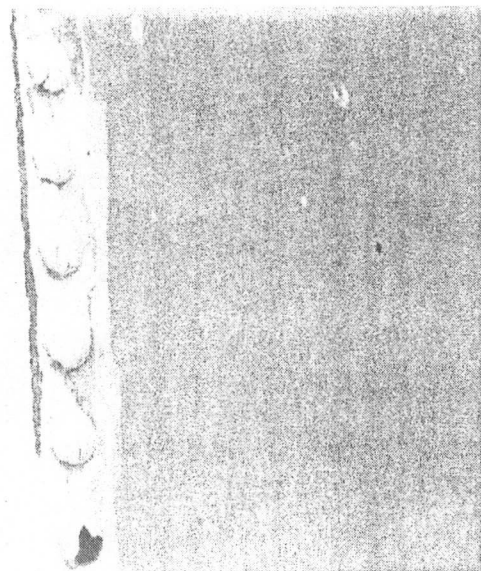
26. Interconnect nozzle interior.



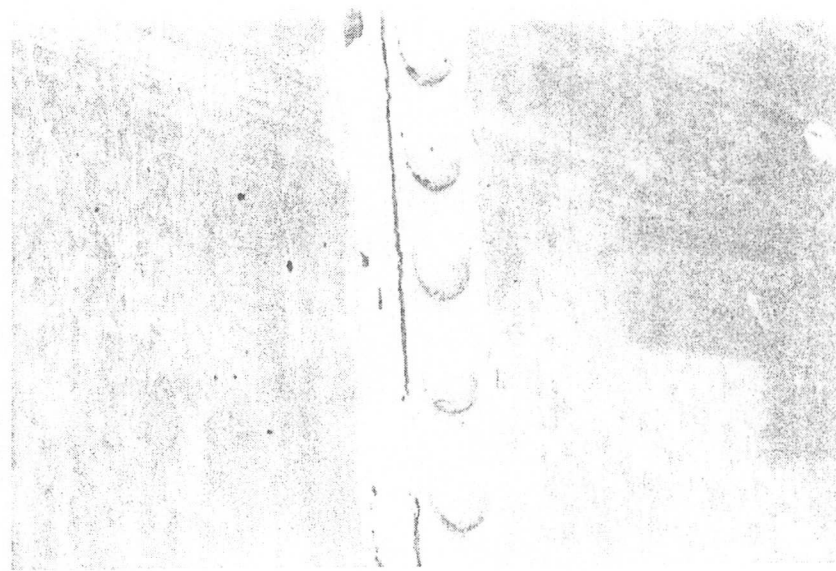
27. Inlet nozzle interior.



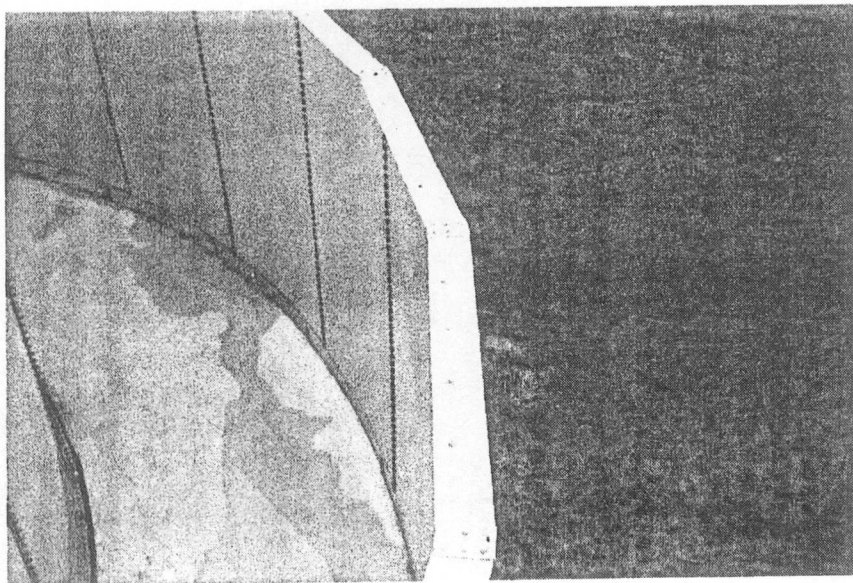
28. Overflow weir.



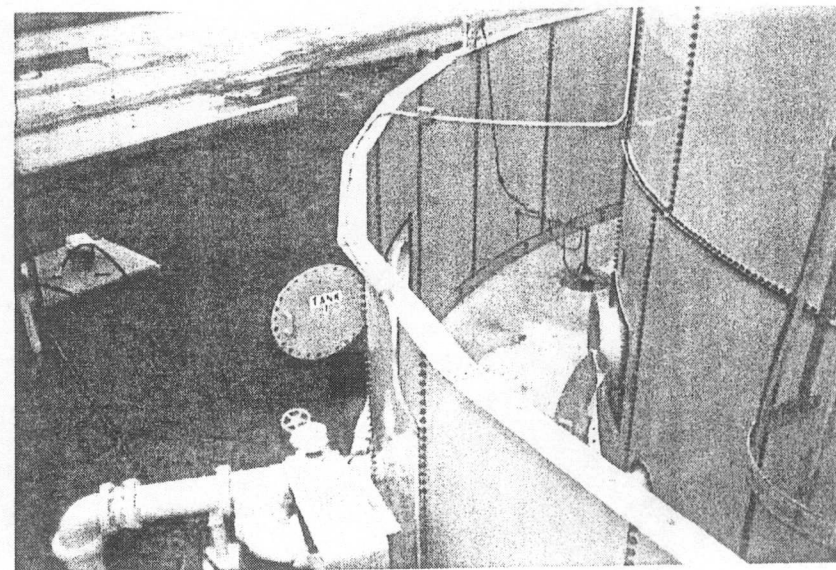
29. Coating failure at previous repair.



30. Another coating failure at previous repair.

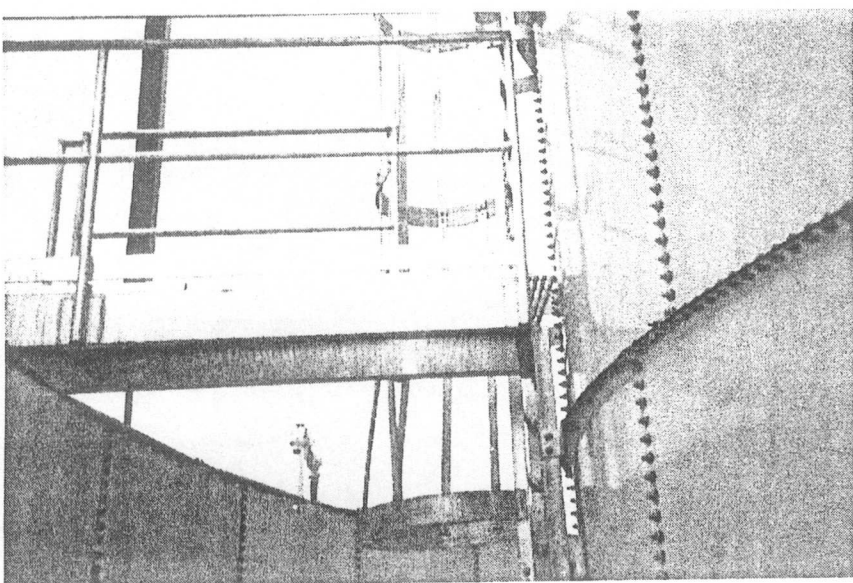


31. Outer tank windgirder.

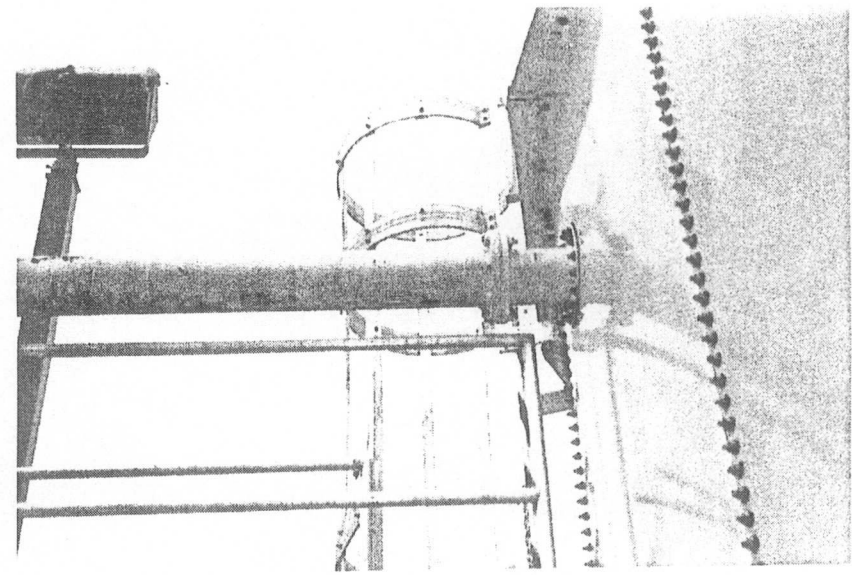


32. Outer tank windgirder.

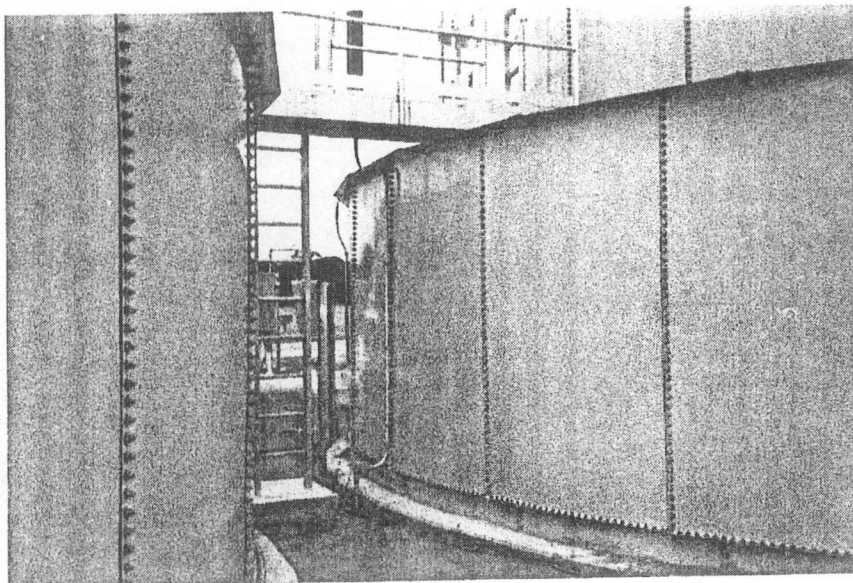




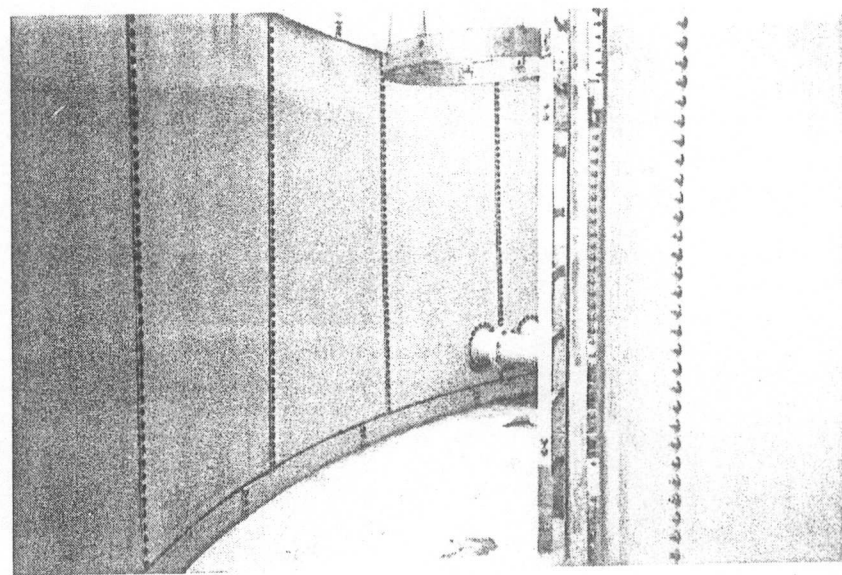
33. Catwalk.



34. Interconnect pipe and caged ladder top.



35. Tank exterior and catwalk ladder.



36. Ladder exterior at base.

# ABOVEGROUND STORAGE TANK INSPECTION REPORT

## LEACHATE TANK # 2

PREPARED FOR:

**HARDEE COUNTY SOLID WASTE LANDFILL  
WAUCHULA, FLORIDA**

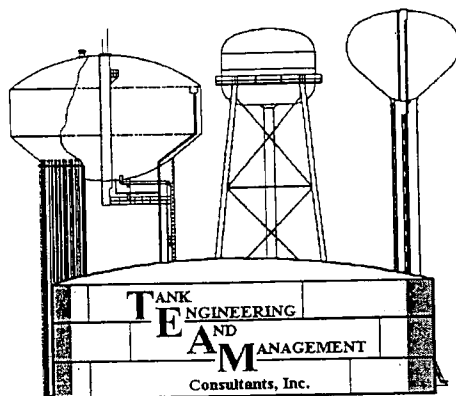
PREPARED BY:

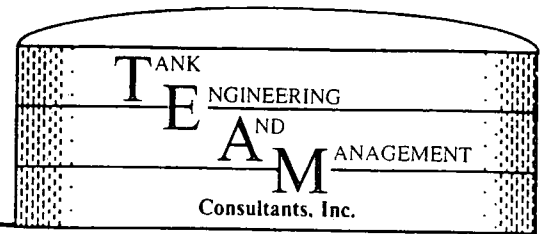
TANK ENGINEERING AND MANAGEMENT CONSULTANTS, INC.

1419 West Waters Ave., Suite 114

Tampa, Florida 33604

Phone (813) 935-6679 Fax (813) 931-8458





October 15, 2003

Hardee County Solid Waste  
685 Airport Rd.  
Wauchula, FL

Attn: Janice Williamson

RE: Assessment Inspection of  
78,300 Gallon Leachate Tank  
Tank 2  
TEAM Project No: 03-0462

Gentlemen:

As authorized by your P.O. No. 46361, *Tank Engineering And Management Consultants, Inc.*, has performed an inspection of the 78,300 gallon Leachate Tank "Tank 2" owned by Hardee County Solid Waste Landfill in Wauchula, FL.

### EXECUTIVE SUMMARY

A complete Out-of-Service inspection was performed on the above referenced tank by *Tank Engineering And Management Consultants, Inc.* (TEAM), during the month of July 2003. This inspection was performed to meet the requirements of Florida Department of Environmental Protection (FDEP) Rule 62-701. Since no inspection standard is set forth in the FDEP Rule, TEAM Consultants performed this inspection using typical tank standards from API and AWWA, as necessary. TEAM performed an engineering evaluation using these same standards.

Originally the tank was constructed to store landfill leachate. Hardee County Landfill personnel indicated the tank would be used to store the same product when it is returned to service.

This tank was found to be in overall good condition. Subsequent to this inspection, minor repairs were performed before returning this tank to service.

This report was prepared by Jeff Kitchen, API-653 Certified Above Ground Tank Inspector, No. 22467, and reviewed by James E. Pandolph, P. E..

### INSPECTION EQUIPMENT

1. Ultrasonic Thickness Measurements (UTM's) were taken on the bottom plates. UTM's were taken with a Panametrics 26DL Plus instrument operating on a dual transducer, "pulse echo" technique with "coating eliminator" software. The instrument calibration was verified before and after the testing was performed.
2. Coating thickness measurements were taken using a Mikrotest IV FM, magnetic coating thickness gauge.

**GENERAL:**

The following information was observed or was furnished to us:

**Structure:** Open Top, Bolted, Steel Storage Tank with Bolted Steel Secondary Containment Tank  
**Dimensions:** (Inner) 29 ft. dia. x 16 ft. High – (Outer) 41 ft. dia. x 8 ft. High  
**Capacity:** (Inner) 78,300 Gallon – (Outer) 87,300 Gallons  
**Location:** Wauchula, Florida  
**Manufacturer:** A.O. Smith Engineered Storage Systems – Parsons, KS  
**Year Built:** 1999

The tank is constructed of bolted steel panels. The nameplate on this tank indicates it was designed in accordance with API-12B specifications. This tank rests on a monolithic slab. According to Hardee County personnel, the original coating was Trico Bond 478 Epoxy.

**REGULATORY:**

This tank inspection was performed to comply with the FDEP Rule 62-701.400, F.A.C. The requirements of this section include:

*62-701.400(6)(c)2 – "Bottoms of steel tanks that rest on earthen material shall be cathodically protected with either sacrificial anodes or an impressed current system which is designed, fabricated, and installed in accordance with the engineering plan submitted to the Department."*

This tank rests on a concrete slab, therefore cathodic protection is not required.

*62-701.400(6)(c)5 – "All aboveground tanks shall have a secondary containment system which may consist of dikes, liners, pads, ponds, impoundments, curbs, ditches, sumps, or other systems capable of containing the stored leachate. The design volume for the secondary containment system shall be 110 percent of the volume of either the largest tank within the containment system or the total volume of all interconnected tanks, whichever is greater."*

This tank is constructed as a double wall tank. The dimensions and capacities are listed on the manufacturer's nameplate. The inner tank is rated for a nominal capacity of 78,300 gallons. The outer tank is rated for a nominal capacity of 87,300 Gallons, which is greater than 110% of the inner tank. Therefore, this tank complies with the secondary containment requirements.

*62-701.400(6)(c)7 – "A system shall be designed to contain and remove storm water from the secondary containment area. Provisions shall be included for the removal of any accumulated precipitation and be initiated within 24 hours or when 10 percent of the storage capacity is reached; whichever occurs first. Disposal of this stormwater shall be in accordance with the requirements of Rule 62-701.400(9), F.A.C."*

This tank is equipped with a drain sump and electric sump pump in the secondary containment. The sump pump discharges outside the tank. The Landfill operators are responsible for draining the secondary containment and properly disposing of the water.

*62-701.400(6)(c)8 – "All aboveground tanks shall be equipped with an overflow prevention system which includes level sensors and gauges, high level alarms, or automatic shutoff controls. The overflow control equipment shall be inspected weekly by the facility operator to ensure it is in good working order."*

This tank is equipped with a sonar-type level indication device with a digital readout outside the tank. The inner tank is also equipped with an overflow pipe which drains into the secondary containment tank.

*62-701.400(6)(c)9 – "The exposed exterior of all aboveground tanks shall be inspected weekly by the facility operator for adequacy of the cathodic protection system, leaks, corrosion, and maintenance deficiencies. Interior inspection of tanks shall be performed whenever the tank is drained or at a minimum of every three years. If the inspection reveals a tank or equipment deficiency, leak, or any other deficiency which could result in failure of the tank to contain the leachate, remedial measures shall be taken immediately to eliminate the leak or correct the deficiency. Inspection reports shall be maintained and made available to the Department upon request for the lifetime of the liquid storage system."*

According to the Landfill operations staff, they perform weekly inspections as required. TEAM Consultants' inspection, including this subsequent report, satisfies the interior inspection requirement. As required, the deficiencies found during this inspection were repaired before returning the tank to service. This report was submitted to the Owner for their records.

#### **STRUCTURAL:**

This tank is in overall good condition. One area of concern is the underside of the inner tank floor. The inner tank is supported above the concrete slab on fiber board, which is presumably asphalt impregnated to prevent corrosion. However, this area seems to stay wet due to rain water. If water is allowed to stay under the tank for long periods of time, corrosion may begin on any areas of thin or missing coating. Due to this suspicion, the floor thickness was checked at numerous locations with an ultrasonic thickness meter during this inspection. Most of the readings were taken around outer edge of the floor to check for underside corrosion as a result of ponding water. According to the manufacturer, this floor was originally 1/8" thick. All readings taken ranged from 0.120" to 0.140". Based on the readings taken, the floor thickness appears to be acceptable at this time, but it should be monitored during future inspections.

Another area of possible concern are the bolts at the base of the shell on the inner tank. These bolts were not coated during original construction. Over the course of time, they have begun to corrode due to submersion in water. These bolts should be coated in the near future to avoid more costly repairs later.

One section of the fiber board under the inner tank was noted to be missing. The missing section may allow water to stay against the tank bottom, causing corrosion, and the lack of support may cause stress on the tank shell.

#### **COATINGS:**

On a pre-manufactured, bolted tank, the panels are coated at the factory before being shipped to the



site. Therefore, the quality control is usually much better than a field applied coating. Dry Film Thickness (DFT) readings were taken over each area of the tank shell and floor. The interior and exterior of the outer tank shell measured 6-9 mils DFT of coating. The exterior of the inner tank also measured 6-9 mils DFT of coating. The interior of the inner tank measured 3.5 – 6.5 mils DFT on the shell and 4-6 mils DFT on the floor.

The coatings on the tank are in overall good condition. However, several areas of coating failure and minor corrosion were noted on the interior of the inner tank. These areas were found mostly on the plate edges at the bolted lap joints. Other areas with corrosion were found on the nozzle connections. *(Note: The coating failures on the interior of the inner tank were repaired following this inspection.)*

#### **ACCESSORIES:**

1. **Shell Manways:** Access into the secondary containment is provided by a 24" diameter shell manway. Another 24" manway is located in the shell of the inner tank for access to the interior. Both manways appeared to be in good condition.
2. **Fill Pipe:** The tank is filled through a 4 inch pipe that penetrates the shell of the inner tank near the high product level. Minor corrosion was observed on the interior of the pipe near the discharge.
3. **Suction Pipe:** This tank is equipped with two 8 inch suction pipes. One pulls from the inner tank and the other pulls from the secondary containment (outer) tank. These two suction pipes are connected together outside the tank before going to the truck fill area via an underground pipe. Coating failure and corrosion was noted on the pipe at the air-to-ground interface. The condition of the pipes underground should be checked in the future. A cathodic protection system is recommended for the underground pipes in the system.
4. **Overflow:** A 4 inch overflow pipe is located on the inner tank. A weir funnel is positioned at the high product level. The pipe then penetrates the inner tank shell and elbows down into a rubber hose which discharges into the secondary containment tank. Minor corrosion was noted on the inlet weir.
5. **Interconnect Pipe:** An 8 inch pipe is located near the high product level and connects Tank 2 and Tank 1. Coating failure and corrosion was noted at the flange connection on the exterior of Tank 2.
6. **Drain Sump:** A sump is located in the secondary containment tank floor and is equipped with an electric sump pump which discharges outside the tank through a 1 inch pipe. It appears that the sump pump is only operated by a manual switch. The piping and connections appeared to be in good condition. The operation of the pump was not checked during this inspection.
7. **Ladders:** A metal caged ladder is fixed to the exterior of the inner tank. A plastic composite ladder is fixed to the inner tank interior. Both ladders are equipped with anti-slip rungs. Both ladders appear to be in good condition.
8. **Catwalk:** A catwalk is positioned between Tank 2 and Tank 1 above the secondary containment wall. The catwalk appears to be in good condition.
9. **Liquid Level Indicator:** This tank is equipped with sonar-type level indicator. The level sensor is connected to a monitor mounted outside the containment area. According to Hardee County Landfill personnel, the level indicator is not connected to the pumping system as a control device. The operation of the level indicator was not checked during this inspection.

**REPAIRS:**

REQUIREMENTS – These items are required to maintain the structural integrity of the tank system:

- Prepare and repaint areas of coating failure on the interior of the inner tank. Areas of corrosion should be prepared to SSPC-SP11 "Power Tool Clean to Bare Metal". Care should be taken to avoid damaging the joint gasket. All edges of existing paint should be feathered smooth back to tightly adhered coating. Apply coating in accordance with manufacturer's recommended procedure and thickness. *(Note: Repaired following this inspection.)*
- Prepare and repaint areas of corrosion on piping leading to and from the tank. *(Note: Repaired following this inspection.)*

RECOMMENDATIONS – These items are recommended to extend the life of the storage tank:

- Clean and coat the shell and bottom bolts in the interstitial space (between the inner and outer tank).
- Replace the section of missing fiber board with material comparable to the existing material.
- The condition of the piping underground should be checked in the near future. The County might also consider installing a cathodic protection system on the buried pipe for future corrosion protection.

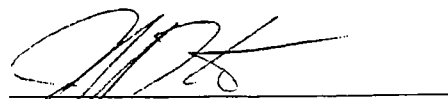
**CONCLUSION:**

This leachate storage tank was found to be in good overall condition. After the recommended repairs are made and with continued maintenance, this tank should provide excellent service for many years.

We appreciate the opportunity of performing this inspection service for you.

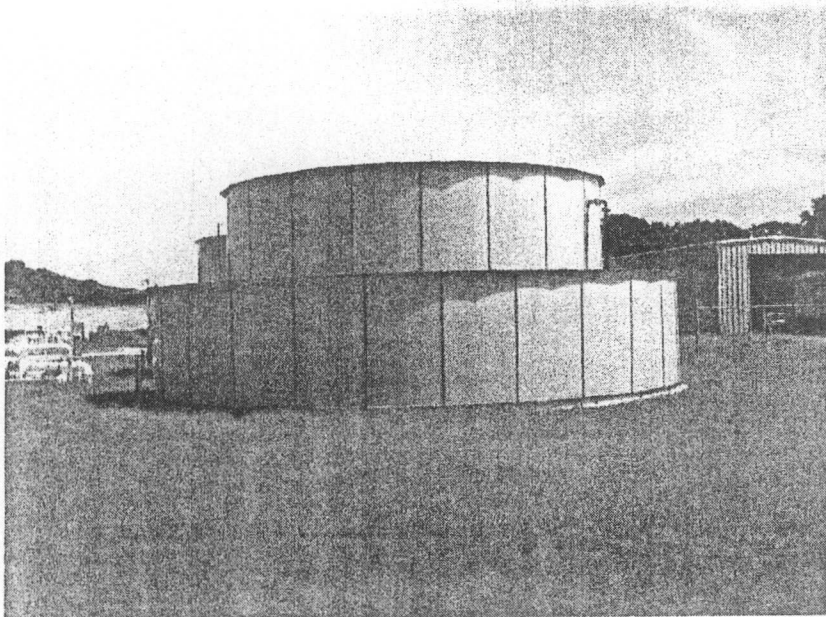
Should you have any questions regarding the information contained herein, please do not hesitate to contact us.

Sincerely,  
*Tank Engineering And Management Consultants, Inc.,*

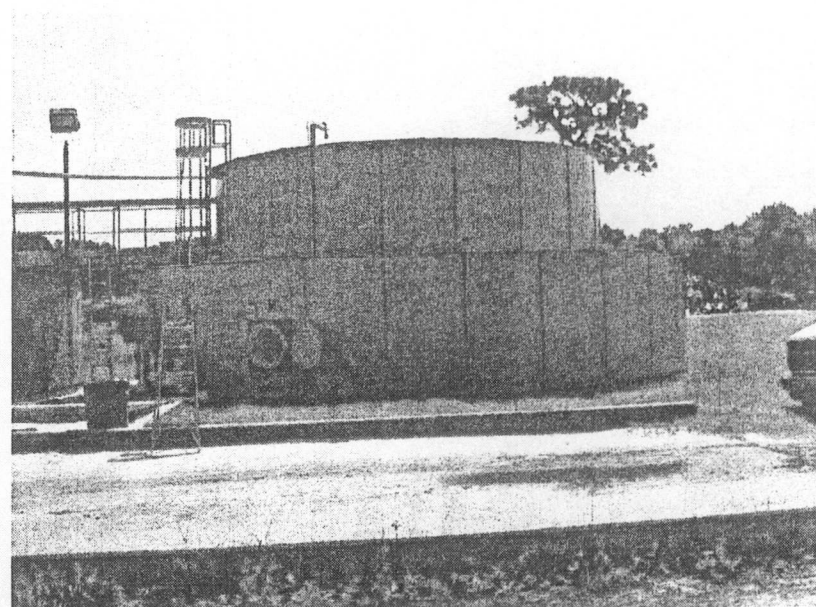


Jeff Kitchen  
API-653 Certified Inspector No. 22467  
NACE Certified Corrosion Technologist

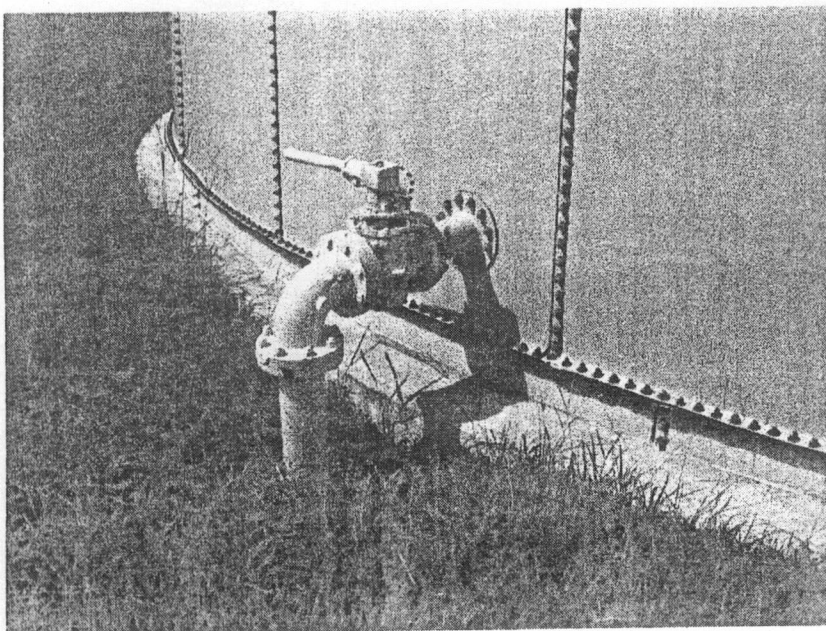
James E. Pandolph, P.E.  
Florida P.E. License No. 17067



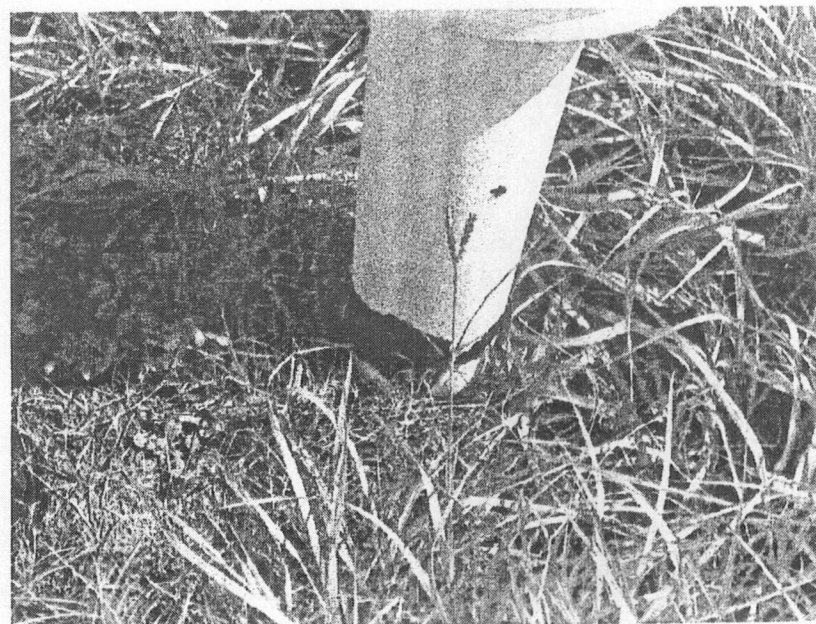
1. Overall South



2. Overall West.

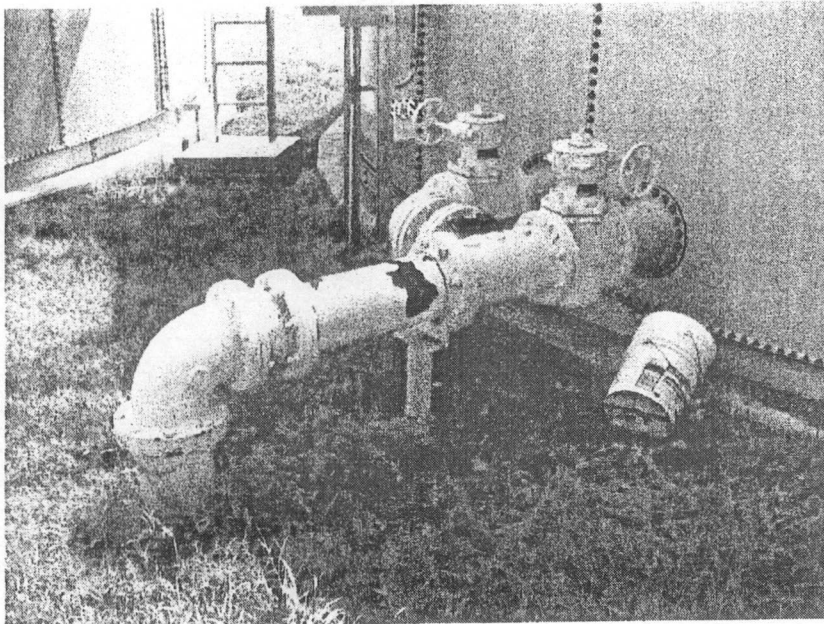


3. Inlet pipe exterior.

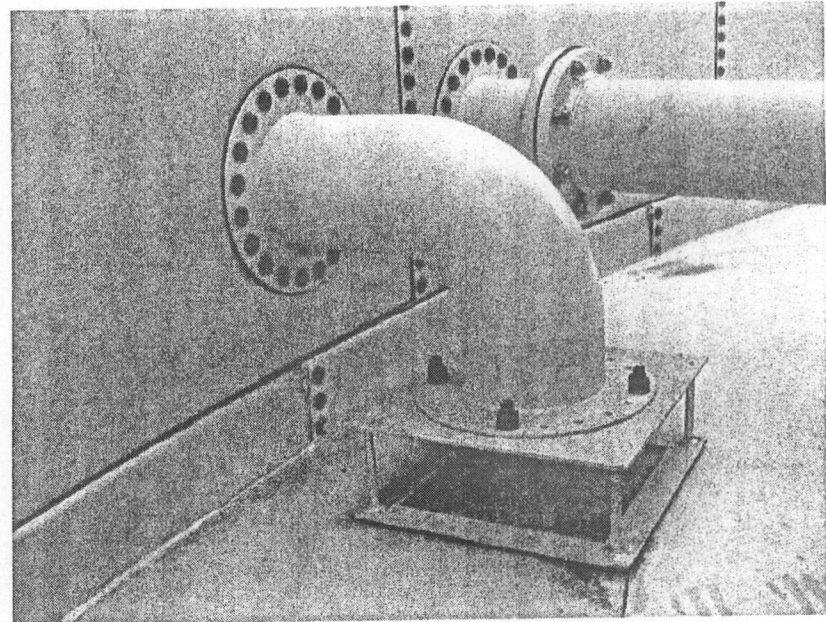


4. Inlet pipe exterior corrosion.

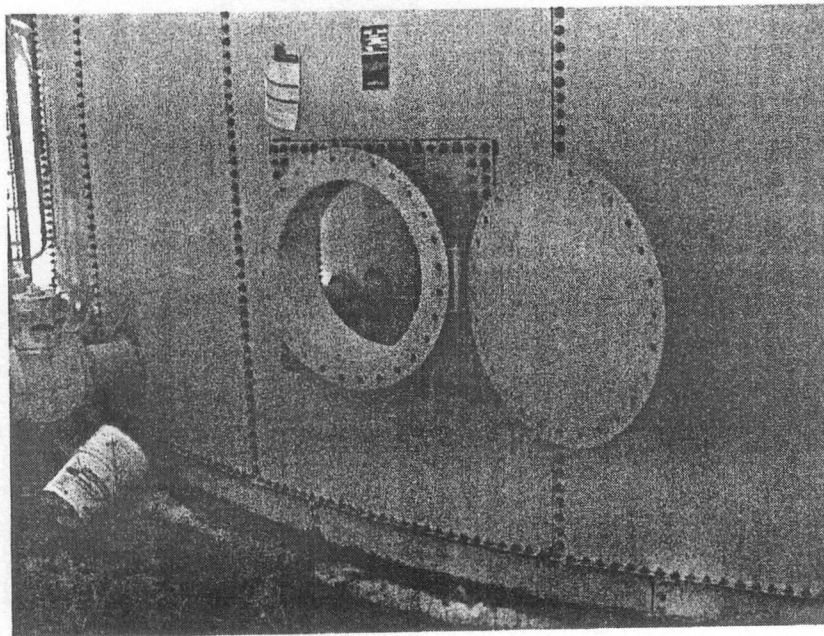




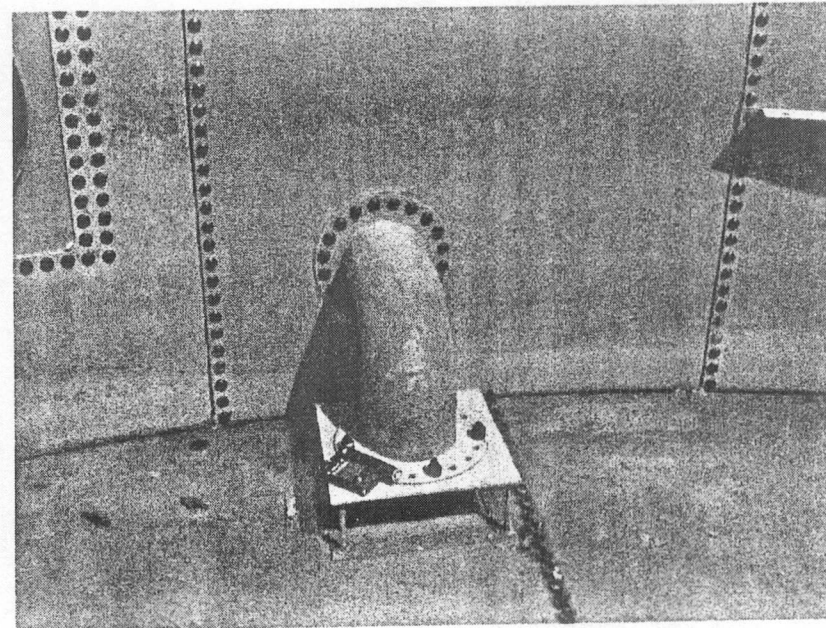
5. Suction exterior piping.



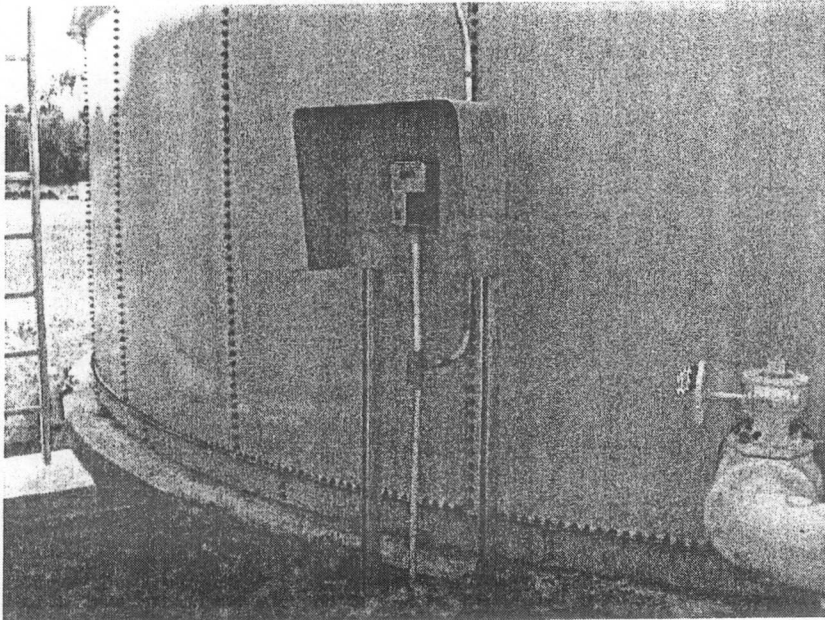
6. Interstice suction.



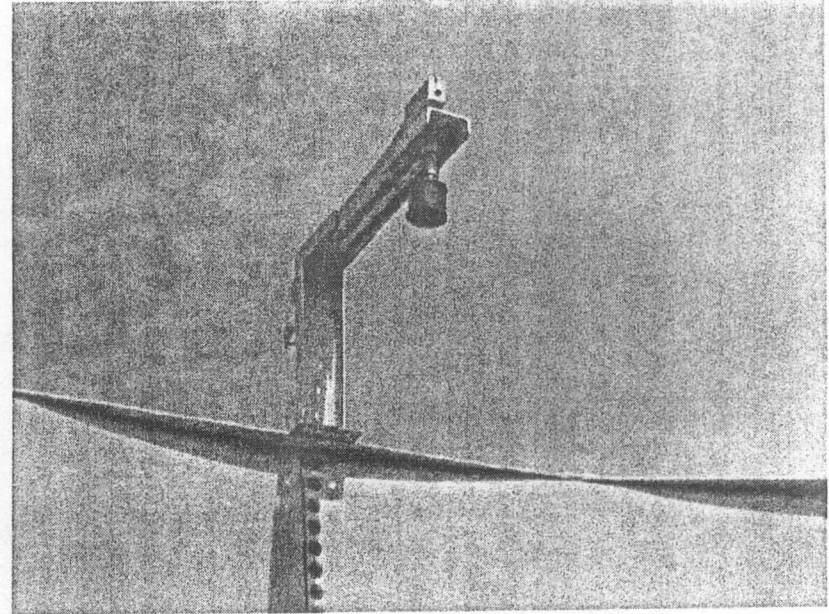
7. Manway exterior.



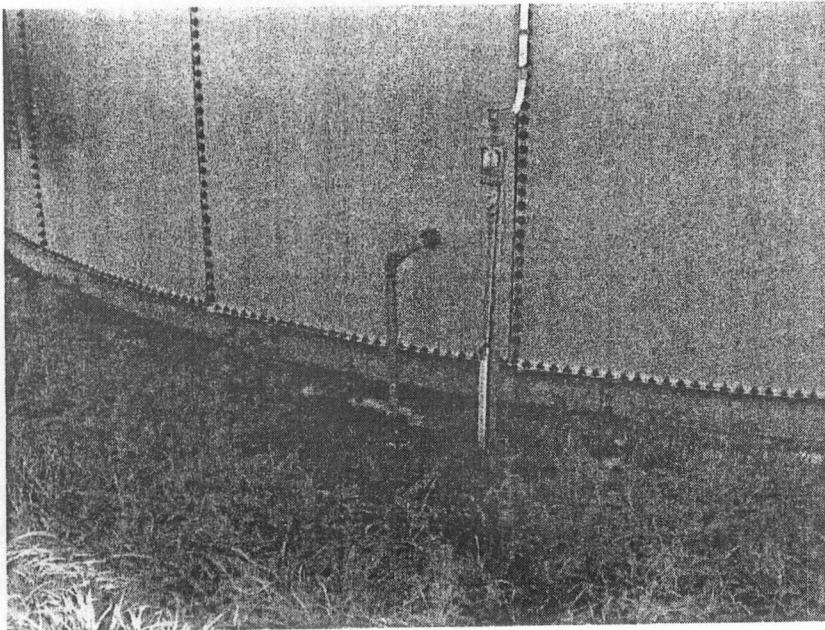
8. Suction interior.



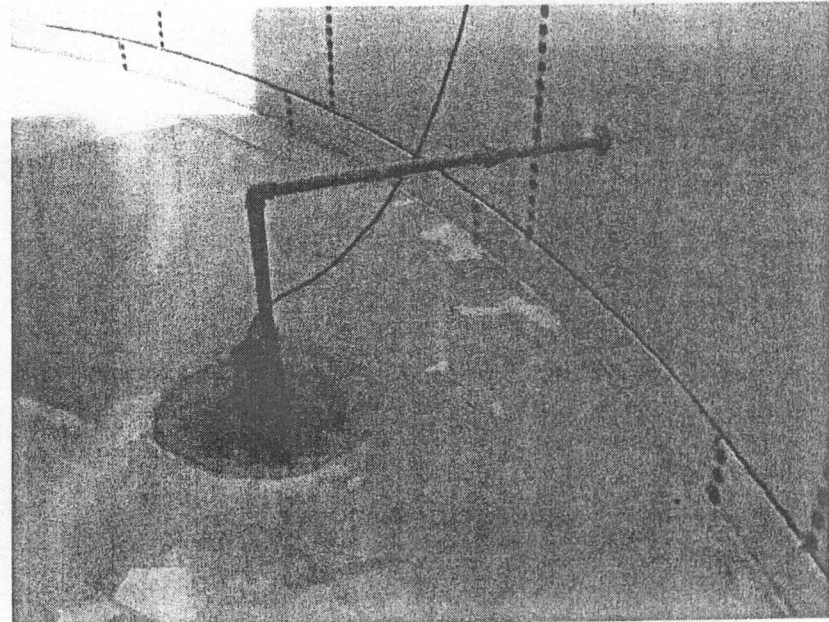
9. Level indicator display.



10. Level indicator top.

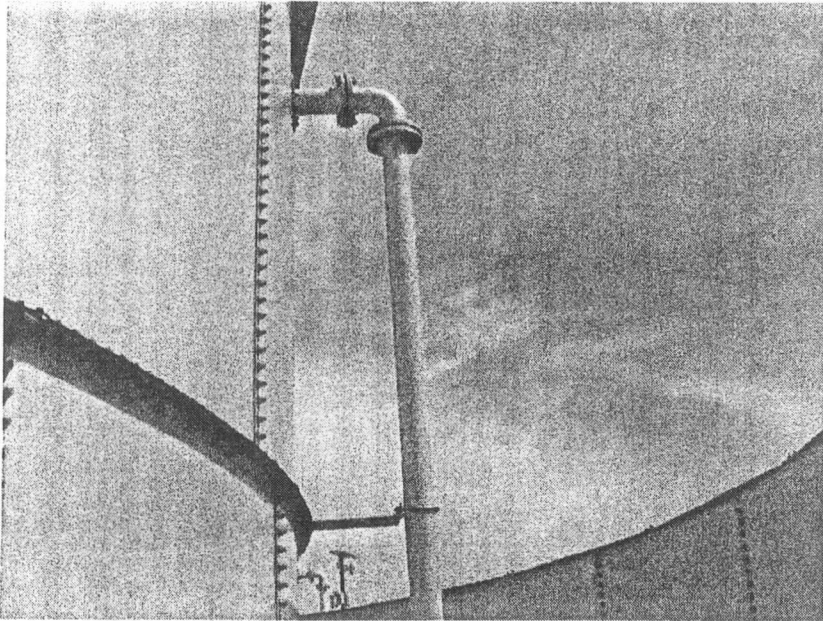


11. Sump drain outlet.

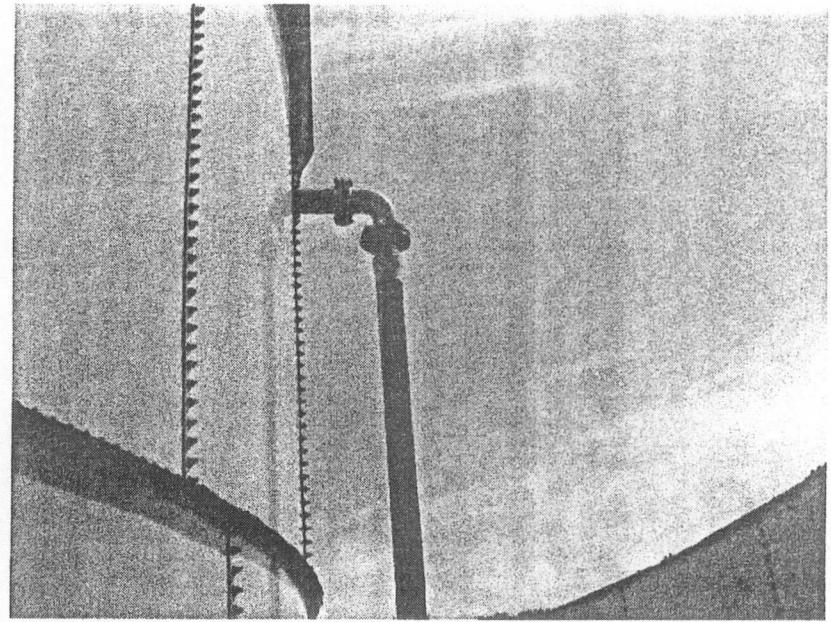


12. Sump and drain.

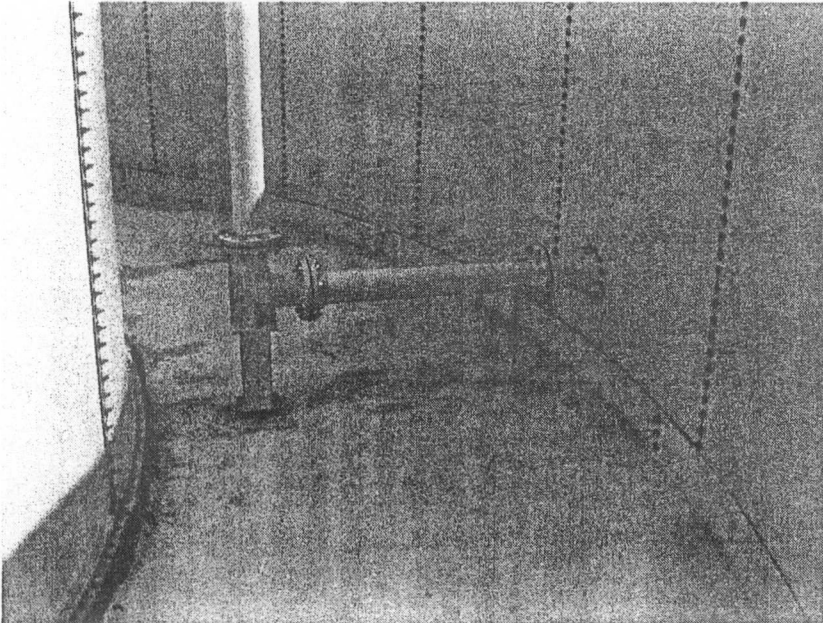




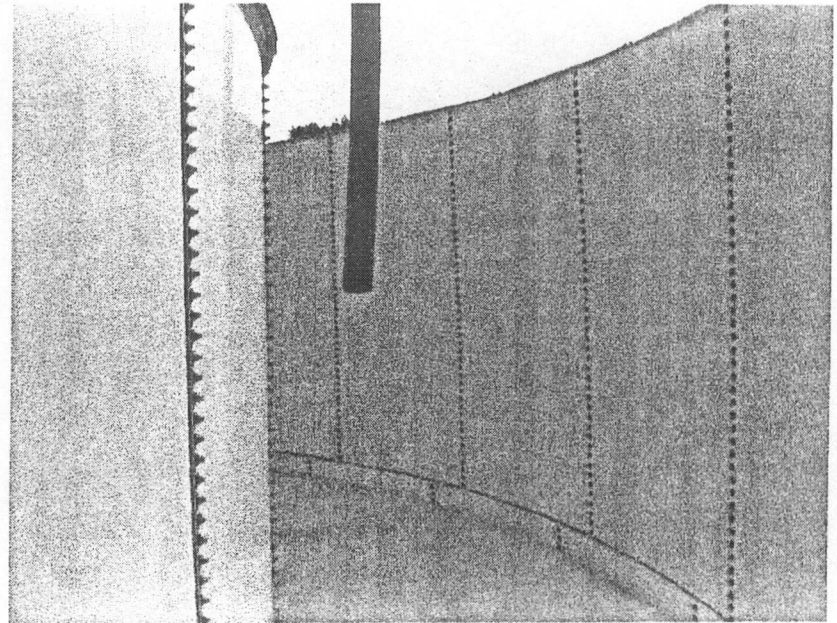
13. Inlet pipe top.



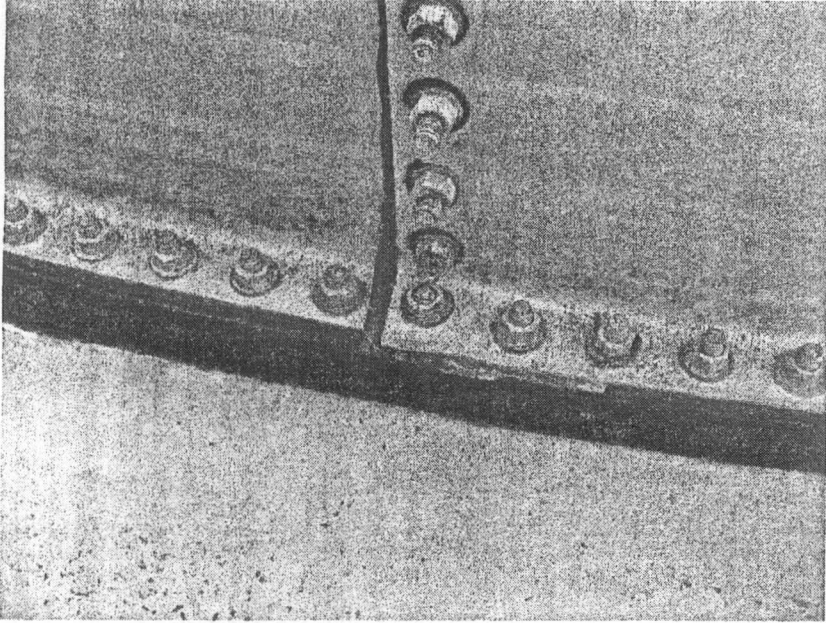
14. Overflow exterior.



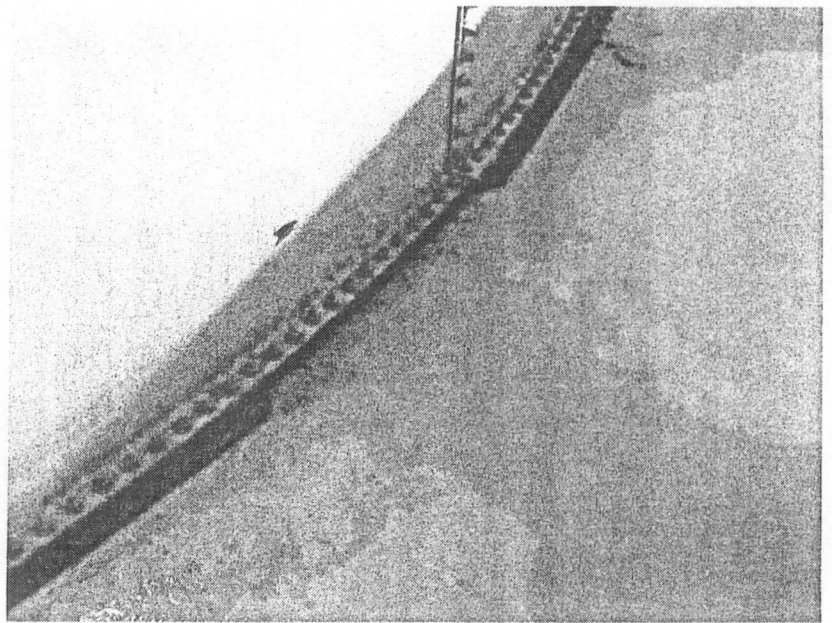
15. Inlet pipe base.



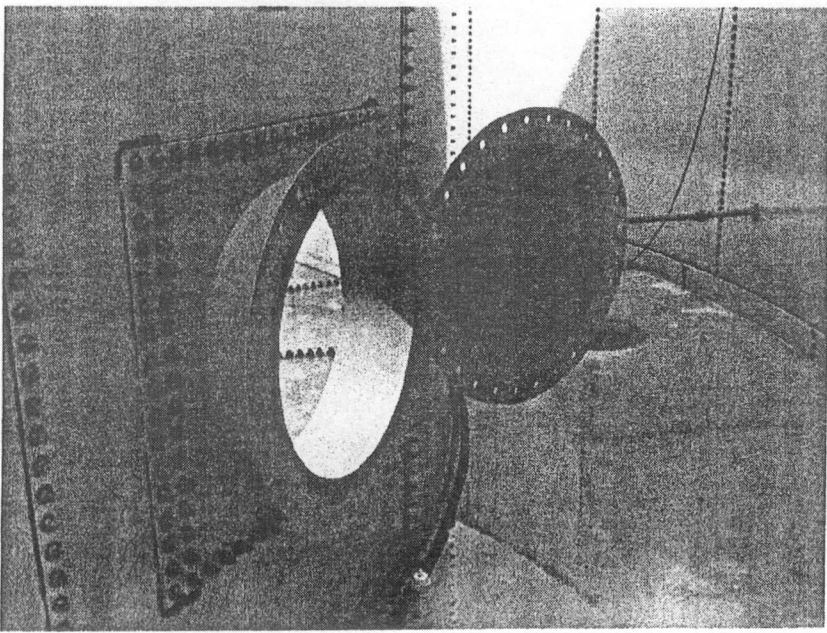
16. Overflow exterior end.



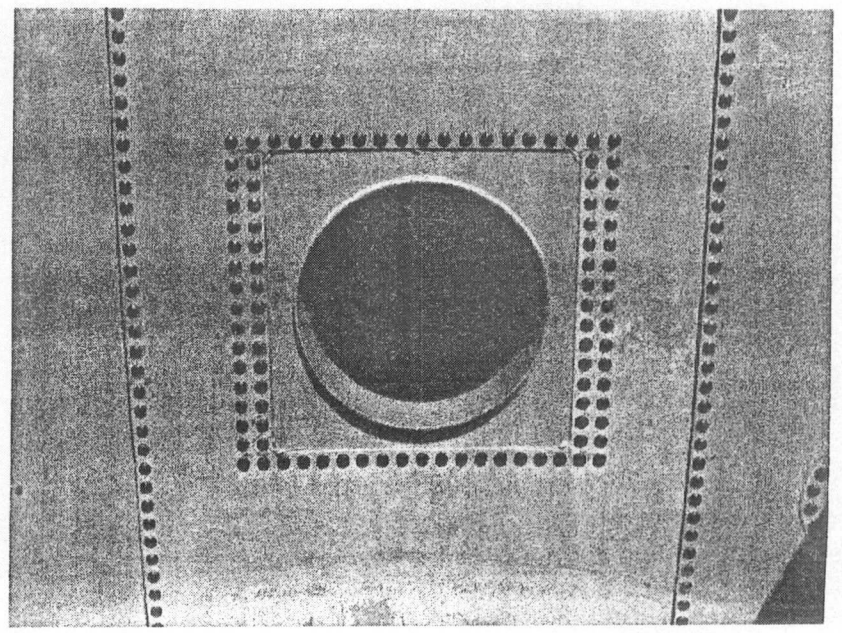
17. Bolts at base of inner tank.



18. Fiber board missing.

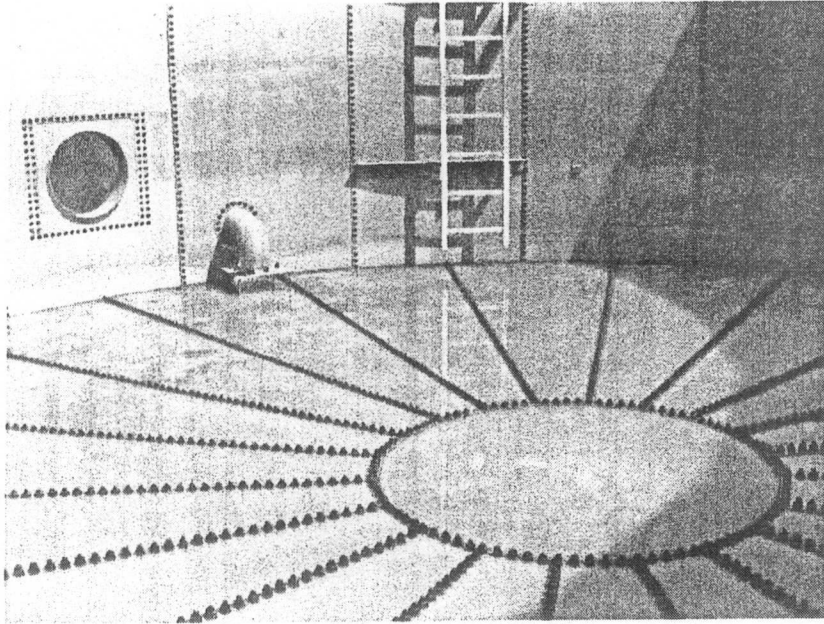


19. Manway on interior tank..

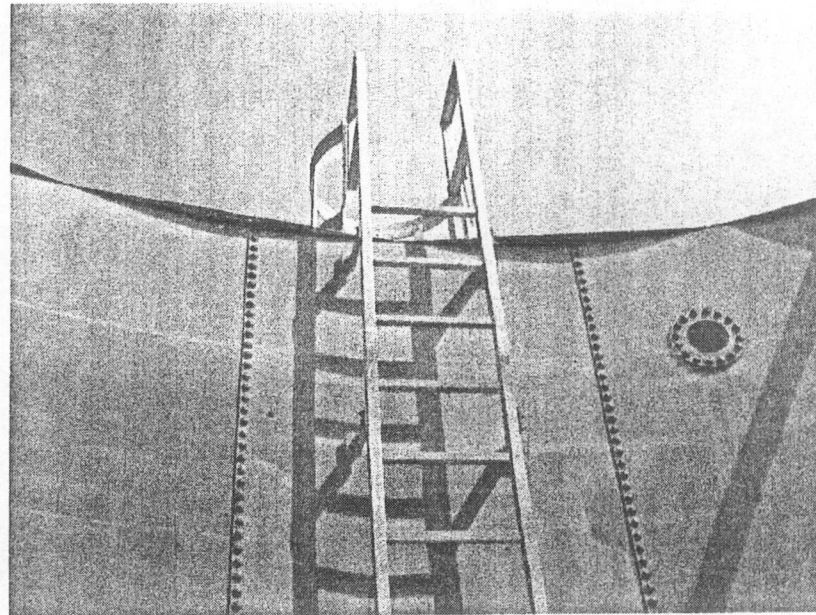


20. Manway interior.

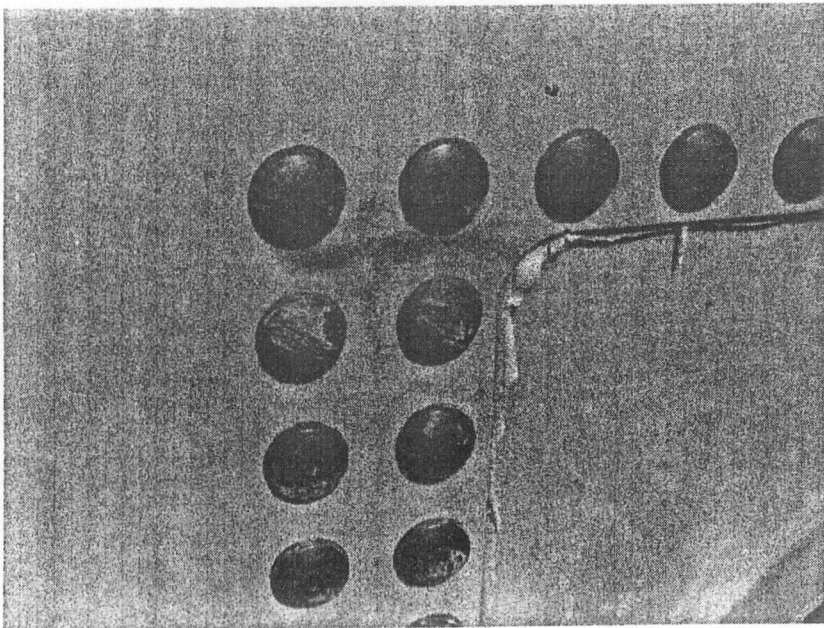




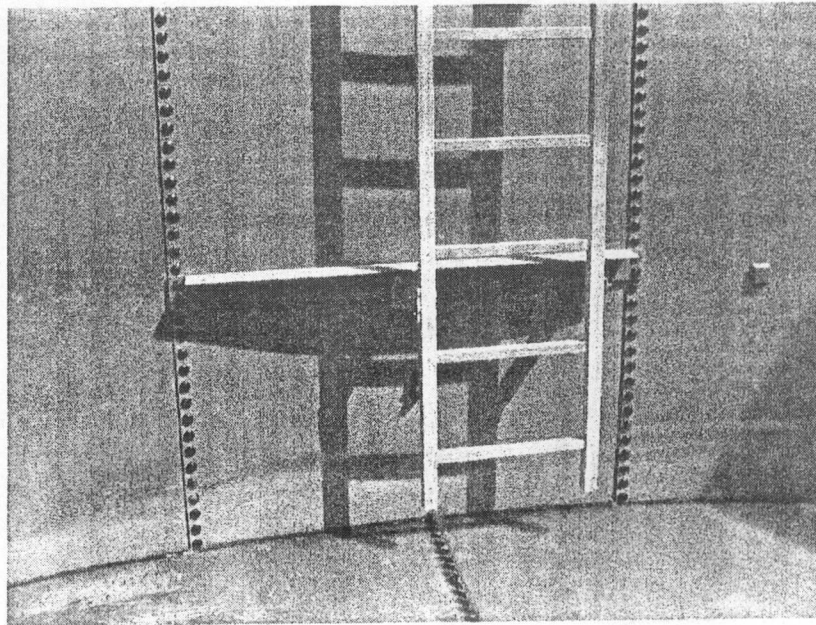
21. Interior overall.



22. Ladder top interior.

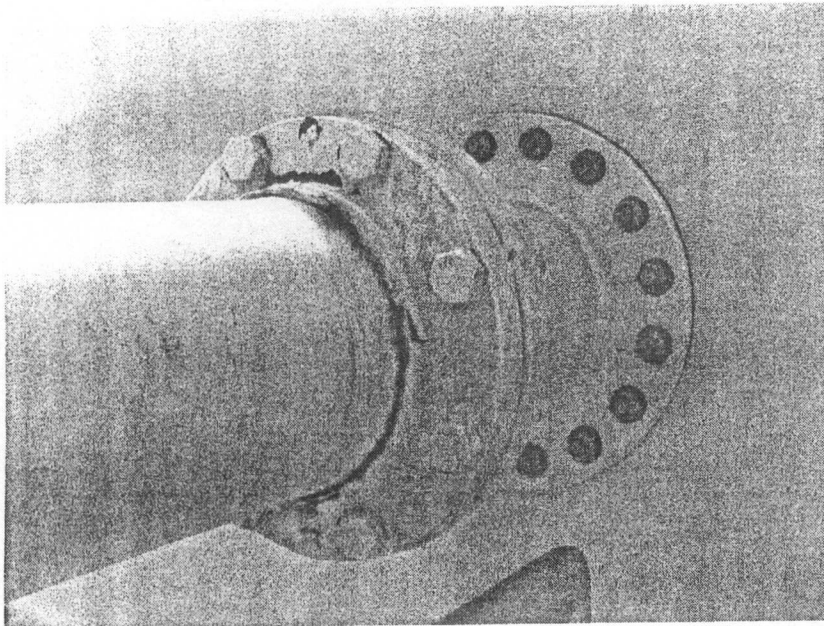


23. Manway pad bolts and coating failure.

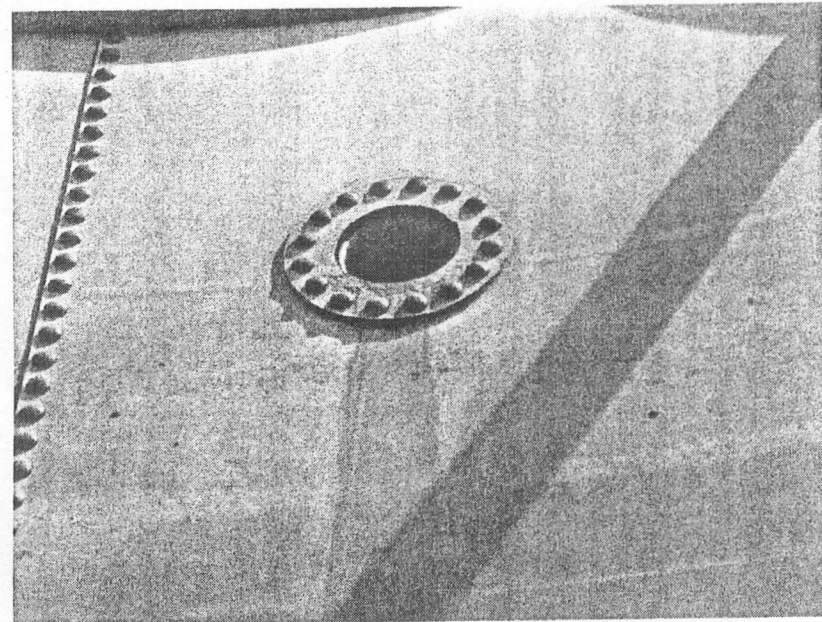


24. Ladder base interior.

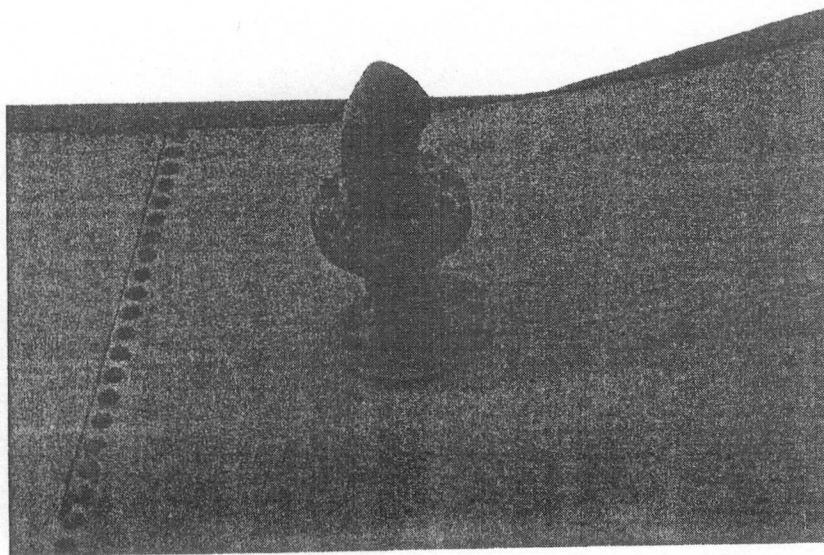




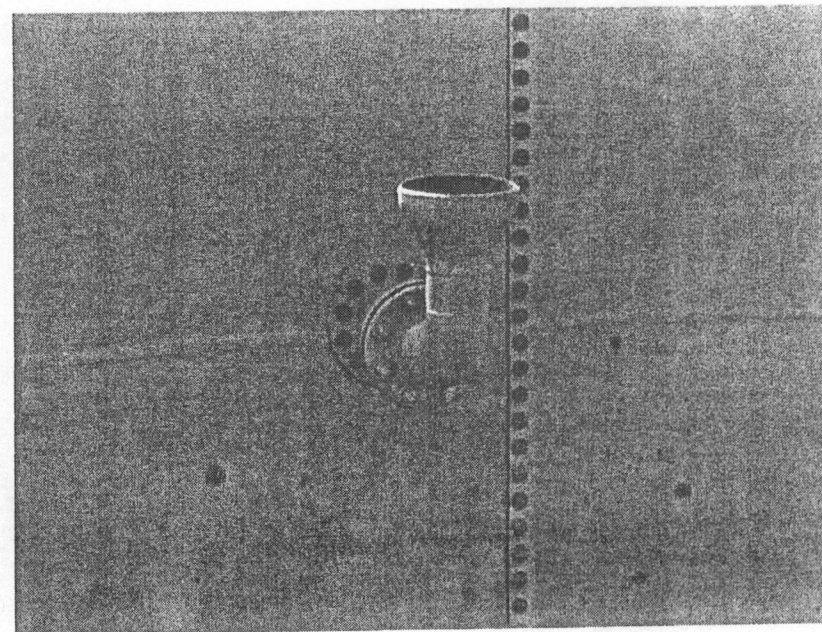
25. Interconnection Nozzle Exterior.



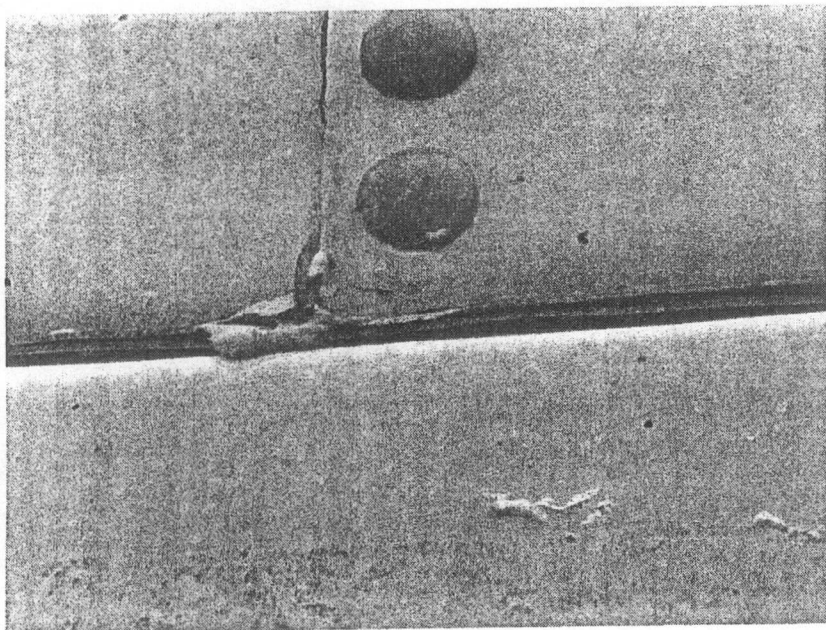
26. Interconnection Nozzle interior.



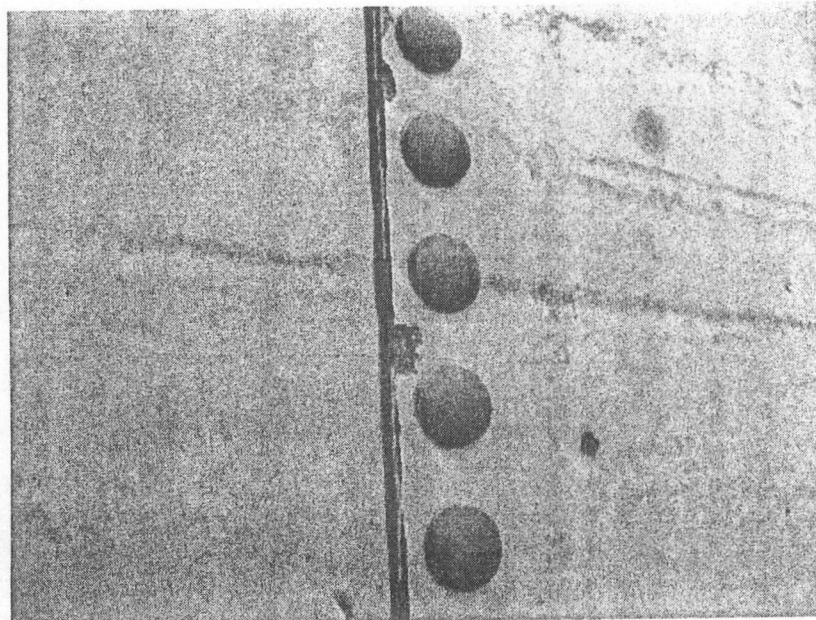
27. Inlet nozzle interior.



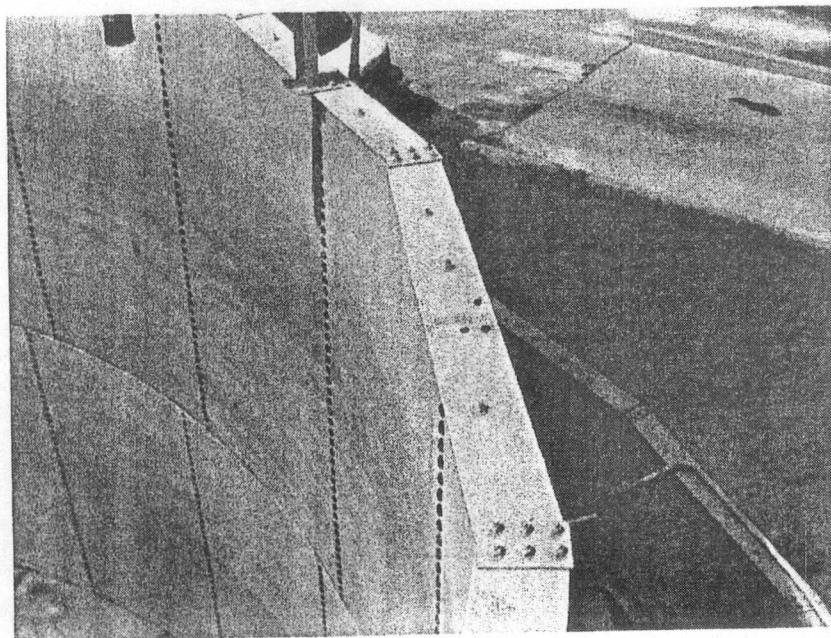
28. Overflow interior.



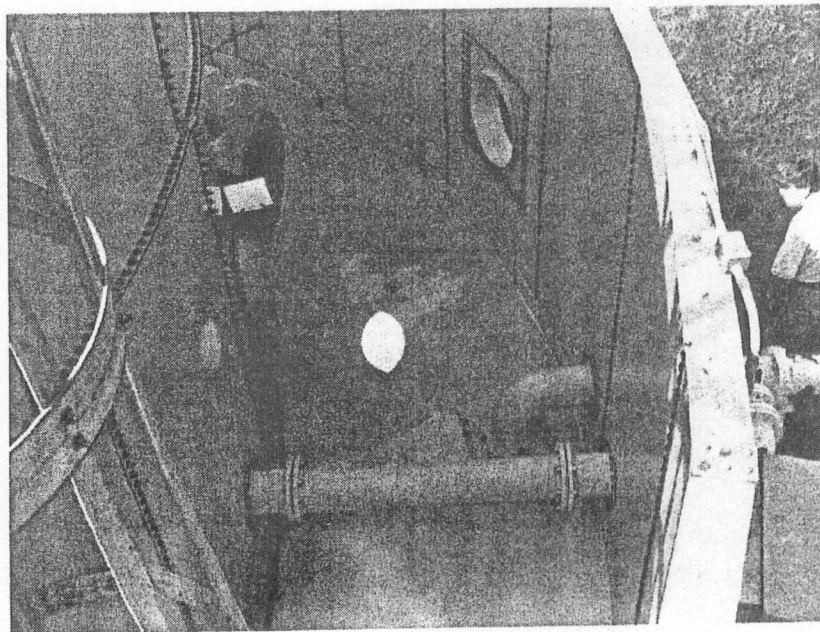
29. Typical corrosion at plate joint.



30. Typical corrosion on plate end.

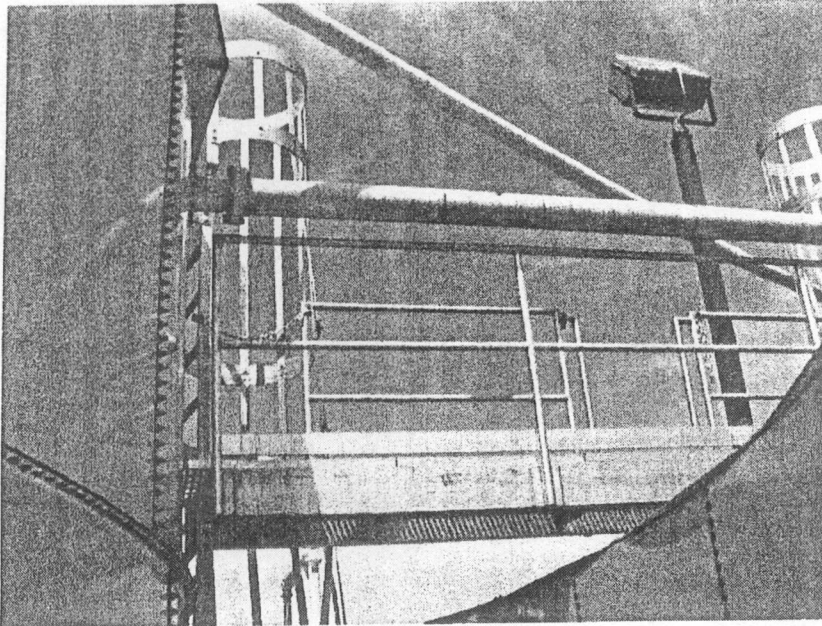


31. Wind girder.

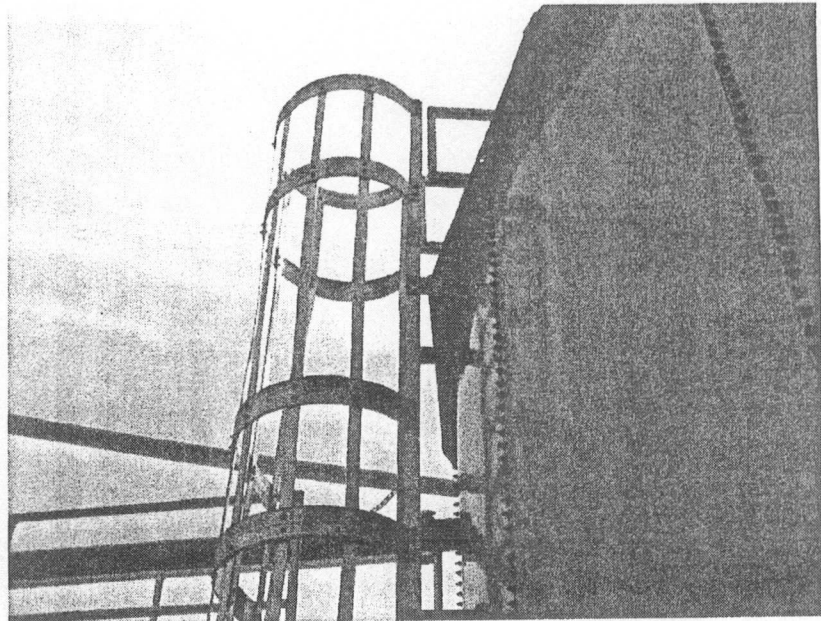


32. Interstice space.

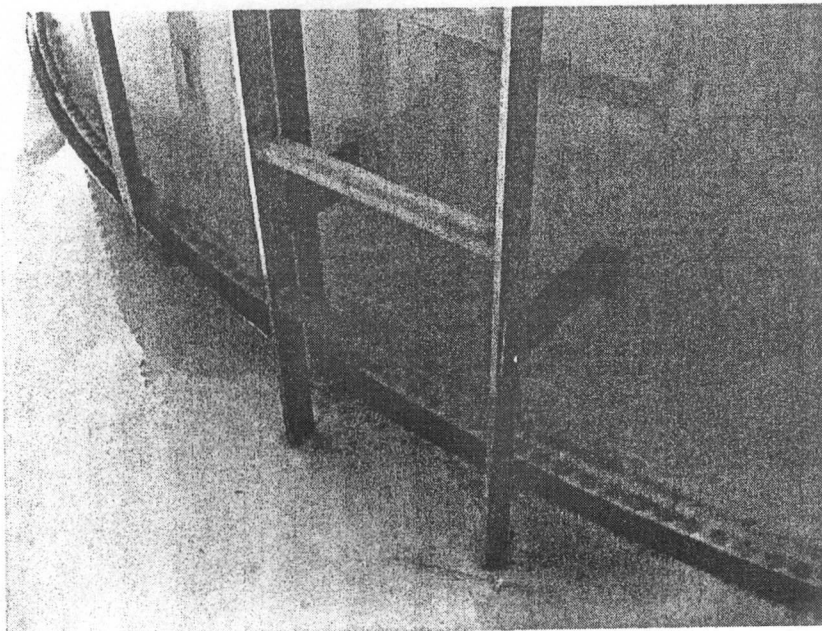




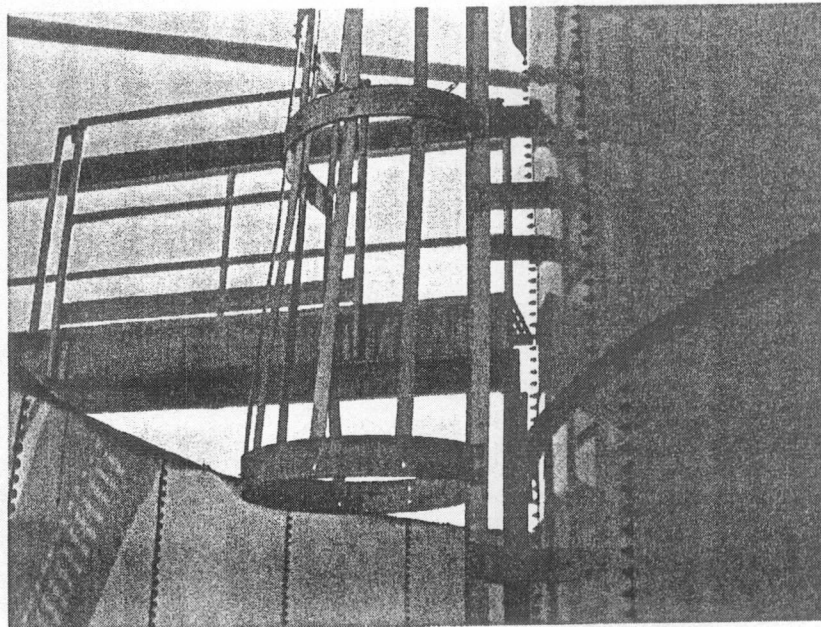
33. Catwalk.



34. Ladder top exterior.



35. Ladder base exterior.



36. Ladder middle exterior.

**ATTACHMENT B**

**Documentation of Epoxy Coating Equivalency**



P.O. Box 2907  
Kansas City, KS 66110-2907  
Telephone: 913-621-3700 • Fax: 913-621-2145

August 20, 2003

Ms. Lindsey Kennelly  
SCS Engineers  
3012 U.S. Hwy 301  
Suite 700  
Tampa, FL 33619-2242

RE: Columbian TecTank Interior Lining

Dear Ms. Kennelly:

This letter is being written to provide assurances that Trico-Bond 478 and Thermo-thane 7000 are identical thermally-cured epoxy systems.

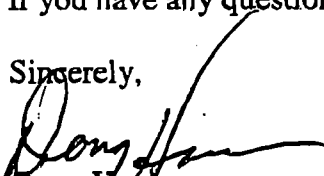
In 2001, Columbian Steel (CTT) purchased A.O. Smith's glass tank division (Engineered Storage Products) and their API bolted tank division, formerly known as Peabody TecTank. The new API bolted tank company – Columbian TecTank.

Both CTT and Peabody TecTank bought their interior coating system, Epicon 925, from the same coating supplier – but trademarked it under different names – Thermo-thane 7000 and Trico-Bond 478. Both are identical formulations.

Enclosed is the NSF listing for Epicon 925, Thermo-thane 7000 and Epicon 925 – again, identical products with different names.

If you have any questions, please let me know.

Sincerely,



Doug Hansen  
V.P. - Sales

**ATTACHMENT C**

**Letter from TEAM for Coating Repairs**



November 4, 2003

Janice Williamson  
Hardee County Solid Waste  
685 Airport Rd.  
Wauchula, FL 33873

RE: Leachate Tank Repairs

Dear Ms. Williamson:

As you requested, TEAM Consultants has performed coating repairs on Leachate Tanks No. 1 and 2.

Following the inspection of Tank No. 2, we repaired the coating failures on the interior of the tank, and repainted the exterior piping on both tanks. The interior tank surfaces were prepared by power tool cleaning in accordance with SSPC-SP3 (and all loose coating was removed), then two coats of the tank manufacturer's touch-up paint was applied per their instructions.

During the inspection of Tank No. 1, we discovered the previous coating repairs by others had failed in several areas. Following that inspection we performed the same sequence of operations as the interior of Tank No. 2.

If you have any questions please contact me at any time.

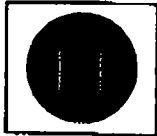
Sincerely,  
*Tank Engineering And Management Consultants, Inc*

Jeff Kitcher  
Vice President Municipal Operations

**ATTACHMENT D**

**Letter from County**





**Hardee County**  
**Solid Waste Department**

685 Airport Road  
Wauchula, FL 33873  
Phone: 883-773-5089  
Fax: 883-773-3907  
E-mail: janice.williamson@hardeecounty.net

December 29, 2003

SCS Engineers  
Attention: Joe O'Neill

Dear Joe:

On December 8, 2003 we had a representative from the Miltronics corporation onsite to conduct a diagnostic overview of the sonic level indicators in the tanks. All control devices are working in accordance with design and criteria of the DEP.

All recommended repairs noted on the Tank inspections done by TEAM were conducted as well. The inspection noted areas of concern to be monitored and inspected for future repairs including the recoating of the interior tank bolts and replacement of fiberboard. These areas were not repaired by county staff, but will be monitored and repaired by the contractor at a future date. These areas were not listed as required repair work and according to TEAM would not affect the performance or structure of the tanks. TEAM conducted all necessary repairs on the tanks and the coating materials used (Thermo-thane 7000 - identical to Trico-Bond 478) were supplied by the original manufacturer and applied in accordance to their instructions. Letter from TEAM attached.

Sincerely,



Janice Williamson  
Solid Waste Director

**ATTACHMENT F**  
**REVISED OPERATIONS PLAN**  
(See Attached 3-Ring Binder)

FLORIDA DEPARTMENT OF  
ENVIRONMENTAL PROTECTION

DEC 30 2003

SOUTHWEST DISTRICT  
TAMPA

**SCS ENGINEERS**

September 30, 2003  
File No. 09199033.08

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



Subject: Hardee County Landfill - Operation Permit  
Pending Permit No.: 38414-007-SO, Hardee County

Dear Mr. Ford:

On behalf of Hardee County, SCS Engineers (SCS) submits the following responses to your request for additional information in a letter dated June 18, 2003. For ease of review, each FDEP comment is reiterated in bold type, followed by our response.

We have provided additional information and replacement pages attached to this letter, using a ~~strike through~~ and underline format, to facilitate review. We have included the revision date as part of the header/footer for all revised pages and provided an original and two copies of all revised materials.

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

1. **62-701.300. Revisions to Section D are requested as follows:**
  - a) **Section D.2. - To explain that yard trash and the leachate storage tanks are subject to the prohibitions and to describe compliance with the prohibitions.**

**Response:** Changes have been made to Section D.2 in reference to Rule 62-701.300(12) and (13), F.A.C. Revised sheets are located in Attachment A-1. Figure 1, also located in Attachment A-1, depicts the 50-foot offset from Wetland Area No. 1 and the yard waste processing area and the leachate storage tank and the onsite well located immediately south of the maintenance building.

- b) **Section D.11. - To explain that used oil will not be accepted for disposal.**

**Response:** Used oil is not, and will not be disposed of within the landfill.



Changes have been made to section D.11 and reference Rule 62-701.300(8)(b), F.A.C. and are located in Attachment A-2.

2. **62-701.320(5)(b). A description and timeframe for applying for a construction permit for expansion and for a closure permit are requested.**

**Response:** SCS Engineers is in the process of developing an expansion plan for Hardee County's landfill. As part of the plan, the existing operation grading plan will be modified to match grading and drainage plans with future expansion plan as well as development of partial closure plans for northern and eastern sideslopes of the existing landfill. SCS will submit a schedule upon completion of the expansion layouts on behalf of Hardee County.

The expansion permit plans are currently being finalized and the proposed schedule for submittal to FDEP is by the end of October or early November of 2003. In addition, the County will be submitting partial closure permit application for the northern and eastern sideslope of the existing landfill in summer of 2004.

3. **62-701.320(7)(d)1. A cover page for the Engineering Report (just before the table of contents) signed and sealed by a professional engineer is requested.**

**Response:** The signed and sealed cover page is located in Attachment A-3.

4. **62-701.320(7)(f)6. A comprehensive set of Record Drawings are requested for the entire previously approved stormwater management system are requested.**

**Response:** The stormwater management system has been previously reviewed and approved by FDEP. In the past consecutive permitting processes, FDEP has approved the stormwater management system at Hardee County Landfill. SCS is submitting drawings from Envisors (dated 1982), Briley Wild and Associates (dated 1988), and Wade Trim (1994) for the existing stormwater management system at Hardee County Landfill. PBS&J drawings dated July 2000 are on file with the Department. The drawings are located in Attachment A-4. The contributing area, the entire landfill, remains the same as previously designed. SCS has completed supplemental calculations, contained in Attachment A-4, to verify the design of stormwater structures in the shown on the submitted operations plans. The overall stormwater management system for the site remains as designed by others.

5. **62-701.320(15). a) A list of all trained operators, and all trained spotters, including the hours of training completed by each is requested. b) A training plan with a list of courses to be attended and hours of training required for operators and spotters is requested.**

**Response:** Changes have been made to Section E.15, located in Attachment A-5, and reference Rule 62-701.320(15), F.A.C. Attachment A-5 also contains the hours of training completed by County personnel as well as a list of courses.

6. **62-701.330(1)(c). Documentation, or references to documents on file with the Department, to demonstrate that the landfill is “lined” are requested.**

**Response:** Per Rule 62-701.200 (69), F.A.C., a lined landfill is defined as “a landfill constructed with a liner made of synthetic materials, low-permeability soils, or a combination of these materials, which have been permitted by the Department, and which met the Department’s landfill design criteria specified in this chapter or previous versions of this chapter at the time of permitting”. FDEP has previously approved Solid Waste Permits for Hardee County, which contains information regarding the lined landfill area. The landfill sideslopes are lined with geosynthetics, which tie into a low permeability clay to form the waste disposal unit. Reference documents include drawings by Envisors (dated 1982) showing the clay bottom and geosynthetic sideslopes, Briley Wild and Associates (dated 1988) and Wade Trim (dated 1994) showing geosynthetic sideslopes. PBS&J Construction Permit Application, dated June 1994, specifically Appendix C of the application, contains permeability test results on the underlying clay strata. The clay permeabilities range from  $4 \times 10^{-7}$  to  $6 \times 10^{-8}$  centimeters per second.

7. **62-701.330(3)(d) and (j). Revisions to the operational drawings are requested to show the additional information listed below:**

Refer to response provided to Question 2.

- a) **The typical liner system detail, including the bottom and side liners, leachate collection/conveyance system, waste limits, future final cover, and the adjacent stormwater conveyances;**

**Response:** Please refer to the revised drawings contained in Attachment D.

- b) **The direction of filling for each working face disposal area;**

**Response:** Please refer to the revised drawings contained in Attachment D.

- c) **The design details for the typical slopes and perimeter berms to be maintained to drain stormwater and to contain leachate in the vicinity of each working face disposal area;**



**Response:** Please refer to the revised drawings contained in Attachment D.

- d) **Cross-sections to show lifts of waste as filling progresses including details for permanent terraces and permanent drainage devices;**

**Response:** Please refer to the revised drawings contained in Attachment D.

- e) **Sheet 4 - to show the correct manhole numbers, and with the precise location of the perimeter liner, manholes, and leachate collection/conveyance system;**

**Response:** Please refer to the revised drawings contained in Attachment D.

- f) **Sheet 5 - to show the slope of the terrace swale (at elevation +135 NGVD) with the direction of flow, and the related drainage features to convey the stormwater down the slope, and to show passive gas vent typical cross-section details and locations on the final cover plan view.**

**Response:** Please refer to the revised drawings contained in Attachment D. The passive gas venting system will be installed during partial closure of the landfill. Details of the vents will be submitted with the closure permit application.

- g) **Sheet 8 - to show the top liner on the cover system detail, to include a note on the south slope partial reconstruction detail to ensure that asbestos will not be disturbed due to waste excavation, and to include a note on the typical waste place detail to describe the placement of loose waste over bales.**

**Response:** Please refer to the revised drawings contained in Attachment D.

- h) **Sheet 9 - to include a note to describe that only clean soil fill will be used over intermediately covered areas as needed prior to the final grading of slopes and terraces.**

**Response:** Please refer to the revised drawings contained in Attachment D.

8. **62-701.400(2). A description of planned Hardee County Landfill construction and closure at planned intervals throughout the design period of the landfill is requested.**

**Response:** SCS Engineers is in the process of developing an expansion plan for Hardee

County's landfill. As part of the plan, the existing operation grading plan will be modified to match the future expansion plan. The existing landfill will be fill along the south side and along the eastern side. Minimal fill will be placed along the northern end of the landfill to allow placement of the stormwater terrace. As the eastside is filled the access road will be constructed to allow vehicle access to the top of the landfill. No filling will occur on the westside of the landfill.

The proposed expansion construction, along the southern and western sides of the existing landfill, will occur as the existing landfill is being filled. Upon completion and approval of the expansion area, the County will begin final grading of the southern and eastern sides of the existing landfill. Construction (placement of geomembrane) on the western and southsides of the existing landfill will occur while the County is filling the southern end of the expansion. Partial Closure construction of the northern and eastern sides of the existing landfill will occur upon completion and approval of the geomembrane placement along the west and south sides of the existing landfill. The County will then commence filling in the expansion area and filling along the sideslope of the existing landfill.

9. **62-701.400(4)(a). Documentation to demonstrate that the entire existing leachate collection and removal system complies with each of the requirements in Rule 62-701.400(4)(a) is requested. Additionally, the following items are requested:**

**Response:** The primary leachate collection system at Hardee County Landfill was previously designed and permitted by others. Per Rule 62-701.400(4)(a) F.A.C. and based upon available information (primarily record drawings, no construction completion reports were available) on the existing system, the following information is presented;

- 1) The leachate collection system is comprised of eight inch diameter corrugated polyethylene pipe, which is compatible with they typical municipal solid waste leachate.
- 2) The mechanical properties of the pipe were addressed in previously submitted and approved applications to the Department. The Florida Jetclean Inc. inspection and video also demonstrates that the leachate collection system can withhold the pressures exerted by waste, cover materials, and landfill equipment.
- 3) According to drawings prepared by Envisors, Briley Wild and Associates, Wade Trim, and PBS&J, the designs included a granular pack that encompasses the leachate collection pipe.

4) As stated in Specific Condition 17.g., the video inspection demonstrates that the pipes are not clogged. If at any time during the inspection the pipes were clogged, they were pressure washed to remove debris. Please review the Florida Jetclean Inc. video dated April 14, 2003 to see the pipes are not clogged.

a) **A comprehensive inspection report as required by Specific Condition #17.g., signed and sealed by a professional engineer.**

**Response:** Refer to the response to comment 9 and 9(e). The leachate collection system was video taped in its entirety and a report submitted by Florida JetClean. According to Specific Condition #17.g. of the Solid Waste Permit issued to Hardee County, the above-mentioned report does not need to be signed and sealed by a professional engineer.

b) **A drawing to scale showing all distances between manholes to match the distances indicated by Florida Jetclean Inc., or a an appropriate explanation for each discrepancy.**

**Response:** As stated in the video provided by Florida Jetclean Inc., the counter, which measures the pipe length, was not consistently operating correctly. In addition, the locations of the manholes are currently being surveyed to confirm the exact locations relative to the landfill. The distances are shown on the scaled figure located in Attachment A-6. Florida JetClean has reviewed the tape again and found a significant measurement deviation when measuring from Manhole No. 7 to the lift station. This was due to the camera falling into the liftstation and subsequent efforts (involving the camera being moved back and forth) to recover the camera. SCS had the manhole locations surveyed and the distances are shown on Figure 1 in Attachment A-6. There remains a minor measurement differences between the Florida JetClean and Surveyed distances, however JetClean has reviewed the tapes in their entirety and has indicated that all leachate collection lines have been video tape their entire length.

c) **A drawing to scale showing the correct numbering for each manhole.**

**Response:** Prior to video taping the lines, the markers for the manholes were incorrectly labeled. See the revised Figure 1 of 1, Note 1 and the description notes for Manholes 8 and 9 of the Leachate Collection Line Report, located in Attachment A-6.

d) **A corrected Florida Jetclean report to include the correct numbering for each manhole.**

**Response:** See the revised Figure 1 of 1, Note 1 and the description notes for Manholes 8 and 9 of the Leachate Collection Line Report, located in Attachment A-6.

- e) **An explanation with conclusions and recommendations for each location of each pipe “separation” and “egg-shaped” distortion.**

**Response:** Based upon a review of the video the following conclusions and recommendations are made for each item;

Manhole 3 toward Manhole 2 – Possible separation at 7 feet

Conclusion: The pipe is approximately 7 to 8 feet below ground surface with no visible tree or stumps in the area, therefore roots are unlikely. It was concluded that this may be mold or miscellaneous debris or roots from initial installation.

Recommendation: The pipe system was design and installed by Briley Wild and Associates in 1988. No clogging was evident during the video conducted by JetClean in 2003 so the system is function adequately.

Manhole 3 toward Manhole 2 – Possible separation at 237 feet

Conclusion: The pipe maybe separated along one side however it does not appear to be completely separated especially along the flowline. The camera was able to traverse through the pipe in this area. The size of the separation cannot be accurately estimated since an orange colored material covers the area. The orange colored material along the separation is probably iron mold which is consistent with slow seepage in high iron soils.

Recommendation: The pipe system was design and installed by Briley Wild and Associates in 1988. No clogging was evident during the video conducted by JetClean in 2003 so the system is function adequately.

Manhole 2 toward Manhole 3 – Possible separation at 152 feet

Conclusion: Same as described in Manhole 3 to 2 (Separation at 237 feet).

Recommendation: Same as described in Manhole 3 to 2 (Separation at 237 feet).

Manhole 7 toward Lift Station – Pipe “Egg-Shaped”

Conclusion: During construction, the pipeline was being video taped when the camera became stuck in the pipe. The pipeline was excavated to retrieve the camera. During the re-construction of the pipeline, the pipe may have been slightly misshaped as a new snap coupling was applied. (Refer the PBS&J Construction Certification Documents (dated Jul 2000) – Volume 1 of 2 Section 1.24)

Recommendation: The pipe flowline is continuous and no clogs were reported in the pipeline during the 2003 videotaping. The pipe is buried approximately 12 to 13 feet of soil and heavy truck traffic and landfill equipment has traversed the area since the pipe was installed in January of 2000. If pipe had sustained significant structural damage, then failure would have probably during backfill and compaction of the pipe trench. The recommendation is to leave the pipe in-place since a video camera can pass through the opening.

Manhole 7 toward Manhole 6 – Pipe separated

Conclusion: During construction, the pipeline was video taped and a restriction was noted. PSB&J approved the pipeline (Refer to Field Notes dated January 21, 2000 in PBS&J Construction Certification Documents Volume 1 of 2). It does appear that the pipe is separated. No clogs were reported in the 2003 video taping of the pipeline. Leachate is flowing from Manhole 6 to Manhole 7.

Recommendation: No clogs were reported in the pipeline during the 2003 videotaping. The pipe is buried approximately 12 to 13 feet of soil and heavy truck traffic and landfill equipment has traversed the area since the pipe was installed in January of 2000. Leachate can still flow within the pipe. At this time the recommendation is to leave the pipe in-place, since the leachate collection system is functioning adequately at the time. The County has planned to repair this section of the pipe in conjunction with future expansion plans.

10. **62-701.400(6)(c)9. Documentation to demonstrate that each leachate storage tank has been inspected as required, and that each complies with the requirements in Rule 62-701.400(6) (c) is requested. Additionally, the following items are requested:**

**Response:** The tank material and tank operations have been previously reviewed and approved by FDEP.

- a) **A comprehensive inspection report as required by Specific Condition #17.j., signed and sealed by a professional engineer.**

**Response:** The operational components of the leachate storage tanks (pumps, ultra-sonic level indicator, tank material, and shut-off controls) was inspected by SCS Engineers and all components appear to be functioning adequately. TEAM tank inspectors has completed inspection of Tank No. 2 and is currently (as of September 29, 2003) awaiting for Tank No. 1 to be pressure cleaned for re-inspection. Tank No 1 will be cleaned by October 1, 2003. TEAM will make inspections on October 2, 2003. Upon receipt of the Final report from TEAM, SCS will issue a final inspection report. TEAM should be complete with the final report by October 31, 2003.

**b) Confirmation that the proposed repair materials are compatible with the original coatings.**

**Response:** A confirmation by Columbian TecTank is located in Attachment A-7. Columbian TecTank certifies that the coating used by Columbian TecTank (Trico Bond 478) during the tank inspection is not only compatible with the existing coating (Thermo-Thane 7000) it is the same coating. Please see the attached confirmation.

**c) The schedule for completing repairs and certification.**

**Response:** Refer to response to part (a) above.

**11. 62-701.400(9). Copies of all permits, related calculations, and record drawings for the entire stormwater management system are requested. Documents on file with the Department may be referenced rather than resubmitted.**

**Response:** The stormwater management system has been previously reviewed and approved by FDEP. In the past consecutive permitting processes, FDEP has approved the stormwater management system at Hardee County Landfill. SCS is submitting drawings produced by Envisors, Briley Wild and Wade Trim for the existing stormwater management system at Hardee County Landfill as well as stormwater calculations for the existing stormwater management system produced by SCS Engineers. The drawings and calculations are located in Attachment A-4.

**12. 62-701.400(11). Documentation to demonstrate that the current landfill design provides an equivalent degree of protection for the environment as would a similar landfill whose bottom liner is not in contact with groundwater is requested.**

**Response:** The entire existing disposal area was permitted in 1983. The Department has reviewed and approved the previous construction permits for the sideslope liners



and containment system design at Hardee County Landfill. The waste disposal area has been permitted and regularly filled since 1983 and based upon the last biennial report, submitted on May 16, 2003, no major groundwater impacts have been noted.

13. **62-701.410(2). All related geotechnical reports are requested. Documents on file with the Department may be referenced rather than resubmitted.**

**Response:** The Department has reviewed and approved previous construction permits, which includes a geotechnical report from PSI, dated March 10, 1997.

14. **62-701.430. Documentation to demonstrate that the vertical expansion from elevation  $\pm 155$  NGVD (based on previous geotechnical calculations) to elevation  $\pm 164$  NGVD (after final cover as noted on the proposed drawings) complies with each of the requirements in Rule 62-701.430 is requested.**

**Response:** SCS and Hardee County have reviewed the previously submitted operations plan and have revised the plans to better conform with proposed expansion plans for the landfill. As a result, the fill sequence plans were revised and are contained in Attachment D. The revised final buildout elevation of the existing landfill is approximately elevation  $\pm 150$  NGVD (elevation  $\pm 153$  NGVD with cap). Therefore the settlement and bearing capacity analyses submitted are still applicable. The sideslopes of the proposed revision have changed from 4(h):1(v) to 3(h):1(v). SCS has completed revised slope stability analyses for the proposed sideslope increase. The slope stability analyses is contained in Attachment A-8.

15. **62-701.500(1). Revisions to Section L.1 are requested to describe or reference a training plan with the listed courses and hours of training for operators and spotters to demonstrate compliance with 62-701.320(15).**

**Response:** Changes have been made to Section L.1 and reference Rule 62-701.500(1), F.A.C. The revised Section L is located in Attachment A-9.

16. **62-701.500(2). Revisions to the Operations Plan are requested to include the document title and date on each page. Revisions to the Section entitled Background Information are requested as follows:**

**Response:** Changes have been made to the Operations Plan to reflect the document title and date on each page. Section L is located in Attachment A-9.

- a) **include section numbers by each subheading;**

**Response:** Changes have been made to the Operations Plan located in Attachment A-9.

- b) **delete references to unrelated C&D debris disposal practices;**

**Response:** Changes have been made to the Operations Plan located in Attachment A-9.

- c) **provide reference to the MRF operation plan on file with the Department rather than resubmit (this application does not include a review of the MRF operations plan which is permitted separately);**

**Response:** The MRF Operations Plan is referenced within the Landfill Operations Plan.

- **include a description for the storage of batteries, paint, used oil and other special wastes under cover with spill containment.**

**Response:** The batteries, paint, used oil and other special wastes are stored in the Household Hazardous Waste Collection Center (HHWCC). This area is roofed and has a curb in order to contain spills should one occur. Used oil is consolidated into two double-walled oil tanks. Lead acid batteries are stacked three high on palettes, with cardboard placed between each layer, and then shrink wrapped. Only empty dried out paint cans are accepted throughout the year. If a can of paint is found by landfill personnel it is taken to the household hazardous waste facility for temporary storage in hazardous waste bunkers until removed from the site by the qualified contractor. Private contractors are hired for the removal of the special wastes such as the used oil, paint, lead acid batteries, and fluorescent light bulbs. Changes have been made to the Operations Plan located in Attachment A-9.

17. **62—701.500(2)(b). 1) Revisions to Section L.2.b. are requested for the following items:**

- a) **to describe procedures for responding to spills.**

**Response:** Liquids are not accepted at the landfill. If a liquid is identified, the hauler is asked to remove the liquid from the site. If a liquid is spilled, absorbent granules are placed on the spilled liquid. The absorbent granules are placed in barrels at the Household Hazardous Waste area until a private hauler can remove the material. Changes have been made to the Operations Plan located in Attachment A-9.

- b) **to describe agreements with adjacent counties for the disposal of waste in the event that the facility must remain closed for more than 48 hours is requested.**

**Response:** If the landfill is shut down for more than 48 hours, the Department will be notified. Hardee County Landfill has a contact list of Class I, Class III, and C&D landfills that neighbor the County. Through the "Small County Coalition", various counties will work together during a times of emergency. The contact list is located in Attachment A-10. Changes have been made to the Operations Plan located in Attachment A-9 to include a contact list of adjacent waste disposal facilities.

- c) **to describe procedures for managing "hotloads".**

**Response:** As per Rule 62-701.500(6)(b), F.A.C., if a "hotload" is identified, the Department will be promptly notified and the hauler identified from a license plate or by hauling records. A front-end loader separates the "hotload" from other waste while keeping it within the lined area and marking it with applicable markers. The "hotload" will be covered and a perimeter berm will be placed around the "hotload" to minimize contact with stormwater. Covers include a 20-mil Visqueen rolls, which are available at the Household Hazardous Waste Collection Center. Hardee County will contact the person/entity who dumped the "hotload" and request removal within 48 hours. If the 48 hours expire without removal, Hardee County will separate clean materials that can be segregated onsite. The County will contact an independent waste hauler for proper disposal of the "hotloads" at a permitted hazardous waste management facility. Changes have been made to the Operations Plan located in Attachment A-9.

18. **62-701.500(2)(c). Revisions to Section L.2.c. are requested to describe the following items:**

- a) **procedures for the disposal of asbestos;**

**Response:** Changes have been made to Section L.2.c to reflect Rule 62-701.500(2)(c), F.A.C. The revised Section L is located in Attachment A-9.

- b) **for inspection of each load and the procedures for the removal each type of unacceptable waste from the working face;**

**Response:** Changes have been made to Section L.2.c to reflect Rule 62-701.500(2)(c), F.A.C. The revised Section L is located in Attachment A-9.

**c) procedures for the disposal of contaminated soil.**

**Response:** Changes have been made to Section L.2.c to reflect Rule 62-701.500(2)(c), F.A.C. The revised Section L is located in Attachment A-9.

**19. 62-701.500(2)(f). Revisions to Section L.2.f. are requested to describe the procedures for the daily disposal of both loose waste and baled waste at one or two working faces.**

**Response:** Changes have been made to Section L.2.f to reflect Rule 62-701.500(2)(f), F.A.C. The revised Section L is located in Attachment A-9.

**20. 62-701.500(2)(j). Revision to Section L.2.j. is requested to include a procedures for inspecting the overfill protection system for each tank.**

**Response:** As part of the Leachate Management Program, Hardee County personnel monitor the amount of liquid entering the tanks at the control panel. Routine inspections include:

- Inspection of flow meters to ensure proper operation.
- Examining the overflow pipes in Tank 1 for obstructions.
- Monitoring the liquid levels in both tanks.

The overfill protection system is as follows:

- 1.) Tank 1 is filled by the pump station located at Manhole 8 (MH-8). If the liquid level rises above the overflow pipe in Tank 1, the flow is diverted to Tank 2.
- 2.) As Tank 2 fills and equalizes with Tank 1, the two tanks fill simultaneously.
- 3.) As both tanks continue to fill, each tank has a final overflow pipe, which allows liquid to flow into the containment area for each individual tank. Changes have been made to Section L.2.j to reflect Rule 62-701.500(2)(j), F.A.C. Section L is located in Attachment A-9.

**21. 62-701.500(6). Revisions to Section L.6 are requested to describe a loose waste disposal load checking program and procedures for managing all unacceptable waste and special wastes.**

**Response:** Changes have been made to Section L.6 to reflect Rule 62-701.500(6), F.A.C. Section L is located in Attachment A-9.

**22. 62-701.500(7)(a). Revisions to Section L.7.a. are requested for the following items:**

- a) to describe a lift of bales not more than three high;**

**Response:** Changes have been made to Section L.7.a. to reflect Rule 62-701.500(7), F.A.C. Section L is located in Attachment A-9.

- b) to provide a figure for the bale layout;**

**Response:** Changes have been made to Section L.7.a. to reflect Rule 62-701.500(7), F.A.C. Section L is located in Attachment A-9.

- c) to describe compaction procedures for loose waste.**

**Response:** Changes have been made to Section L.7.a. to reflect Rule 62-701.500(7), F.A.C. Section L is located in Attachment A-9.

**23. 62-701.500(7)(c). Revision to Section L.7.d. are requested for the following items:**

- a) to describe the typical minimum top slope to drain;**

**Response:** The minimum top slope is sufficient to allow surface water runoff and minimize ponding. The slopes will vary with daily operations. The typical minimum slopes are 0.10 to 0.25 percent. Changes have been made to Section L.7.d, located in Attachment A-9 to reflect Rule 62-701.500(7)(c), F.A.C.

- b) to describe a lift of bales not more than three high;**

**Response:** Changes have been made to Section L.7.d. to reflect Rule 62-701.500(7)(c), F.A.C. Section L is located in Attachment A-9.

- c) to describe loose waste added to achieve the designed slopes.**

**Response:** Changes have been made to Section L.7.d. to reflect Rule 62-701.500(7)(c), F.A.C. Section L is located in Attachment A-9.

**24. 62-701.500(7)(d). Revisions to Section L.7.d. are requested to describe a berm around the working face to contain leachate, and one or two working faces.**

**Response:** Changes have been made to Section L.7.d. to reflect Rule 62-701.500(7)(d), F.A.C. Section L is located in Attachment A-9.

25. **62-701.500(7)(e) and (f). Revisions to Sections L.7.e. and L.7.f. are requested to describe the initial cover as "6-inches of compacted cover material", and to describe all other proposed initial cover materials.**

**Response:** Changes have been made to Section L.7.e. and L.7.f to reflect Rule 62-701.500(7)(e) and (f), F.A.C. Section L is located in Attachment A-9.

26. **62-701.500(7)(g). Revisions to Section L.7.g. are requested to describe the following items:**

- a) **to describe the typical minimum top slope to drain;**

**Response:** The minimum top slope is sufficient to allow surface water runoff and minimize ponding. The slopes will vary with daily operations. The typical minimum slopes are 0.10 to 0.25 percent. Changes have been made to Section L.7.g., located in Attachment A-9, to reflect Rule 62-701.500(7)(g), F.A.C.

- b) **to describe the construction of a berm around the working face to contain leachate;**

**Response:** Berms and swales on the working face, shown on the Permit drawings, are maintained to prevent leachate runoff from the working face from entering the stormwater management system as stated in the existing solid waste permit. Changes have been made to Section L.7.g. to reflect Rule 62-701.500(7)(g), F.A.C. Section L is located in Attachment A-9.

- c) **to explain that soil with any waste cannot be used as intermediate cover, or anywhere outside of the bermed working face disposal area.**

**Response:** Soils containing any waste cannot be used as intermediate cover and must be placed within the lined and bermed working face to prevent stormwater runoff contamination. Changes have been made to Section L.7.g. to reflect Rule 62-701.500(7)(g), F.A.C. Section L is located in Attachment A-9.

27. **62-701.500(7)(h). Revisions to Section L.7.h. are requested to describe a timeframe for applying for a closure permit and for completing closure, and to describe the areas that are already completely filled to match the proposed cross-sections.**

**Response:** Changes have been made to Section L.7.h. to reflect Rule 62-701.500(7)(h), F.A.C. Section L is located in Attachment A-9.



28. **62-701.500(7)(j). Revisions to Section L.7.h. are requested to describe the removal of litter from outside of the working face within 24 hours.**

**Response:** Changes have been made to Section L.7.j. to reflect Rule 62-701.500(7)(i), F.A.C. Section L is located in Attachment A-9.

29. **62-701.500(8). a) Revisions to Section L.8.a. are requested to describe the landfill performance criteria to demonstrate that all leachate is removed from the landfill. b) Revisions to Section L.8.b. are requested to describe the design of the existing leachate collection system and the method of filtering the contained surface leachate prior to pumping it to a manhole. c) Revisions to Section L.8.B. are requested to describe the tank and truck loading procedures and tank inspections.**

**Response:**

- a) Refer to Attachment A-9 for revisions to the Operations Plan. Revision include a discussion on how to use the interior piezometers to estimate leachate levels within the disposal area.
- b) Surface water runoff that comes in contact with solid waste is considered leachate. Surface water flows to low areas, which allows for percolation. If this low area is needed for operational purposes, the liquid is pumped to the nearest manhole to minimize pumping the surface debris into the manhole. The County uses a screened suction intake or will place hay bales or silt fence around the suction intake. Changes have been made to Section L.8.b., located in Attachment A-9, to reflect Rule 62-701.500(8)(b), F.A.C.
- c) Refer to Attachment A-9 for revisions to the Operations Plan.
30. **62-701.500(9) and 62-701.530. Revisions to Section L.9. are requested for the following items:**

- a) **to describe precautions to be taken when entering or, servicing areas where dangerous gases may have accumulated;**

**Response:** Changes have been made to Section L.9, located in Attachment A-9. Upon entering areas with landfill gas (LFG), the following procedure should be followed in order to ensure worker safety:

- Ventilate the area if possible.
- Monitor the ambient air within the area at all times, using a hand-held or personal monitoring device.

**b) to describe the gas monitoring location within buildings;**

**Response:** Gas monitoring will be conducted at foundation penetrations, enclosed spaces such as ground-level cabinets, or electrical control boxes, outlets and openings to conduits. Changes have been made to Section L.9, located in Attachment A-9.

**c) to reference the gas monitoring report form;**

**Response:** The LFG Monitoring Form is located in Attachment A-9. The gas form includes the required monitoring locations, date and time of the sampling event, weather conditions, and methane content measured.

**d) to provide a detail for the construction of the gas probes;**

**Response:** The Department has previously revised and approved the construction of the gas probes at Hardee County. Please refer to the Post, Buckley, Schuh, & Jernigan drawings dated June 1997, which is on file at the Department, for a detail of the gas probes.

**e) to describe the gas monitoring sampling procedures;**

**Response:** LFG is monitored in accordance with Rule 62-701.530, F.A.C. and the permit (No. 38414-002-SO). The permit requires that LFG be monitored quarterly and all results submitted to the Department. LFG is monitored with the following procedure:

- (i) Calibrate the field instrument, or check the calibration per the instrument's factory settings.
- (ii) Monitor probes (GP-1 through GP-11) and on-site structures, which include the maintenance building, materials recovery facility, scalehouse, and animal control kennel for methane per Rule 62-701.530(2), F.A.C.
- (iii) Record data on the LFG Monitoring Form, located in Attachment A-9, Operations Plan. Changes have been made to Section L.9, located in Attachment A-9.

**f) to describe the type of gas monitoring meter.**

**Response:** Gas monitoring at the Hardee County Landfill will be performed using the appropriate hand-held gas-monitoring device capable of measuring and

reporting methane as a percent by volume in air or as a percentage of the lower explosive limit (LEL) for methane. Hardee County currently owns a X-Check Gas Detector for LFG monitoring. Other industry-standard equipment also may be utilized.

31. **62-701.500(10). Revisions to Section L.10. are requested a) to describe the entire stormwater system design and operation, and b) to provide references for all record drawings for the entire stormwater management system. Documents on file with the Department may be referenced rather than resubmitted.**

**Response:** Changes have been made to Section L.10, located in Attachment A-9.

- a) Changes have been made to Section L.10, located in Attachment A-9.
- b) The stormwater management system has been previously reviewed and approved by FDEP. In the past consecutive permitting processes, FDEP has approved the stormwater management system at Hardee County Landfill. SCS is submitting the Wade Trim drawing set, which appears to coincide with the existing stormwater management system at Hardee County Landfill.

32. **62-701.500(11)(f). Revisions to Section L.11.f. are requested to describe the removal of litter from outside of the working face within 24 hours.**

**Response:** Changes have been made to Section L.11.f., located in Attachment A-9, to reflect Rule 62-701.500(7)(i), F.A.C.

33. **62-701.410, .500, and .510. Responses to each of the items in Mr. John Morris' June 12, 2003 memorandum (attached) are requested. You may call Mr. Morris at (813) 744-6100, extension 336 to discuss the items in his memorandum.**

**Response:** Please see responses to Mr. Morris' memorandum in Appendix B.

34. **62-701.630. Responses to each of the items in Mr. Steve Morgan's June 17, 2003 letter (attached) are requested. You may call Mr. Morgan at (813) 744-6100, extension 385 to discuss the items in his letter.**

**Response:** Please see responses to Mr. Morgan's letter in Appendix C.

Mr. Kim B. Ford, P.E.  
September 30, 2003  
Page 19

Please call if you have any questions.

Sincerely,



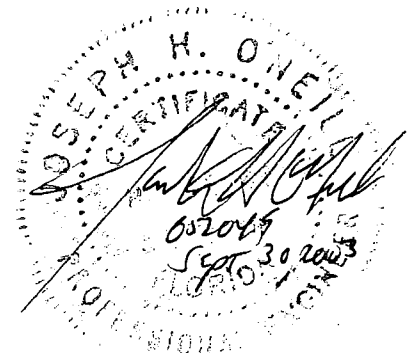
Joseph O'Neill, P.E.  
Project Manager  
SCS ENGINEERS



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

JHO/RJD:jlh

Attachments



## TABLE OF CONTENTS FOR ATTACHMENTS

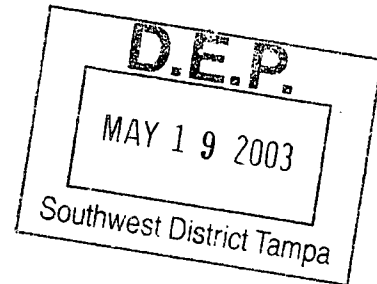
### Attachment

- A-1 Revised Section D.2
- A-2 Revised Section D.11
- A-3 Revised Cover Page
- A-4 Stormwater Management System Calculations and Drawings
- A-5 Revised Section E.15
- A-6 Revised Figure 1 of 1 Videotape
- A-7 Leachate Tank Coating Confirmation
- A-8 Slope Stability Analysis
- A-9 Revised Operations Plan
- A-10 Neighboring Landfills Contact List
- B-1 Revised Permit Application Form
- B-2 Revised Figure H-1 (See Appendix H for the Operations Plan)
- B-3 Revised Spreadsheet S for MW-1, MW-2, MW-4, & MW-9 of the Biennial Groundwater Monitoring Evaluation
- B-4 Revised Page 3-1 of the Biennial Groundwater Monitoring Evaluation
- B-5 Revised Iron Trend Analysis Chart of the Biennial Groundwater Monitoring Evaluation
- B-6 Revised Table 4-1, Figure E-6 & Figure E-9 of the Biennial Groundwater Monitoring Evaluation
- B-7 Revised Page 4-3 of the Biennial Groundwater Monitoring Evaluation
- B-8 Revised Page 5-2 of the Biennial Groundwater Monitoring Evaluation
- B-9 Revised Page 5-3 of the Biennial Groundwater Monitoring Evaluation
- B-10 Revised Page 6-1 of the Biennial Groundwater Monitoring Evaluation
- B-11 Revised Page 6-2 of the Biennial Groundwater Monitoring Evaluation
- B-12 Revised Page 6-3 of the Biennial Groundwater Monitoring Evaluation
- B-13 Revised Page 2 of the Water Quality & Leachate Monitoring Plan
- B-14 Revised Page 3 of the Water Quality & Leachate Monitoring Plan
- B-15 Revised Page 4 of the Water Quality & Leachate Monitoring Plan
- B-16 Revised Page 5 of the Water Quality & Leachate Monitoring Plan
- B-17 Revised Section N.4
- B-18 Revised Permit Application Form
- B-19 Revised Section O.3
- C-1 Revised Financial Assurance Form
- C-2 Revised Financial Assurance Calculations
- D Revised Permit Drawings (Provided Separately)

**SCS ENGINEERS**

May 16, 2003  
File No. 09199033.08

Mr. Kim Ford  
Florida Department of Environmental Protection  
Southwest District  
3804 Coconut Palm Drive  
Tampa, FL 33619



Subject: Operations Permit Renewal Application  
Hardee County Landfill – Permit No. 38414-002-SO  
Hardee County, Florida

Dear Mr. Ford:

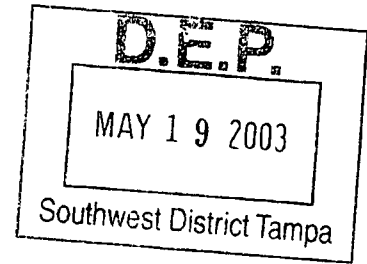
On behalf of Hardee County (County), SCS Engineers (SCS) is pleased to submit the following documents to support the operation permit renewal of the Hardee County Landfill. The following documents are attached to this cover letter:

- Four copies of the Operations Permit Renewal Application.
- Biennial Groundwater Monitoring Plan Evaluation Report for the Hardee County Landfill. The document is contained within the Operations Permit Renewal Application (see Attachment M-1).
- Operations Permit Renewal Application fee of \$100 made payable to the Florida Department of Environmental Protection (FDEP).
- Videotapes (one copy of tapes 1 and 2) and corresponding report by Florida Jet Clean Inc. for the leachate collection lines.
- Leachate tank inspection reports:  
Hardee County has contacted the tank manufacturer regarding repair procedures for the tank areas with corrosion. The tank manufacturer has sent a proposal to the County for repairing the said corrosion. The County is currently in the process of finalizing approval of the proposal. Upon completion of the repairs, Hardee County will drain the other tank and proceed with the inspection of the remaining tank. A final repair and inspection schedule of the tanks will be forwarded to FDEP.





Mr. Kim Ford  
May 16, 2003  
Page 2



Please do not hesitate to contact us if you should have any questions regarding this letter.

Very truly yours,

A handwritten signature in black ink, appearing to read "Joseph H. O'Neill".

Joseph H. O'Neill, P.E.  
Senior Project Engineer  
SCS Engineers

A handwritten signature in black ink, appearing to read "Raymond J. Dever".

Raymond J. Dever, P.E., DEE  
Vice President  
SCS Engineers

JHO/RJD:lek

Attachments



**OPERATIONS PERMIT RENEWAL APPLICATION**

**(SEE ATTACHED THREE-RING BINDER)**

**BIENNIAL GROUNDWATER MONITORING PLAN EVALUATION  
REPORT**

**(SEE ATTACHMENT M-1 WITHIN THE THREE-RING BINDER)**

**OPERATIONS PERMIT RENEWAL APPLICATION FEE**

DEP.  
MAY 19 2003  
Southwest District Tampa

Look for gray background on the front of this check, and the imageSafe® logo on back. If not present, do not cash.

**SCS ENGINEERS**  
PHONE 813-621-0080  
3012 U.S. HIGHWAY 301 N., STE. 700  
TAMPA, FL 33619

5631

DATE 5/16/03 \$

63-27/631-FL  
28

PAY TO THE ORDER OF Florida Department of Environmental Protection \$ 100.00

One hundred and no/100 DOLLARS

**Bank of America**

ACH R/T 063100277

FOR 09199033408

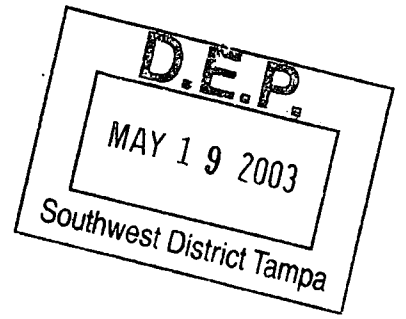
*Shawn Ols*

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Security features are excluded. Details on back.



**LEACHATE COLLECTION LINE REPORT**



# FLORIDA JETCLEAN INC.

HIGH PRESSURE WATER JETTING  
EO PIPELINE INSPECTION  
NO DIG POINT REPAIRS

37 WINDWARD ISLAND  
CLEARWATER, FL 33767-2322  
TEL: 800-226-8013 FAX: 727-442-2222

## HARDEE COUNTY LANDFILL LEACHATE COLLECTION SYSTEM MAINTENANCE - 2003 REPORT



All pipes jetcleaned fully without obstruction.

While sections of the pipe were submerged during inspection, this is common in leachate piping and as long as the camera passes through the submerged areas, it is reasonable to assume that pipe integrity exists.

The Video Log records line segment details.

FLORIDA JETCLEAN INC.  
37 WINDWARD ISLAND  
CLEARWATER FL 33767-2322  
TEL 800-226-8013

*[Handwritten signature]*  
4/21/03

# FLORIDA JETCLEAN INC.

---

HIGH PRESSURE WATER JETTING  
SO PIPELINE INSPECTION  
NO DIG POINT REPAIRS

37 WINDWARD ISLAND  
CLEARWATER, FL 33767-2322  
TEL: 800-226-8013 FAX: 727-442-2222

## HARDEE COUNTY LANDFILL LEACHATE COLLECTION SYSTEM MAINTENANCE - 2003 JETCLEANING LOG

### 4/14/03 - 8" CORRUGATED HDPE

1. Manhole 3 toward Manhole 4	420'
2. Manhole 3 toward Manhole 2	389'
3. Manhole 4 toward Manhole 5	389'
4. Manhole 2 toward Manhole 1	445'
5. Manhole 1 toward Manhole 8	114'
6. Manhole 8 toward lift station	94'
7. Manhole 7 toward lift station	562'
8. Manhole 7 toward Manhole 6	146'
9. Manhole 6 toward Manhole 5	392'

# FLORIDA JETCLEAN INC.

HIGH PRESSURE WATER JETTING  
VIDEO PIPELINE INSPECTION  
NO DIG POINT REPAIRS

37 WINDWARD ISLAND  
CLEARWATER, FL 33767-2322  
TEL: 800-226-8013 FAX: 727-442-2222

## HARDEE COUNTY LANDFILL LEACHATE COLLECTION SYSTEM MAINTENANCE - 2003 VIDEO LOG

**4/14/03 – 8" CORRUGATED HDPE**

### TAPE 1

- |                               |      |   |
|-------------------------------|------|---|
| 1. Manhole 3 toward Manhole 4 | 420' | Submerged at mouth until 38'. 49' submerged until 58'. 135' submerged until 165'. 200' submerged until 205'. 326' submerged until 347'. 411' submerged until 418'. 420' Manhole 4.  |
| 2. Manhole 3 toward Manhole 2 | 237' | Submerged at mouth of pipe until 5'. 7' possible separation and roots. 30' submerged until 66'. 82' submerged until 90'. 117' submerged until 125'. 160' submerged until 162'. 169' submerged until 181'. 188' submerged until 192'. 201' submerged until 210'. 220' submerged until 230'. 237' possible separation. Will do reverse set-up. Video also in reverse. |
| 3. Manhole 2 toward Manhole 3 | 152' | 73' submerged until 80'. 85' submerged until 89'. 97' submerged until 106'. 112' submerged until 136'. 152' possible separation. See # 2 for reverse set-up. Video also in reverse.   |
| 4. Manhole 4 toward Manhole 5 | 388' | 144' submerged until 152'. 168' submerged until 170'. 182' leachate on lens. No visual until Manhole 5 at 388'. Video in reverse. Clear picture.  |

**4/16/03**

- |                               |      |   |
|-------------------------------|------|---|
| 5. Manhole 2 toward Manhole 1 | 445' | All video in reverse. 445' submerged until 30'. Brief picture at 55', 48' and 40'. 8' submerged until 3'. |
|-------------------------------|------|---|

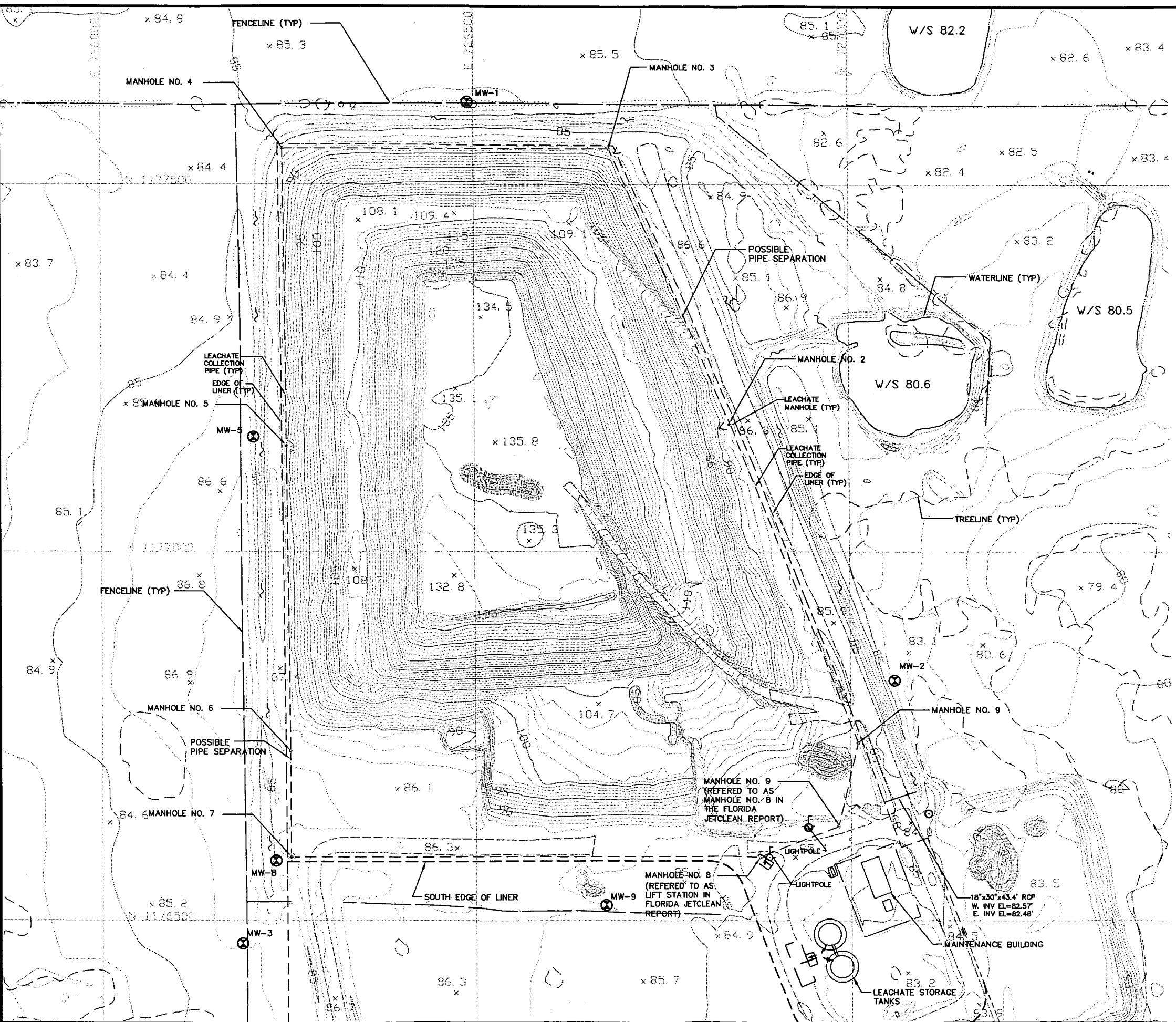
6. Manhole 1 toward Manhole 8	114'	114' Manhole 8.
7. Manhole 8 toward lift station	94'	94' lift station
8. Manhole 7 toward lift station	562'	4' submerged until 20'. 60' submerged until 76'. 239' pipe egg-shaped. 268' submerged until 400'. 403' submerged until 417'. 424' submerged until 434'. 535' submerged until 537'. 562' lift station. Also in reverse.
9. Manhole 7 toward Manhole 6	132'	132' pipe separated. Will do reverse set-up.
10. Manhole 6 toward Manhole 7	18'	14' submerged until 16'. 18' pipe separated. See # 9.
11. Manhole 6 toward Manhole 5	392'	Submerged at mouth of pipe until 20'. 28' submerged until 38'. 48' submerged until 58'. 64' submerged until 103'. 129' submerged until 136'. 144' submerged until 168'. 175' submerged until 180'. 185' submerged until 204'. 215' submerged until 222'. 224' submerged until 245'. 260' submerged until 263'. 264' submerged until 323'. 324' submerged until 339'. Continue on Tape 2.

**TAPE 2**

11. Manhole 6 toward Manhole 5	392'	All video in reverse from Manhole 5.
--------------------------------	------	--------------------------------------

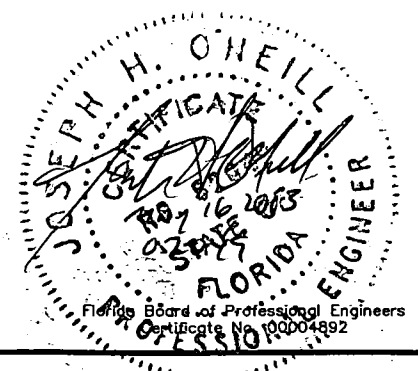
**D.E.P.**  
MAY 19 2003  
Southwest District Tampa

NOT TO SCALE



- LEGEND**
- FENCELINE
  - VEGETATION
  - STORMWATER FLOW LINE
  - x SPOT ELEVATION
  - INDEX CONTOUR
  - MW-4 MONITORING WELL

1. VIDEO OF EXISTING LEACHATE COLLECTION SYSTEM CONDUCTED BY FLORIDA JETCLEAN, INC. FROM APRIL 14-16, 2003. (NOTE: MANHOLE NUMBER 9 WAS INCORRECTLY IDENTIFIED AS MANHOLE NO 8 AND MANHOLE NUMBER 8 WAS INCORRECTLY IDENTIFIED AS THE LIFT STATION IN THE FLORIDA JET CLEAN REPORT)
2. ELEVATIONS AND TOPOGRAPHIC INFORMATION SHOWN PROVIDED BY AERIAL SURVEY BY I.F. ROOKS & ASSOCIATES, INC. DATED 3/14/03. SCS AND I.F. ROOKS MAKE NO REPRESENTATION OR GUARANTEES PERTAINING TO EASEMENTS, RESERVATIONS, RIGHT-OF-WAYS, SETBACKS, PROPERTY LIMITS, AND OTHER SIMILAR MATTERS. UTILITIES ARE NOT SHOWN.
3. CONTROL POINTS FOR THE AERIAL SURVEY BASED UPON FLORIDA STATE PLANE, WEST ZONE NAD 1983 AND NGVD 1929.
4. MANHOLES, EDGE OF LINER, LEACHATE TANKS, DRAINAGE PIPES, MONITORING WELLS TAKEN FROM PBS&J DRAWINGS DATED FEBRUARY, 1999. REFER TO RECORD DRAWINGS FOR UPDATED INFORMATION.



DATE	MAY 15, 2003
SCALE	NOT TO SCALE
DRAWING NO.	1 of 1
DRAWING TITLE	VIDEO TAPE OF LEACHATE COLLECTION SYSTEM
PROJECT TITLE	HARDEE COUNTY LANDFILL OPERATION PERMIT RENEWAL
CIENT	HARDEE COUNTY BOARD OF COUNTY COMMISSIONERS
SCS ENGINEERS	STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS
CADD FILE:	993308BLDOUT.DWG

PROJECT: HARDEE COUNTY LANDFILL OPERATION PERMIT RENEWAL  
 DATE: MAY 15, 2003  
 DRAWN BY: JHO  
 CHECKED BY: JHO  
 DATE: MAY 15, 2003  
 PROJECT NO: 993308

# **LEACHATE TANK INSPECTION REPORT**





2101 S. 21st Street, P.O. Box 996  
Parsons, KS 67357-0996 U.S.A.  
Phone: 620-421-0200 · Fax: 620-421-9122

April 6, 2003

Ms. Janice Williamson  
Hardee County Department of Solid Waste  
685 Airport Road  
Wauchula, FL 33873-8663

RE: 99-2229 (1999) Leachate Storage Tanks  
Eclipse / Omni Joint Venture, P.O. # 4005-H-0015

Dear Janice:

This report covers the inspection of two sets of tanks which were sold by A.O. Smith Engineered Storage Products Company to Eclipse / Omni Joint Venture. Tanks consists of an inner primary tank, 29.7' diameter by 16' tall with a flat steel floor and open top roof construction and an secondary containment tank, 47.59' diameter x 8.61' tall with an embedded base ring and open top roof construction. Tanks are identified as Tank 1 and Tank 2. Tank 1 was available for through inspection.

The secondary tanks or the outer tanks were available for through inspections and no significant defects were found with the outer tanks.

The inner tank on Tank 1 was empty and the inspection revealed minor problems with the interior of this tank. The defects are in the interior coating and will require field touch-up in accordance to Columbian TecTank's touch-up procedures that are attached. In particular it was noted that there are numerous scratches and gouges in the floor of this tank as well as some degradation the coating on the edges of the sidewall panels. Pictures are attached depicting these areas.

Other items of recommendation are to install fall protection opening guards at the three openings from the inter-connecting platform. Also the concrete landing at the base of the ladder needs to be repaired and the ladder anchored to this base.

One could assume that the same condition exists in Tank 2.

There are no deficiencies in these tanks that will result in loss of storage or spillage. Only minor coating repair work is required.

Sincerely

Bob Edwards  
Erection & Field Service Manager

Attachments a/s

Ec: C. Spears, A. Beyer

**ENGINEERING DATA Columbian TecTank**

5400 Kansas Avenue P.O. Box 2907 Kansas City, KS 66110-2907 913-621-3700 Fax 913-621-2145  
2101 S. 21<sup>st</sup> Street P.O. Box 996 Parsons, KS 67357 620-421-0200 Fax 620-421-9122

**DESCRIPTION: TRICO BOND 478 LOW TEMPERATURE TOUCH-UP PROCEDURES**

Prepared by: PBV No. 1 of 1

Date: 12/00

**NO CURE BELOW 50°F**

**A. SURFACE PREPARATION**

1. Surface preparation for low temperature is even more important than normal.
2. Surface to be repaired must be dry and free of rust, oil, grease, or other surface soils. Remove oils with solvent followed by detergent wash and clear water rinse. Wash water-soluble soils with detergent wash and clear water rinse.
3. **Surface must be roughened.** Small areas should be sanded with 80 – 100 grit sandpaper or wire-brushed. All damaged coating must be removed and the edges of the existing coating must be roughened (feathered) to ensure good adhesion of touch-up to existing coating. Large areas must be sandblasted to SP-10 (Near-White Metal Blast). Keep areas to be touched-up as small as possible.
4. After preparation, blow off loose dust prior to coating.
5. Apply touch-up within eight hours following surface prep to avoid possibility of flash rust formation on cleaned surface. Do not leave overnight.

**B. SAFETY, MIXING, APPLICATION**

See individual sheets for specific information.

**C. CURING**

1. Touch-ups will take short-term exposure to temperatures below 50°F, but curing will not start until 50°F is reached.
2. **Materials can be force-cured by the application of heat from heat lamps, blowers, etc. Due to variations in other factors, the following cure schedules are only a guide and should not be considered exact.** Temperatures shown refer to the metal, not air temperature.

<b>APPROXIMATE CURE TIMES</b>	
<b>Metal Temperature</b>	<b>Trico Bond 478</b>
<b>50°F</b>	<b>15 Days</b>
<b>65°F</b>	<b>9 Days</b>
<b>80°F</b>	<b>7 Days</b>
<b>100°F</b>	<b>64 Hours</b>
<b>120°F</b>	<b>16 Hours</b>
<b>140°F</b>	<b>4 Hours</b>
<b>170°F</b>	<b>2 Hours</b>
<b>200°F</b>	<b>1 Hour</b>
<b>Max. Cure Temp.</b>	<b>400°F</b>

**DESCRIPTION:** TRICO BOND 478 TOUCH-UP PROCEDURES

Prepared by: PBV

No. 1 of 2 Date: 12/02

Base (920Y-927)

Curing Agent (700-C-525)

Flash Point: 80°F

Flash Point: 45°F

**A. SURFACE PREPARATION**

1. Surface to be repaired must be dry and free of rust, oil, grease, or other surface soils. Remove oils with solvent followed by detergent wash and clear water rinse. Wash water-soluble soils with detergent wash and clear water rinse.
2. **Surface must be roughened.** Small areas should be sanded with 80 -100-grit sandpaper or wire-brushed. All damaged coating must be removed and the edges of existing coating must be roughened (feathered) to ensure good adhesion of touch-up to existing coating. Large areas must be sandblasted to SP-10 (Near-White Metal Blast). Keep areas to be touched-up as small as possible.
3. After preparation, blow off loose dust prior to coating.
4. Apply touch-up within eight hours following surface prep to avoid possibility of flash rust formation on cleaned surface. Do not leave overnight.

**B. MIXING**

**Caution: Proper mixing of field touch-up coating is important for good application. Insufficient mixing may result in improper cure.**

1. Thoroughly stir base component to incorporate all settled pigment. Then completely mix one part curing agent with four parts base component. Allow to sit 30 minutes after mixing before using.
2. Do not mix more than will be used during pot life. Pot life is 4 hours maximum at 70 - 90°F or 2 hours maximum at 90 - 100°F.
3. Lack of thorough mixing will yield improper cure.

**C. APPLICATION**

1. Do not apply at temperatures below 50°F. Surface temperature must be at least 5°F above the dew point of the surrounding air.
2. Coating may be brushed applied.
3. DFT desired: 6 mils (10 mils wet). Feather out to zero at the edge of the roughened area. Will not bond to cured coating without roughening surface.
4. Recoating should be done within 24 hours at temperatures of 50 - 100°F to avoid roughening the surface again. Recoating can be done as soon as desired, provided it does not damage or lift previous coats, normally when dry to touch.
5. Dry-to-touch time is approximately one hour. Can be placed in service after seven days at 70°F metal temperature.

## ENGINEERING DATA Columbian TecTank

2101 S. 21<sup>st</sup> St. | P. O. Box 996 | Parsons, KS 67357 | 620-421-0200 | Fax 620-421-9122

### DESCRIPTION: TRICO BOND 478 TOUCH-UP PROCEDURES

Prepared by: PBV

No. 2 of 2 Date: 12/02

#### D. COMMENTS

Following these procedures will yield a touched-up area with properties very close to the original Trico-Bond 478 coating. The touch-up is supplied in partially filled containers (base component) to ensure proper mixing proportions. Surface preparation then becomes the major factor to ensure coating integrity.

#### E. CURE TESTING

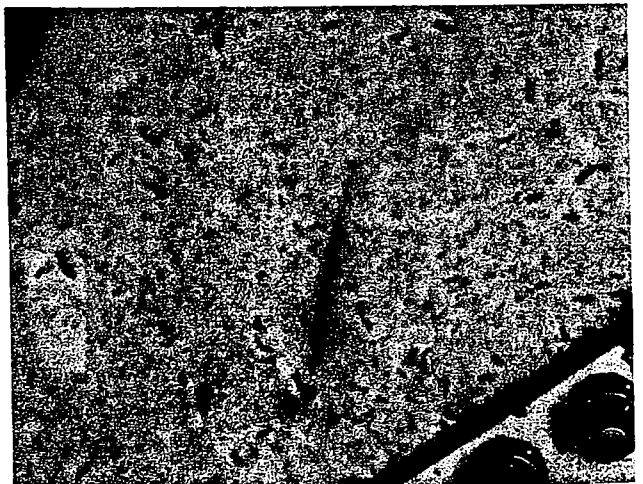
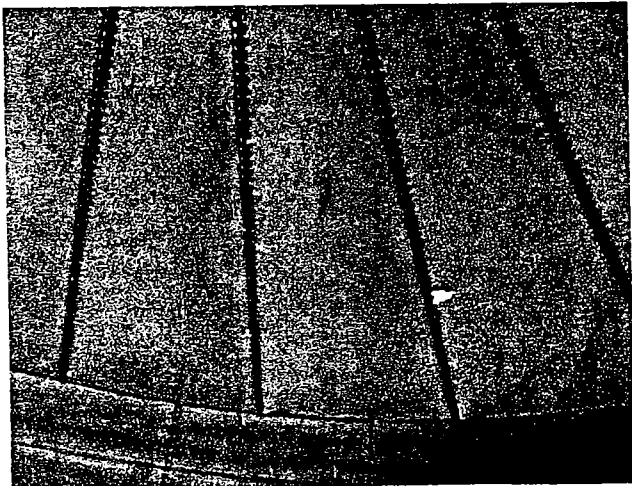
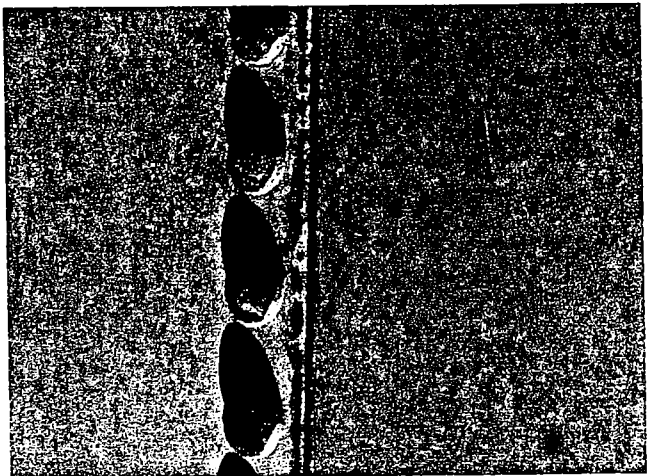
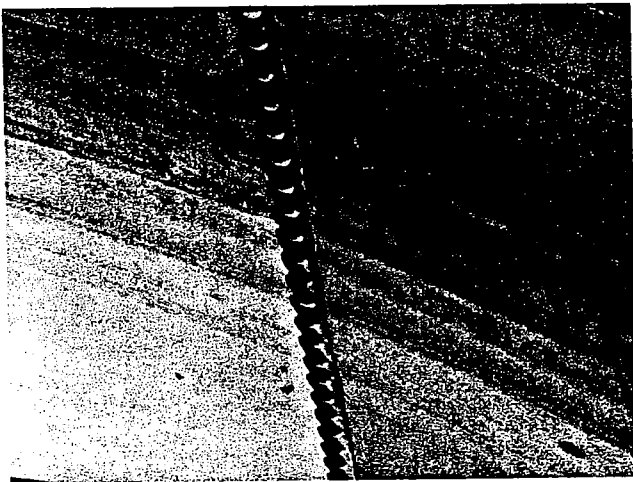
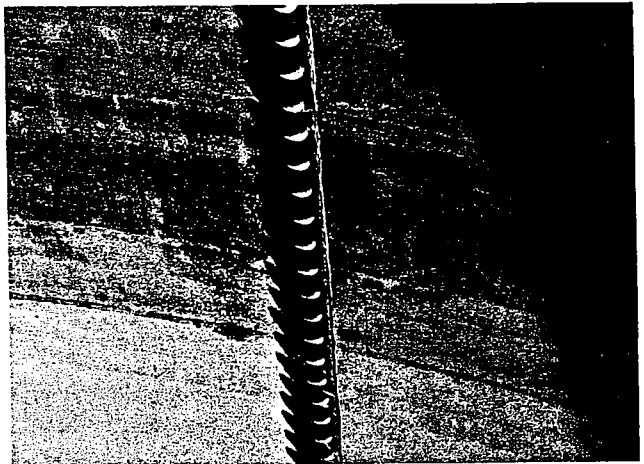
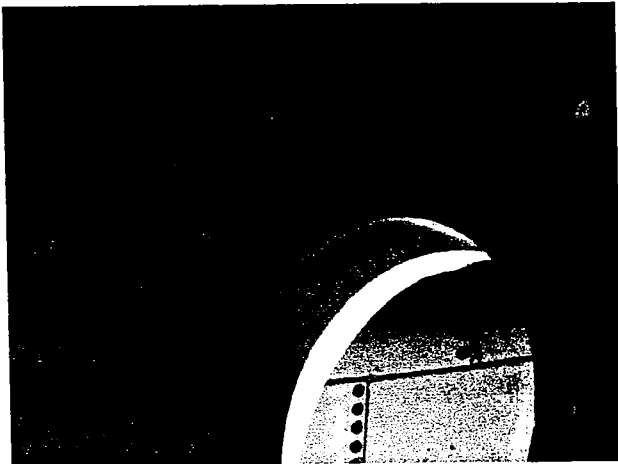
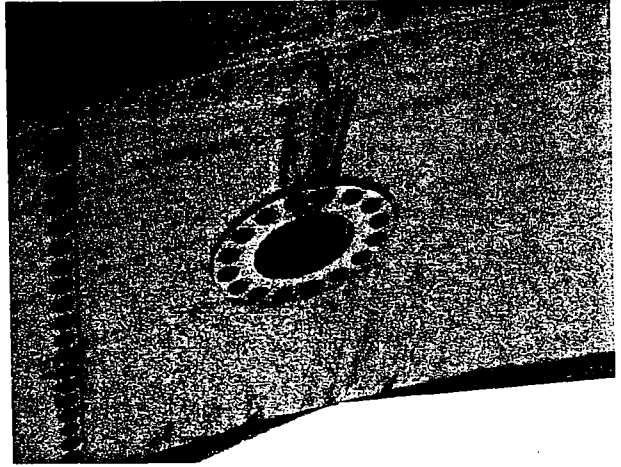
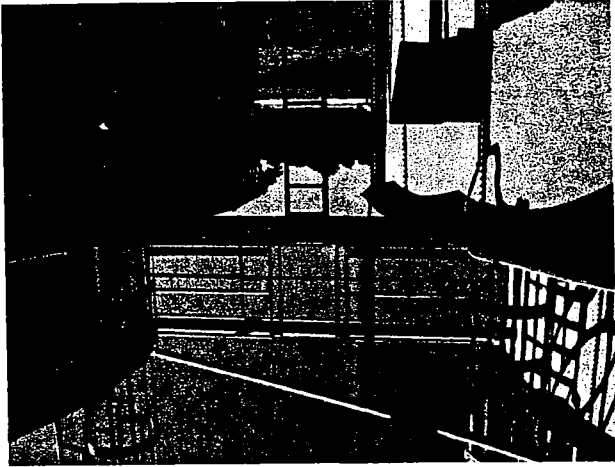
1. Apply touch-up to undamaged area following above procedures for testing.
2. Wrap cloth saturated with MEK around index finger and rub test area back and forth in a stroke 3 – 4 inches long, using moderate pressure.
3. Count each backward stroke, approximately one count every two seconds. Resaturate the cloth at 50 counts.
4. Coating is cured if 100 counts does not soften film. A small amount of color transfer to the cloth is allowed.

#### F. SAFETY

##### For industrial use only

1. **Warning! Flammable – flash point 23°F. Causes burn. Overexposure may cause allergic respiratory and skin reaction. Effects may be permanent. Vapor and spray mist harmful. Causes irritation. Contains amine compound and organic solvent. Keep away from heat, sparks, and flame. Vapors may cause flash fire. Keep containers closed when not in use. Use with adequate ventilation. Do not breathe vapors or spray mist. Wear an appropriate, properly fitted respirator (NIOSH/MSHA approved) while exposed. An air-line respirator (TC 19C NIOSH/MSHA) is recommended. A vapor/particulate respirator (TC 23C NIOSH/MSHA) may be appropriate where airborne monitoring demonstrates vapor levels below ten times the applicable exposure limits. Follow respirator manufacturer's directions for respirator use. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling.**
2. **First Aid:** If affected by inhalation of vapor or spray mist, remove to fresh air. If breathing difficulty persists or occurs later, get medical attention and have label information available. In case of eye contact, flush immediately with plenty of water for 15 minutes and get medical attention; for skin, wash thoroughly with soap and water. If swallowed, get medical attention.
3. **Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain damage and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.**
4. The contents of this package may be blended with other components before use. Any mixture of components will have hazards of all components. Before opening the packages, read all warning labels and follow all precautions.
5. For further safety information, refer to a Material Safety Data Sheet for this product. If unavailable, contact The Valspar Corporation, 1101 Third Street South, Minneapolis, MN 55415, 612-332-7371, 24-Hour Medical Emergency, 888-345-5732.

**KEEP OUT OF REACH OF CHILDREN**



**PERMIT RENEWAL APPLICATION  
FOR  
HARDEE COUNTY LANDFILL**

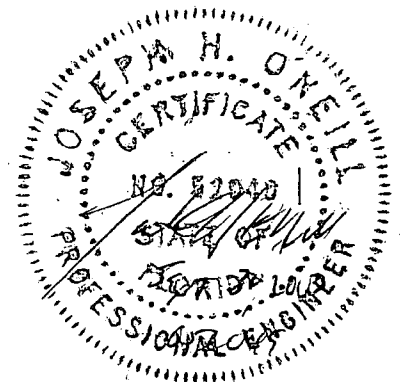
**Prepared for:**

Hardee County  
Board of County Commissioners  
412 West Orange Street  
Wauchula, Florida  
863-773-5089

**Prepared by:**

SCS Engineers  
3012 U.S. Highway 301 North, Suite 700  
Tampa, Florida 33619  
(813) 621-0080

File No. 09199033.08  
May 16 September 30, 2003





**PERMIT RENEWAL APPLICATION  
FOR  
HARDEE COUNTY LANDFILL**

**Prepared for:**

Hardee County  
Board of County Commissioners  
412 West Orange Street  
Wauchula, Florida  
863-773-5089

**Prepared by:**

SCS Engineers  
3012 U.S. Highway 301 North, Suite 700  
Tampa, Florida 33619  
(813) 621-0080

File No. 09199033.08  
May 16, 2003





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

DEP Form # 62-701.900(1)
Form Title Solid Waste Management Facility Permit
Effective Date 05-27-01
DEP Application No. _____ (Filled by DEP)



STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

APPLICATION FOR A PERMIT TO CONSTRUCT,  
OPERATE, MODIFY OR CLOSE  
A SOLID WASTE MANAGEMENT FACILITY

APPLICATION INSTRUCTIONS AND FORMS

Hardee County Regional Landfill  
Operation Permit Renewal  
File No. 09199033.08

Northwest District  
160 Governmental Center  
Pensacola, FL 32501-5794  
850-595-8360

Northeast District  
7825 Baymeadows Way, Ste. B200  
Jacksonville, FL 32256-7590  
904-448-4300

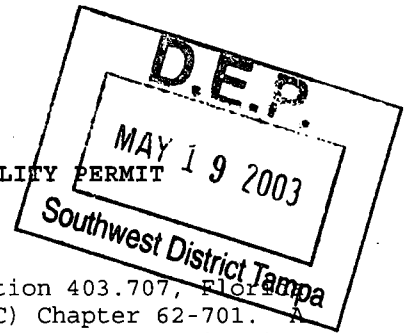
Central District  
3319 Maguire Blvd., Ste. 232  
Orlando, FL 32803-3767  
407-894-7555

Southwest District  
3804 Coconut Palm Dr.  
Tampa, FL 33619  
813-744-6100

South District  
2295 Victoria Ave., Ste. 364  
Fort Myers, FL 33901-3881  
941-332-6975

Southeast District  
400 North Congress Ave.  
West Palm Beach, FL 33401  
561-681-6600

INSTRUCTIONS TO APPLY FOR A SOLID WASTE MANAGEMENT FACILITY PERMIT



**I. General**

Solid Waste Management Facilities shall be permitted pursuant to Section 403.707, Florida Statutes, (FS) and in accordance with Florida Administrative Code (FAC) Chapter 62-701. A minimum of four copies of the application shall be submitted to the Department's District Office having jurisdiction over the facility. The appropriate fee in accordance with Rule 62-701.315, FAC, shall be submitted with the application by check made payable to the Department of Environmental Protection (DEP).

Complete appropriate sections for the type of facility for which application is made. Entries shall be typed or printed in ink. All blanks shall be filled in or marked "not applicable" or "no substantial change". Information provided in support of the application shall be marked "submitted" and the location of this information in the application package indicated. The application shall include all information, drawings, and reports necessary to evaluate the facility. Information required to complete the application is listed on the attached pages of this form.

**II. Application Parts Required for Construction and Operation Permits**

- A. Landfills and Ash Monofills - Submit parts A,B, D through T
- B. Asbestos Monofills - Submit parts A,B,D,E,F,G,J,L,N, P through S, and T
- C. Industrial Solid Waste Facilities - Submit parts A,B, D through T
- D. Non-Disposal Facilities - Submit parts A,C,D,E,J,N,S and T

**NOTE:** Portions of some parts may not be applicable.

**NOTE:** For facilities that have been satisfactorily constructed in accordance with their construction permit, the information required for A,B,C and D type facilities does not have to be resubmitted for an operation permit if the information has not substantially changed during the construction period. The appropriate portion of the form should be marked "no substantial change".

**III. Application Parts Required for Closure Permits**

- A. Landfills and Ash Monofills - Submit parts A,B,M, O through T
- B. Asbestos Monofills - Submit parts A,B,N, P through T
- C. Industrial Solid Waste Facilities - Submit parts A,B, M through T
- D. Non-Disposal Facilities - Submit parts A,C,N,S and T

**NOTE:** Portions of some parts may not be applicable.

**IV. Permit Renewals**

The above information shall be submitted at time of permit renewal in support of the new permit. However, facility information that was submitted to the Department to support the expiring permit, and which is still valid, does not need to be re-submitted for permit renewal. Portions of the application not re-submitted shall be marked "no substantial change" on the application form.

**V. Application Codes**

S	-	Submitted
LOCATION	-	Physical location of information in application
N/A	-	Not Applicable
N/C	-	No Substantial Change

**VI. LISTING OF APPLICATION PARTS**

PART A: GENERAL INFORMATION

PART B: DISPOSAL FACILITY GENERAL INFORMATION

PART C: NON-DISPOSAL FACILITY GENERAL INFORMATION

PART D: PROHIBITIONS

PART E: SOLID WASTE MANAGEMENT FACILITY PERMIT REQUIREMENTS, GENERAL

PART F: LANDFILL PERMIT REQUIREMENTS

PART G: GENERAL CRITERIA FOR LANDFILLS

PART H: LANDFILL CONSTRUCTION REQUIREMENTS

PART I: HYDROGEOLOGICAL INVESTIGATION REQUIREMENTS

PART J: GEOTECHNICAL INVESTIGATION REQUIREMENTS

PART K: VERTICAL EXPANSION OF LANDFILLS

PART L: LANDFILL OPERATION REQUIREMENTS

PART M: WATER QUALITY AND LEACHATE MONITORING REQUIREMENTS

PART N: SPECIAL WASTE HANDLING REQUIREMENTS

PART O: GAS MANAGEMENT SYSTEM REQUIREMENTS

PART P: LANDFILL CLOSURE REQUIREMENTS

PART Q: CLOSURE PROCEDURES

PART R: LONG TERM CARE REQUIREMENTS

PART S: FINANCIAL RESPONSIBILITY REQUIREMENTS

PART T: CERTIFICATION BY APPLICANT AND ENGINEER OR PUBLIC OFFICER

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
APPLICATION FOR A PERMIT TO CONSTRUCT, OPERATE, MODIFY OR CLOSE  
A SOLID WASTE MANAGEMENT FACILITY

Please Type or Print

**A. GENERAL INFORMATION**

1. Type of facility (check all that apply):

Disposal

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Class I Landfill | <input type="checkbox"/> Ash Monofill           |
| <input type="checkbox"/> Class II Landfill           | <input type="checkbox"/> Asbestos Monofill      |
| <input type="checkbox"/> Class III Landfill          | <input type="checkbox"/> Industrial Solid Waste |
| <input type="checkbox"/> Other Describe: _____       |   |

Non-Disposal

- |  |
|--|
| <input type="checkbox"/> Incinerator For Non-biomedical Waste              |
| <input type="checkbox"/> Waste to Energy Without Power Plant Certification |
| <input type="checkbox"/> Other Describe: _____                             |

**NOTE:** Waste Processing Facilities should apply on Form 62-701.900(4), FAC;  
Land Clearing Disposal Facilities should notify on Form 62-701.900(3), FAC;  
Compost Facilities should apply on Form 62-701.900(10), FAC; and  
C&D Disposal Facilities should apply on Form 62-701.900(6), FAC

2. Type of application:

- |   |
|---|
| <input type="checkbox"/> Construction           |
| <input checked="" type="checkbox"/> Operation   |
| <input type="checkbox"/> Construction/Operation |
| <input type="checkbox"/> Closure                |

3. Classification of application:

- |   |  |
|---|--|
| <input type="checkbox"/> New                | <input type="checkbox"/> Substantial Modification  |
| <input checked="" type="checkbox"/> Renewal | <input type="checkbox"/> Intermediate Modification |
|   | <input type="checkbox"/> Minor Modification        |

4. Facility name: Hardee County Regional Landfill

5. DEP ID number: SO25-096551 County: Hardee

6. Facility location (main entrance): 685 Airport Road  
approximately one mile north of SR 636 Wauchula, Florida

7. Location coordinates:

Section: 35 Township: 33S Range: 25E

Latitude: 27 ° 34 ' 10 " Longitude: 81 ° 47 ' 01 "

8. Applicant name (operating authority): Hardee County Solid Waste Department  
Mailing address: 685 Airport Road Wauchula FL 33873  
Street or P.O. Box City State Zip  
Contact person: Janice Williamson Telephone: (863) 773-5089  
Title: Solid Waste Director

E-Mail address (if available)

9. Authorized agent/Consultant: SCS Engineers  
Mailing address: 3012 U.S. Highway 301 North, Suite 700 Tampa FL 33619  
Street or P.O. Box City State Zip  
Contact person: Raymond J. Dever, P.E. Telephone: (813) 621-0080  
Title: Vice President

rdever@scsengineers.com  
E-Mail address (if available)

10. Landowner (if different than applicant): (same)  
Mailing address: \_\_\_\_\_  
Street or P.O. Box City State Zip  
Contact person: \_\_\_\_\_ Telephone: (\_\_\_\_) \_\_\_\_\_

E-Mail address (if available)

11. Cities, towns and areas to be served: Hardee County, including its municipalities

12. Population to be served:  
Current: 27,607 Five-Year Projection: 30,111

13. Date site will be ready to be inspected for completion: N/A

14. Expected life of the facility: \_\_\_\_\_ years

15. Estimated costs:  
Total Construction: \$ \_\_\_\_\_ Closing Costs: \$ \_\_\_\_\_

16. Anticipated construction starting and completion dates:  
From: \_\_\_\_\_ To: \_\_\_\_\_

17. Expected volume or weight of waste to be received:  
\_\_\_\_\_ yds<sup>3</sup>/day 80 tons/day \_\_\_\_\_ gallons/day

**B. DISPOSAL FACILITY GENERAL INFORMATION**

1. Provide brief description of disposal facility design and operations planned under this application:

Renewal of operating permit for Hardee County's Class I Landfill  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. Facility site supervisor: Janice Williamson  
Title: Solid Waste Director Telephone: (863) 773-5089

\_\_\_\_\_  
E-Mail address (if available)

3. Disposal area: Total 12.5 acres; Used 12.0 acres; Available 0.5 acres.

4. Weighing scales used:  Yes [ ] No

5. Security to prevent unauthorized use:  Yes [ ] No

6. Charge for waste received: \_\_\_\_\_ \$/yds<sup>3</sup> 62.50 \$/ton

7. Surrounding land use, zoning:

- |  |  |
|--|--|
| <input type="checkbox"/> Residential             | <input type="checkbox"/> Industrial            |
| <input checked="" type="checkbox"/> Agricultural | <input type="checkbox"/> None                  |
| <input type="checkbox"/> Commercial              | <input type="checkbox"/> Other Describe: _____ |

8. Types of waste received:

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Residential           | <input checked="" type="checkbox"/> C & D debris       |
| <input checked="" type="checkbox"/> Commercial            | <input checked="" type="checkbox"/> Shredded/cut tires |
| <input type="checkbox"/> Incinerator/WTE ash              | <input checked="" type="checkbox"/> Yard trash         |
| <input type="checkbox"/> Treated biomedical               | <input type="checkbox"/> Septic tank                   |
| <input type="checkbox"/> Water treatment sludge           | <input type="checkbox"/> Industrial                    |
| <input type="checkbox"/> Air treatment sludge             | <input type="checkbox"/> Industrial sludge             |
| <input checked="" type="checkbox"/> Agricultural          | <input type="checkbox"/> Domestic sludge               |
| <input checked="" type="checkbox"/> Asbestos              |  |
| <input checked="" type="checkbox"/> Other Describe: _____ | <u>Non-hazardous contaminated soil</u>                 |

9. Salvaging permitted: [ ] Yes  No

10. Attendant:  Yes [ ] No Trained operator:  Yes [ ] No

11. Spotters: Yes  No [ ] Number of spotters used: Varies

12. Site located in: [ ] Floodplain [ ] Wetlands  Other Uplands

13. Property recorded as a Disposal Site in County Land Records:  Yes  No
14. Days of operation: 312 days/year - Monday thorough Saturday
15. Hours of operation: 7:30 a.m. - 5:00 p.m.
16. Days Working Face covered: 312
17. Elevation of water table: 80.0 Ft. (NGVD 1929)
18. Number of monitoring wells: 7
19. Number of surface monitoring points: 1
20. Gas controls used:  Yes  No Type controls:  Active  Passive  
 Gas flaring:  Yes  No Gas recovery:  Yes  No
21. Landfill unit liner type:
- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Natural soils           | <input type="checkbox"/> Double geomembrane      |
| <input type="checkbox"/> Single clay liner                  | <input type="checkbox"/> Geomembrane & composite |
| <input checked="" type="checkbox"/> Single geomembrane side | <input type="checkbox"/> Double composite        |
| <input type="checkbox"/> Single composite                   | <input type="checkbox"/> None                    |
| <input type="checkbox"/> Slurry wall                        |  |
| <input type="checkbox"/> Other Describe: _____              |  |
22. Leachate collection method:
- |   |   |
|---|---|
| <input type="checkbox"/> Collection pipes                               | <input type="checkbox"/> Sand layer         |
| <input type="checkbox"/> Geonets  | <input type="checkbox"/> Gravel layer       |
| <input type="checkbox"/> Well points                                    | <input type="checkbox"/> Interceptor trench |
| <input type="checkbox"/> Perimeter ditch                                | <input type="checkbox"/> None               |
| <input checked="" type="checkbox"/> Other Describe: <u>French Drain</u> |   |
23. Leachate storage method:
- Tanks  
 Surface impoundments  
 Other Describe: \_\_\_\_\_
24. Leachate treatment method:
- |   |   |
|---|---|
| <input type="checkbox"/> Oxidation  | <input type="checkbox"/> Chemical treatment |
| <input type="checkbox"/> Secondary  | <input type="checkbox"/> Settling           |
| <input type="checkbox"/> Advanced   |   |
| <input type="checkbox"/> None   |   |
| <input checked="" type="checkbox"/> Other <u>No on-site treatment (storage only). Off-site disposal at WWTP</u> |   |



25. Leachate disposal method:

- |   |  |
|---|--|
| <input type="checkbox"/> Recirculated                   | <input type="checkbox"/> Pumped to WWTP              |
| <input checked="" type="checkbox"/> Transported to WWTP | <input type="checkbox"/> Discharged to surface water |
| <input type="checkbox"/> Injection well                 | <input type="checkbox"/> Percolation ponds           |
| <input type="checkbox"/> Evaporation                    |  |
| <input type="checkbox"/> Other _____                    |  |

26. For leachate discharged to surface waters:

Name and Class of receiving water: \_\_\_\_\_ N/A

27. Storm Water:

Collected:  Yes     No

Type of treatment: \_\_\_\_\_ Detention

Name and Class of receiving water: \_\_\_\_\_ Peace River, Class III

28. Environmental Resources Permit (ERP) number or status: \_\_\_\_\_

25-0124892-001 Leachate Storage Tank Facility

407767.00 Waste Recycle Center

477767.02 Animal Control Building

**\*\*\*Not Applicable\*\*\***

**C. NON-DISPOSAL FACILITY GENERAL INFORMATION**

1. Provide brief description of the non-disposal facility design and operations planned under this application:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. Facility site supervisor: \_\_\_\_\_

Title: \_\_\_\_\_ Telephone: (\_\_\_\_) \_\_\_\_\_

\_\_\_\_\_ E-Mail address (if available)

3. Site area: Facility \_\_\_\_\_ acres; Property \_\_\_\_\_ acres

4. Security to prevent unauthorized use:  Yes  No

5. Site located in:  Floodplain  Wetlands  Other \_\_\_\_\_

6. Days of operation: \_\_\_\_\_

7. Hours of operation: \_\_\_\_\_

8. Number of operating staff: \_\_\_\_\_

9. Expected useful life: \_\_\_\_\_ Years

10. Weighing scales used:  Yes  No

11. Normal processing rate: \_\_\_\_\_ yd<sup>3</sup>/day \_\_\_\_\_ tons/day \_\_\_\_\_ gal/day

12. Maximum processing rate: \_\_\_\_\_ yd<sup>3</sup>/day \_\_\_\_\_ tons/day \_\_\_\_\_ gal/day

13. Charge for waste received: \_\_\_\_\_

14. Storm Water Collected:  Yes  No

Type of treatment: \_\_\_\_\_

Name and Class of receiving water: \_\_\_\_\_

15. Environmental Resources Permit (ERP) number or status: \_\_\_\_\_

16. Final residue produced:

\_\_\_\_\_ % of normal processing rate \_\_\_\_\_ % of maximum processing rate

\_\_\_\_\_ Tons/day \_\_\_\_\_ Tons/day

Disposed of at:

Facility name: \_\_\_\_\_ County: \_\_\_\_\_

17. Estimated operating costs: \$ \_\_\_\_\_  
Total cost/ton: \$ \_\_\_\_\_ Net cost/ton: \$ \_\_\_\_\_
18. Provide a site plan, at a scale not greater than 200 feet to the inch, which shows the facility location and identifies the proposed waste and final residue storage areas, total acreage of the site, and any other features which are relevant to the prohibitions or location restrictions in Rule 62-701.300, FAC, such as water bodies or wetlands on or within 200 feet of the site, and potable water wells on or within 500 feet of the site.
19. Provide a description of how the waste and final residue will be managed to not be expected to cause violations of the Department's ground water, surface water or air standards or criteria
20. Provide an estimate of the maximum amount of waste and final residue that will be store on-site.
21. Provide a detailed description of the technology use at the facility and the functions of all processing equipment that will be utilized. The descriptions shall explain the flow of waste and residue through all the proposed unit operations and shall include: (1) regular facility operations as they are expected to occur; (2) procedures for start up operations, and scheduled and unscheduled shut down operations; (3) potential safety hazards and control methods, including fire detection and control; (4) a description of any expected air emissions and wastewater discharges from the facility which may be potential pollution sources; (5) a description and usage rate of any chemical or biological additives that will be used in the process; and (6) process flow diagrams for the facility operations.
22. Provide a description of the loading, unloading and processing areas.
23. Provide a description of the leachate control system that will be used to prevent discharge of leachate to the environment and mixing of leachate with stormwater. Note: Ground water monitoring may be required for the facility depending on the method of leachate control used.
24. Provide an operation plan for the facility which includes: (1) a description of general facility operations, the number of personnel responsible for the operations including their respective job descriptions, and the types of equipment that will be used at the facility; (2) procedures to ensure any unauthorized wastes received at the site will be properly managed; (3) a contingency plan to cover operation interruptions and emergencies such as fires, explosions, or natural disasters; (4) procedures to ensure operational records needed for the facility will be adequately prepared and maintained; and (5) procedures to ensure that the wastes and final residue will be managed to not be expected to cause pollution.
25. Provide a closure plan that describes the procedures that will be implemented when the facility closes including: (1) estimated time to complete closure; (2) procedures for removing and properly managing or disposing of all wastes and final residues; (3) notification of the Department upon ceasing operations and completion of final closure.

D. PROHIBITIONS (62-701.300, FAC)

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	
✓	<u>Section D.1</u>	—	—	1. Provide documentation that each of the siting criteria will be satisfied for the facility; (62-701.300(2), FAC)
—	—	✓	—	2. If the facility qualifies for any of the exemptions contained in Rules 62-701.300(12) through (16), FAC, then document this qualification(s).
✓	<u>Section D.3</u>	—	—	3. Provide documentation that the facility will be in compliance with the burning restrictions; (62-701.300(3), FAC)
✓	<u>Section D.4</u>	—	—	4. Provide documentation that the facility will be in compliance with the hazardous waste restrictions; (62-701.300(4), FAC)
✓	<u>Section D.5</u>	—	—	5. Provide documentation that the facility will be in compliance with the PCB disposal restrictions; (62-701.300(5), FAC)
✓	<u>Section D.6</u>	—	—	6. Provide documentation that the facility will be in compliance with the biomedical waste restrictions; (62-701.300(6), FAC)
✓	<u>Section D.7</u>	—	—	7. Provide documentation that the facility will be in compliance with the Class I surface water restrictions; (62-701.300(7), FAC)
✓	<u>Section D.8</u>	—	—	8. Provide documentation that the facility will be in compliance with the special waste for landfills restrictions; (62-701.300(8), FAC)
—	—	✓	—	9. Provide documentation that the facility will be in compliance with the special waste for waste-to-energy facilities restrictions; (62-701.300(9), FAC)
✓	<u>Section D.10</u>	—	—	10. Provide documentation that the facility will be in compliance with the liquid restrictions; (62-701.300(10), FAC)
✓	<u>Section D.11</u>	—	—	11. Provide documentation that the facility will be in compliance with the used oil restrictions; (62-701.300(11), FAC)

**E. SOLID WASTE MANAGEMENT FACILITY PERMIT REQUIREMENTS, GENERAL (62-701.320, FAC)**

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	
✓	_____	___	___	1. Four copies, at minimum, of the completed application form, all supporting data and reports; (62-701.320(5)(a), FAC)
✓	_____	___	___	2. Engineering and/or professional certification (signature, date and seal) provided on the applications and all engineering plans, reports and supporting information for the application; (62-701.320(6), FAC)
✓	_____	___	___	3. A letter of transmittal to the Department; (62-701.320(7)(a), FAC)
✓	_____	___	___	4. A completed application form dated and signed by the applicant; (62-701.320(7)(b), FAC)
✓	_____	___	___	5. Permit fee specified in Rule 62-701.315, FAC in check or money order, payable to the Department; (62-701.320(7)(c), FAC)
✓	_____	___	___	6. An engineering report addressing the requirements of this rule and with the following format: a cover sheet, text printed on 8 1/2 inch by 11 inch consecutively numbered pages, a table of contents or index, the body of the report and all appendices including an operation plan, contingency plan, illustrative charts and graphs, records or logs of tests and investigations, engineering calculations; (62-701.320(7)(d), FAC)
✓	Section L	___	___	7. Operation Plan and Closure Plan; (62-701.320(7)(e)1, FAC)
✓	Section L	___	___	8. Contingency Plan; (62-701.320(7)(e)2, FAC)
				9. Plans or drawings for the solid waste management facilities in appropriate format (including sheet size restrictions, cover sheet, legends, north arrow, horizontal and vertical scales, elevations referenced to NGVD 1929) showing; (62-702.320(7)(f), FAC)
✓	Cover Sheet Attachment E-2	___	___	a. A regional map or plan with the project location;
✓	Sheet 2	___	___	b. A vicinity map or aerial photograph no more than 1 year old;
	Attachment E-3	___	___	c. A site plan showing all property boundaries certified by a registered Florida land surveyor;

PART E CONTINUED

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	
			✓	d. Other necessary details to support the engineering report.
✓	Section E.10			10. Documentation that the applicant either owns the property or has legal authority from the property owner to use the site; (62-701.320(7)(g), FAC)
✓	Section E.11			11. For facilities owned or operated by a county, provide a description of how, if any, the facilities covered in this application will contribute to the county's achievement of the waste reduction and recycling goals contained in Section 403.706, FS; (62-701.320(7)(h), FAC)
✓	Section E.12			12. Provide a history and description of any enforcement actions taken by the Department against the applicant for violations of applicable statutes, rules, orders or permit conditions relating to the operation of any solid waste management facility in this state; (62-701.320(7)(i), FAC)
✓	Section E.13			13. Proof of publication in a newspaper of general circulation of notice of application for a permit to construct or substantially modify a solid waste management facility; (62-702.320(8), FAC)
✓	Section E.14			14. Provide a description of how the requirements for airport safety will be achieved including proof of required notices if applicable. If exempt, explain how the exemption applies; (62-701.320(13), FAC)
✓	Section L			15. Explain how the operator training requirements will be satisfied for the facility; (62-701.320(15), FAC)

F. LANDFILL PERMIT REQUIREMENTS (62-701.330, FAC)

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	
✓	<u>Section F.1</u>	___	___	1. Vicinity map or aerial photograph no more than 1 year old and of appropriate scale showing land use and local zoning within one mile of the landfill and of sufficient scale to show all homes or other structures, water bodies, and roads other significant features of the vicinity. All significant features shall be labeled; (62-701.330(3)(a), FAC)
✓	<u>Section F.2</u>	___	___	2. Vicinity map or aerial photograph no more than 1 year old showing all airports that are located within five miles of the proposed landfill; (62-701.330(3)(b), FAC)
✓	<u>Sheet 3</u>	___	___	3. Plot plan with a scale not greater than 200 feet to the inch showing; (62-701.330(3)(c), FAC)
✓	<u>Sheets 3,4</u>	___	___	a. Dimensions;
	<u>Sheet 3</u>	___	___	b. Locations of proposed and existing water quality monitoring wells;
	<u>Sheets 3,4</u>	___	___	c. Locations of soil borings;
✓	<u>Sheets 4,5,6,7</u>	___	___	d. Proposed plan of trenching or disposal areas;
✓	<u>Sheet 9</u>	___	___	e. Cross sections showing original elevations and proposed final contours which shall be included either on the plot plan or on separate sheets;
✓	<u>Sheets 3,4</u>	___	___	f. Any previously filled waste disposal areas;
✓	<u>Sheets 3,4</u>	___	___	g. Fencing or other measures to restrict access.
				4. Topographic maps with a scale not greater than 200 feet to the inch with 5-foot contour intervals showing; (62-701.330(3)(d), FAC):
✓	<u>Sheets 4,5,6,7</u>	___	___	a. Proposed fill areas;
✓	<u>Sheet 3</u>	___	___	b. Borrow areas;
✓	<u>Sheets 4,5,6,7</u>	___	___	c. Access roads;
✓	<u>Sheets 4,5,6,7</u>	___	___	d. Grades required for proper drainage;
✓	<u>Sheet 9</u>	___	___	e. Cross sections of lifts;



<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	<b>PART F CONTINUED</b>
✓	Sheet 8	—	—	f. Special drainage devices if necessary;
✓	Sheet 3	—	—	g. Fencing;
✓	Sheet 3	—	—	h. Equipment facilities.
				5. A report on the landfill describing the following; (62-701.330(3)(e), FAC)
✓	Section F.5.a	—	—	a. The current and projected population and area to be served by the proposed site;
✓	Section F.5.b	—	—	b. The anticipated type, annual quantity, and source of solid waste, expressed in tons;
✓	Section F.5.c	—	—	c. The anticipated facility life;
✓	Section F.5.d	—	—	d. The source and type of cover material used for the landfill.
✓		—	—	6. Provide evidence that an approved laboratory shall conduct water quality monitoring for the facility in accordance with Chapter 62-160, FAC; (62-701.330(3)(h), FAC)
✓	Section S	—	—	7. Provide a statement of how the applicant will demonstrate financial responsibility for the closing and long-term care of the landfill; (62-701.330(3)(i), FAC)
<b>G.</b>	<b>GENERAL CRITERIA FOR LANDFILLS</b>			<b>(62-701.340, FAC)</b>
✓	Section G.1	—	—	1. Describe (and show on a Federal Insurance Administration flood map, if available) how the landfill or solid waste disposal unit shall not be located in the 100-year floodplain where it will restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain unless compensating storage is provided, or result in a washout of solid waste; (62-701.340(4)(b), FAC)
✓	Section G.2	—	—	2. Describe how the minimum horizontal separation between waste deposits in the landfill and the landfill property boundary shall be 100 feet, measured from the toe of the proposed final cover slope; (62-701.340(4)(c), FAC)
✓	Section G.3	—	—	3. Describe what methods shall be taken to screen the landfill from public view where such screening can practically be provided; (62-701.340(4)(d), FAC)

H. LANDFILL CONSTRUCTION REQUIREMENTS (62-701.400, FAC)

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	
_____	_____	✓	_____	1. Describe how the landfill shall be designed so that solid waste disposal units will be constructed and closed at planned intervals throughout the design period of the landfill; (62-701.400(2), FAC)
				2. Landfill liner requirements; (62-701.400(3), FAC)
				a. General construction requirements; (62-701.400(3)(a), FAC):
_____	_____	✓	_____	(1) Provide test information and documentation to ensure the liner will be constructed of materials that have appropriate physical, chemical, and mechanical properties to prevent failure;
_____	_____	✓	_____	(2) Document foundation is adequate to prevent liner failure;
_____	_____	✓	_____	(3) Constructed so bottom liner will not be adversely impacted by fluctuations of the ground water;
_____	_____	✓	_____	(4) Designed to resist hydrostatic uplift if bottom liner located below seasonal high ground water table;
_____	_____	✓	_____	(5) Installed to cover all surrounding earth which could come into contact with the waste or leachate.
				b. Composite liners; (62-701.400(3)(b), FAC)
_____	_____	✓	_____	(1) Upper geomembrane thickness and properties;
_____	_____	✓	_____	(2) Design leachate head for primary LCRS including leachate recirculation if appropriate;
_____	_____	✓	_____	(3) Design thickness in accordance with Table A and number of lifts planned for lower soil component.

S      LOCATION      N/A    N/C

**PART H CONTINUED**

c. Double liners; (62-701.400(3)(c), FAC)

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

- (1) Upper and lower geomembrane thicknesses and properties;
- (2) Design leachate head for primary LCRS to limit the head to one foot above the liner;
- (3) Lower geomembrane sub-base design;
- (4) Leak detection and secondary leachate collection system minimum design criteria ( $k \geq 10$  cm/sec, head on lower liner  $\leq 1$  inch, head not to exceed thickness of drainage layer);

d. Standards for geosynthetic components; (62-701.400(3)(d), FAC)

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

- (1) Field seam test methods to ensure all field seams are at least 90 percent of the yield strength for the lining material;
- (2) Geomembranes to be used shall pass a continuous spark test by the manufacturer;
- (3) Design of 24-inch-thick protective layer above upper geomembrane liner;
- (4) Describe operational plans to protect the liner and leachate collection system when placing the first layer of waste above 24-inch-thick protective layer.
- (5) HDPE geomembranes, if used, meet the specifications in GRI GM13;
- (6) PVC geomembranes, if used, meet the specifications in PGI 1197;
- (7) Interface shear strength testing results of the actual components which will be used in the liner system;
- (8) Transmissivity testing results of geonets if they are used in the liner system;
- (9) Hydraulic conductivity testing results of geosynthetic clay liners if they are used in the liner system;

S      LOCATION      N/A    N/C

PART H CONTINUED

e. Geosynthetic specification requirements;  
(62-701.400(3)(e), FAC)

\_\_\_\_\_ ✓ \_\_\_\_\_

(1) Definition and qualifications of the designer, manufacturer, installer, QA consultant and laboratory, and QA program;

\_\_\_\_\_ ✓ \_\_\_\_\_

(2) Material specifications for geomembranes, geocomposites, geotextiles, geogrids, and geonets;

\_\_\_\_\_ ✓ \_\_\_\_\_

(3) Manufacturing and fabrication specifications including geomembrane raw material and roll QA, fabrication personnel qualifications, seaming equipment and procedures, overlaps, trial seams, destructive and nondestructive seam testing, seam testing location, frequency, procedure, sample size and geomembrane repairs;

\_\_\_\_\_ ✓ \_\_\_\_\_

(4) Geomembrane installation specifications including earthwork, conformance testing, geomembrane placement, installation personnel qualifications, field seaming and testing, overlapping and repairs, materials in contact with geomembrane and procedures for lining system acceptance;

\_\_\_\_\_ ✓ \_\_\_\_\_

(5) Geotextile and geogrid specifications including handling and placement, conformance testing, seams and overlaps, repair, and placement of soil materials and any overlying materials;

\_\_\_\_\_ ✓ \_\_\_\_\_

(6) Geonet and geocomposite specifications including handling and placement, conformance testing, stacking and joining, repair, and placement of soil materials and any overlying materials;

\_\_\_\_\_ ✓ \_\_\_\_\_

(7) Geosynthetic clay liner specifications including handling and placement, conformance testing, seams and overlaps, repair, and placement of soil material and any overlying materials;

f. Standards for soil components  
(62-710.400(3)(f), FAC):

\_\_\_\_\_ ✓ \_\_\_\_\_

(1) Description of construction procedures including overexcavation and backfilling to preclude structural inconsistencies and procedures for placing and compacting soil component in layers;

S      LOCATION      N/A    N/C

PART H CONTINUED

_____	_____	✓	_____
_____	_____	✓	_____
_____	_____	✓	_____
_____	_____	✓	_____
_____	_____	✓	_____
_____	_____	✓	_____
_____	_____	✓	_____
_____	_____	✓	_____
_____	_____	✓	_____

- (2) Demonstration of compatibility of the soil component with actual or simulated leachate in accordance with EPA Test Method 9100 or an equivalent test method;
- (3) Procedures for testing in-situ soils to demonstrate they meet the specifications for soil liners;
- (4) Specifications for soil component of liner including at a minimum:
  - (a) Allowable particle size distribution, Atterberg limits, shrinkage limit;
  - (b) Placement moisture and dry density criteria;
  - (c) Maximum laboratory-determined saturated hydraulic conductivity using simulated leachate;
  - (d) Minimum thickness of soil liner;
  - (e) Lift thickness;
  - (f) Surface preparation (scarification);
  - (g) Type and percentage of clay mineral within the soil component;
- (5) Procedures for constructing and using a field test section to document the desired saturated hydraulic conductivity and thickness can be achieved in the field.

3. Leachate collection and removal system (LCRS); (62-701.400(4), FAC)

a. The primary and secondary LCRS requirements; (62-701.400(4)(a), FAC)

_____	_____	✓	_____
_____	_____	✓	_____
_____	_____	✓	_____
_____	_____	✓	_____

- (1) Constructed of materials chemically resistant to the waste and leachate;
- (2) Have sufficient mechanical properties to prevent collapse under pressure;
- (3) Have granular material or synthetic geotextile to prevent clogging;
- (4) Have method for testing and cleaning clogged pipes or contingent designs for rerouting leachate around failed areas;

S      LOCATION      N/A    N/C

_____	_____	✓	_____
_____	_____	✓	_____
_____	_____	✓	_____
_____	_____	✓	_____
_____	_____	✓	_____
_____	_____	✓	_____
_____	_____	✓	_____

**PART H CONTINUED**

- b. Primary LCRS requirements; (62-701.400(4)(b), FAC)
  - (1) Bottom 12 inches having hydraulic conductivity  $\geq 1 \times 10^{-3}$  cm/sec;
  - (2) Total thickness of 24 inches of material chemically resistant to the waste and leachate;
  - (3) Bottom slope design to accommodate for predicted settlement;
  - (4) Demonstration that synthetic drainage material, if used, is equivalent or better than granular material in chemical compatibility, flow under load and protection of geomembrane liner.
  
- 4. Leachate recirculation; (62-701.400(5), FAC)
  - a. Describe general procedures for recirculating leachate;
  - b. Describe procedures for controlling leachate runoff and minimizing mixing of leachate runoff with storm water;
  - c. Describe procedures for preventing perched water conditions and gas buildup;
  - d. Describe alternate methods for leachate management when it cannot be recirculated due to weather or runoff conditions, surface seeps, wind-blown spray, or elevated levels of leachate head on the liner;
  - e. Describe methods of gas management in accordance with Rule 62-701.530, FAC;
  - f. If leachate irrigation is proposed, describe treatment methods and standards for leachate treatment prior to irrigation over final cover and provide documentation that irrigation does not contribute significantly to leachate generation.

S      LOCATION      N/A    N/C

**PART H CONTINUED**

5. Leachate storage tanks and leachate surface impoundments; (62-701.400(6), FAC)

a. Surface impoundment requirements; (62-701.400(6)(b), FAC)

_____	_____	✓	_____	(1) Documentation that the design of the bottom liner will not be adversely impacted by fluctuations of the ground water;
_____	_____	✓	_____	(2) Designed in segments to allow for inspection and repair as needed without interruption of service;
_____	_____	✓	_____	(3) General design requirements;
_____	_____	✓	_____	(a) Double liner system consisting of an upper and lower 60-mil minimum thickness geomembrane;
_____	_____	✓	_____	(b) Leak detection and collection system with hydraulic conductivity $\geq 1$ cm/sec;
_____	_____	✓	_____	(c) Lower geomembrane placed on subbase $\geq 6$ inches thick with $k \leq 1 \times 10^{-5}$ cm/sec or on an approved geosynthetic clay liner with $k \leq 1 \times 10^{-7}$ cm/sec;
_____	_____	✓	_____	(d) Design calculation to predict potential leakage through the upper liner;
_____	_____	✓	_____	(e) Daily inspection requirements and notification and corrective action requirements if leakage rates exceed that predicted by design calculations;
_____	_____	✓	_____	(4) Description of procedures to prevent uplift, if applicable;
_____	_____	✓	_____	(5) Design calculations to demonstrate minimum two feet of freeboard will be maintained;
_____	_____	✓	_____	(6) Procedures for controlling disease vectors and off-site odors.





<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>
—	—	✓	—
—	—	✓	—
—	—	✓	—
—	—	✓	—
—	—	✓	—
—	—	✓	—
—	—	✓	—
—	—	✓	—
—	—	✓	—
—	—	✓	—
—	—	✓	—
—	—	✓	—
—	—	✓	—
—	—	✓	—
—	—	✓	—

**PART H CONTINUED**

- (a) Interstitial space monitoring at least weekly;
- (b) Corrosion protection provided for primary tank interior and external surface of outer shell;
- (c) Interior tank coatings compatible with stored leachate;
- (d) Cathodic protection inspected weekly and repaired as needed;
- (3) Describe an overflow prevention system such as level sensors, gauges, alarms and shutoff controls to prevent overflowing and provide for weekly inspections;
- (4) Inspection reports available for department review.
- d. Schedule provided for routine maintenance of LCRS; (62-701.400(6)(e), FAC)
- 6. Liner systems construction quality assurance (CQA); (62-701.400(7), FAC)
  - a. Provide CQA Plan including:
    - (1) Specifications and construction requirements for liner system;
    - (2) Detailed description of quality control testing procedures and frequencies;
    - (3) Identification of supervising professional engineer;
    - (4) Identify responsibility and authority of all appropriate organizations and key personnel involved in the construction project;
    - (5) State qualifications of CQA professional engineer and support personnel;
    - (6) Description of CQA reporting forms and documents;

S      LOCATION      N/A    N/C

PART H CONTINUED

\_\_\_\_\_ ✓ \_\_\_\_\_

b. An independent laboratory experienced in the testing of geosynthetics to perform required testing;

7. Soil Liner CQA (62-701.400(8)FAC)

\_\_\_\_\_ ✓ \_\_\_\_\_

a. Documentation that an adequate borrow source has been located with test results or description of the field exploration and laboratory testing program to define a suitable borrow source;

\_\_\_\_\_ ✓ \_\_\_\_\_

b. Description of field test section construction and test methods to be implemented prior to liner installation;

\_\_\_\_\_ ✓ \_\_\_\_\_

c. Description of field test methods including rejection criteria and corrective measures to insure proper liner installation.

8. Surface water management systems; (62-701.400(9),FAC)

\_\_\_\_\_ ✓ \_\_\_\_\_

a. Provide a copy of a Department permit for stormwater control or documentation that no such permit is required;

\_\_\_\_\_ ✓ \_\_\_\_\_

b. Design of surface water management system to isolate surface water from waste filled areas and to control stormwater run-off;

\_\_\_\_\_ ✓ \_\_\_\_\_

c. Details of stormwater control design including retention ponds, detention ponds, and drainage ways;

9. Gas control systems; (62-701.400(10),FAC)

\_\_\_\_\_ ✓ \_\_\_\_\_

a. Provide documentation that if the landfill is receiving degradable wastes, it will have a gas control system complying with the requirements of Rule 62-701.530, FAC;

\_\_\_\_\_ ✓ \_\_\_\_\_

10. For landfills designed in ground water, provide documentation that the landfill will provide a degree of protection equivalent to landfills designed with bottom liners not in contact with ground water; (62-701.400(11),FAC)

I. HYDROGEOLOGICAL INVESTIGATION REQUIREMENTS (62-701.410(1), FAC)

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	
			✓	1. Submit a hydrogeological investigation and site report including at least the following information:
				a. Regional and site specific geology and hydrogeology;
✓	Attachment M-1			b. Direction and rate of ground water and surface water flow including seasonal variations;
✓	Attachment M-1			c. Background quality of ground water and surface water;
✓	Attachment M-1, Section 4			d. Any on-site hydraulic connections between aquifers;
✓	Attachment M-1, Section 4			e. Site stratigraphy and aquifer characteristics for confining layers, semi-confining layers, and all aquifers below the landfill site that may be affected by the landfill;
			✓	f. Description of topography, soil types and surface water drainage systems;
✓	Section I			g. Inventory of all public and private water wells within a one-mile radius of the landfill including, where available, well top of casing and bottom elevations, name of owner, age and usage of each well, stratigraphic unit screened, well construction technique and static water level;
✓	Section I			h. Identify and locate any existing contaminated areas on the site;
✓	Section I			i. Include a map showing the locations of all potable wells within 500 feet, and all community water supply wells within 1000 feet, of the waste storage and disposal areas;
✓				2. Report signed, sealed and dated by PE or PG.

J. GEOTECHNICAL INVESTIGATION REQUIREMENTS (62-701.410(2), FAC)

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	
				1. Submit a geotechnical site investigation report defining the engineering properties of the site including at least the following:
—	—	—	✓	a. Description of subsurface conditions including soil stratigraphy and ground water table conditions;
—	—	—	✓	b. Investigate for the presence of muck, previously filled areas, soft ground, lineaments and sink holes;
—	—	—	✓	c. Estimates of average and maximum high water table across the site;
—	—	—	✓	d. Foundation analysis including:
—	—	—	✓	(1) Foundation bearing capacity analysis;
—	—	—	✓	(2) Total and differential subgrade settlement analysis;
—	—	—	✓	(3) Slope stability analysis;
—	—	—	✓	e. Description of methods used in the investigation and includes soil boring logs, laboratory results, analytical calculations, cross sections, interpretations and conclusions;
—	—	—	✓	f. An evaluation of fault areas, seismic impact zones, and unstable areas as described in 40 CFR 258.13, 40 CFR 258.14 and 40 CFR 258.15.
—	—	—	✓	2. Report signed, sealed and dated by PE or PG.

K. VERTICAL EXPANSION OF LANDFILLS (62-701.430, FAC)

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	
_____	_____	✓	_____	1. Describe how the vertical expansion shall not cause or contribute to leachate leakage from the existing landfill or adversely affect the closure design of the existing landfill;
_____	_____	✓	_____	2. Describe how the vertical expansion over unlined landfills will meet the requirements of Rule 62-701.400, FAC with the exceptions of Rule 62-701.430(1)(c), FAC;
_____	_____	✓	_____	3. Provide foundation and settlement analysis for the vertical expansion;
_____	_____	✓	_____	4. Provide total settlement calculations demonstrating that the final elevations of the lining system, that gravity drainage, and that no other component of the design will be adversely affected;
_____	_____	✓	_____	5. Minimum stability safety factor of 1.5 for the lining system component interface stability and deep stability;
_____	_____	✓	_____	6. Provide documentation to show the surface water management system will not be adversely affected by the vertical expansion;
_____	_____	✓	_____	7. Provide gas control designs to prevent accumulation of gas under the new liner for the vertical expansion.

**L. LANDFILL OPERATION REQUIREMENTS (62-701.500, FAC)**

- |   |                      |     |     |    |  |
|---|----------------------|-----|-----|----|--|
| ✓ | <u>Section L.1</u>   | ___ | ___ | 1. | Provide documentation that landfill will have at least one trained operator during operation and at least one trained spotter at each working face; (62-701.500(1), FAC)   |
|   |                      |     |     | 2. | Provide a landfill operation plan including procedures for: (62-701.500(2), FAC)   |
| ✓ | <u>Section L.2.a</u> | ___ | ___ | a. | Designating responsible operating and maintenance personnel;   |
| ✓ | <u>Section L.2.b</u> | ___ | ___ | b. | Contingency operations for emergencies;  |
| ✓ | <u>Section L.2.c</u> | ___ | ___ | c. | Controlling types of waste received at the landfill;   |
| ✓ | <u>Section L.2.d</u> | ___ | ___ | d. | Weighing incoming waste;   |
| ✓ | <u>Section L.2.e</u> | ___ | ___ | e. | Vehicle traffic control and unloading;   |
| ✓ | <u>Section L.2.f</u> | ___ | ___ | f. | Method and sequence of filling waste;  |
| ✓ | <u>Section L.2.g</u> | ___ | ___ | g. | Waste compaction and application of cover;   |
| ✓ | <u>Section L.2.h</u> | ___ | ___ | h. | Operations of gas, leachate, and stormwater controls;  |
| ✓ | <u>Section L.2.i</u> | ___ | ___ | i. | Water quality monitoring.  |
| ✓ | <u>Section L.2.j</u> | ___ | ___ | j. | Maintaining and cleaning the leachate collection system;   |
| ✓ | <u>Section L.3</u>   | ___ | ___ | 3. | Provide a description of the landfill operation record to be used at the landfill; details as to location of where various operational records will be kept (i.e. FDEP permit, engineering drawings, water quality records, etc.) (62-701.500(3), FAC) |
| ✓ | <u>Section L.4</u>   | ___ | ___ | 4. | Describe the waste records that will be compiled monthly and provided to the Department quarterly; (62-701.500(4), FAC)  |
| ✓ | <u>Section L.5</u>   | ___ | ___ | 5. | Describe methods of access control; (62-701.500(5), FAC)   |
| ✓ | <u>Section L.6</u>   | ___ | ___ | 6. | Describe load checking program to be implemented at the landfill to discourage disposal of unauthorized wastes at the landfill; (62-701.500(6), FAC)   |
|   |                      |     |     | 7. | Describe procedures for spreading and compacting waste at the landfill that include: (62-701.500(7), FAC)  |
| ✓ | <u>Section L.7.a</u> | ___ | ___ | a. | Waste layer thickness and compaction frequencies;  |



S      LOCATION      N/A    N/C

PART L CONTINUED

✓	<u>Section L.7.b</u>	___	___	b.	Special considerations for first layer of waste placed above liner and leachate collection system;
✓	<u>Section L.7.c</u>	___	___	c.	Slopes of cell working face and side grades above land surface, planned lift depths during operation;
✓	<u>Section L.7.d</u>	___	___	d.	Maximum width of working face;
				e.	Description of type of initial cover to be used at the facility that controls:
✓	<u>Section L.7.e.</u>	___	___	(1)	Disease vector breeding/animal attraction
✓	<u>Section L.7.e.</u>	___	___	(2)	Fires
✓	<u>Section L.7.e.</u>	___	___	(3)	Odors
✓	<u>Section L.7.e.</u>	___	___	(4)	Blowing litter
✓	<u>Section L.7.e.</u>	___	___	(5)	Moisture infiltration
✓	<u>Section L.7.f</u>	___	___	f.	Procedures for applying initial cover including minimum cover frequencies;
✓	<u>Section L.7.g</u>	___	___	g.	Procedures for applying intermediate cover;
✓	<u>Section L.7.h</u>	___	___	h.	Time frames for applying final cover;
✓	<u>Section L.7.i</u>	___	___	i.	Procedures for controlling scavenging and salvaging.
✓	<u>Section L.7.j</u>	___	___	j.	Description of litter policing methods;
✓	<u>Section L.7.k</u>	___	___	k.	Erosion control procedures.
				8.	Describe operational procedures for leachate management including; (62-701.500(8), FAC)
✓	<u>Section L.8.a</u>	___	___	a.	Leachate level monitoring, sampling, analysis and data results submitted to the Department;
✓	<u>Section L.8.b</u>	___	___	b.	Operation and maintenance of leachate collection and removal system, and treatment as required;
✓	<u>Section L.8.c</u>	___	___	c.	Procedures for managing leachate if it becomes regulated as a hazardous waste;
✓	<u>Section L.8.d</u>	___	___	d.	Agreements for off-site discharge and treatment of leachate;
✓	<u>Section L.8.e</u>	___	___	e.	Contingency plan for managing leachate during emergencies or equipment problems;

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	<u>PART L CONTINUED</u>
✓	<u>Section L.8.f</u>	—	—	f. Procedures for recording quantities of leachate generated in gal/day and including this in the operating record;
✓	<u>Section L.8.g</u>	—	—	g. Procedures for comparing precipitation experienced at the landfill with leachate generation rates and including this information in the operating record;
✓	<u>Section L.8.h</u>	—	—	h. Procedures for water pressure cleaning or video inspecting leachate collection systems.
✓	<u>Section L.9</u>	—	—	9. Describe how the landfill receiving degradable wastes shall implement a gas management system meeting the requirements of Rule 62-701.530, FAC; (62-701.500(9), FAC)
✓	<u>Section L.10</u>	—	—	10. Describe procedures for operating and maintaining the landfill stormwater management system to comply with the requirements of Rule 62-701.400(9); (62-701.500(10), FAC)
				11. Equipment and operation feature requirements; (62-701.500(11), FAC)
✓	<u>Section L.11.</u>	—	—	a. Sufficient equipment for excavating, spreading, compacting and covering waste;
✓	<u>Section L.11.</u>	—	—	b. Reserve equipment or arrangements to obtain additional equipment within 24 hours of breakdown;
✓	<u>Section L.11.</u>	—	—	c. Communications equipment;
✓	<u>Section L.11.</u>	—	—	d. Dust control methods;
✓	<u>Section L.11.</u>	—	—	e. Fire protection capabilities and procedures for notifying local fire department authorities in emergencies;
✓	<u>Section L.11.</u>	—	—	f. Litter control devices;
✓	<u>Section L.11.</u>	—	—	g. Signs indicating operating authority, traffic flow, hours of operation, disposal restrictions.
✓	<u>Section L.12</u>	—	—	12. Provide a description of all-weather access road, inside perimeter road and other roads necessary for access which shall be provided at the landfill; (62-701.500(12), FAC)
✓	<u>Section L.13</u>	—	—	13. Additional record keeping and reporting requirements; (62-701.500(13), FAC)

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>
✓	Section L.13.a	—	—
✓	Section L.13.	—	—
✓	Section L.13.	—	—
✓	Section L.13.	—	—

**PART L CONTINUED**

- a. Records used for developing permit applications and supplemental information maintained for the design period of the landfill;
- b. Monitoring information, calibration and maintenance records, copies of reports required by permit maintained for at least 10 years;
- c. Maintain annual estimates of the remaining life of constructed landfills and of other permitted areas not yet constructed and submit this estimate annually to the Department;
- d. Procedures for archiving and retrieving records which are more than five year old.

M. WATER QUALITY AND LEACHATE MONITORING REQUIREMENTS (62-701.510, FAC)

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	
✓	Attachment M-1	___	___	1. Water quality and leachate monitoring plan shall be submitted describing the proposed ground water, surface water and leachate monitoring systems and shall meet at least the following requirements;
✓	Attachment M-1	___	___	a. Based on the information obtained in the hydrogeological investigation and signed, dated and sealed by the PG or PE who prepared it; (62-701.510(2)(a), FAC)
✓	Attachment M-1	___	___	b. All sampling and analysis performed in accordance with Chapter 62-160, FAC; (62-701.510(2)(b), FAC)
				c. Ground water monitoring requirements; (62-701.510(3), FAC)
✓	Attachment M-1	___	___	(1) Detection wells located downgradient from and within 50 feet of disposal units;
✓	Attachment M-1	___	___	(2) Downgradient compliance wells as required;
✓	Attachment M-1	___	___	(3) Background wells screened in all aquifers below the landfill that may be affected by the landfill;
✓	Attachment M-	___	___	(4) Location information for each monitoring well;
✓	Attachment M-1	___	___	(5) Well spacing no greater than 500 feet apart for downgradient wells and no greater than 1500 feet apart for upgradient wells unless site specific conditions justify alternate well spacings;
✓	Attachment M-1	___	___	(6) Well screen locations properly selected;
✓	Attachment M-	___	___	(7) Procedures for properly abandoning monitoring wells;
✓	Attachment M-	___	___	(8) Detailed description of detection sensors if proposed.

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>
✓	Attachment M-	---	---
✓	Attachment M-	---	---
✓	Attachment M-	---	---
✓	Attachment M-	---	---
✓	Attachment M-	---	---
✓	Attachment M-	---	---
✓	Attachment M-	---	---
✓	Attachment M-	---	---
✓	Attachment M-	---	---
✓	Attachment M-	---	---
✓	Attachment M-	---	---

**PART M CONTINUED**

- d. Surface water monitoring requirements; (62-701.510(4), FAC)
  - (1) Location of and justification for all proposed surface water monitoring points;
  - (2) Each monitoring location to be marked and its position determined by a registered Florida land surveyor;
- e. Leachate sampling locations proposed; (62-701.510(5), FAC)
- f. Initial and routine sampling frequency and requirements; (62-701.510(6), FAC)
  - (1) Initial background ground water and surface water sampling and analysis requirements;
  - (2) Routine leachate sampling and analysis requirements;
  - (3) Routine monitoring well sampling and analysis requirements;
  - (4) Routine surface water sampling and analysis requirements.
- g. Describe procedures for implementing evaluation monitoring, prevention measures and corrective action as required; (62-701.510(7), FAC)
- h. Water quality monitoring report requirements; (62-701.510(9), FAC)
  - (1) Semi-annual report requirements;
  - (2) Bi-annual report requirements signed, dated and sealed by PG or PE.

**N. SPECIAL WASTE HANDLING REQUIREMENTS (62-701.520, FAC)**

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	
		✓		1. Describe procedures for managing motor vehicles; (62-701.520(1), FAC)
		✓		2. Describe procedures for landfilling shredded waste; (62-701.520(2), FAC)
✓	Section N.3			3. Describe procedures for asbestos waste disposal; (62-701.520(3), FAC)
✓	Section N.4			4. Describe procedures for disposal or management of contaminated soil; (62-701.520(4), FAC)
		✓		5. Describe procedures for disposal of biological wastes; (62-701.520(5), FAC)

**O. GAS MANAGEMENT SYSTEM REQUIREMENTS (62-701.530, FAC)**

				1. Provide the design for a gas management systems that will (62-701.530(1), FAC):
✓	Section O			a. Be designed to prevent concentrations of combustible gases from exceeding 25% the LEL in structures and 100% the LEL at the property boundary;
✓	Section O			b. Be designed for site-specific conditions;
✓	Section O			c. Be designed to reduce gas pressure in the interior of the landfill;
✓	Section O			d. Be designed to not interfere with the liner, leachate control system or final cover.
✓	Section O			2. Provide documentation that will describe locations, construction details and procedures for monitoring gas at ambient monitoring points and with soil monitoring probes; (62-701.530(2), FAC):
		✓		3. Provide documentation describing how the gas remediation plan and odor remediation plan will be implemented; (62-701.530(3), FAC):
				4. Landfill gas recovery facilities; (62-701.530(5), FAC):
		✓		a. Information required in Rules 62-701.320(7) and 62-701.330(3), FAC supplied;
		✓		b. Information required in Rule 62-701.600(4), FAC supplied where relevant and practical;
		✓		c. Estimate of current and expected gas generation rates and description of condensate disposal methods provided;
<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	<b>PART O CONTINUED</b>
		✓		d. Description of procedures for condensate sampling, analyzing and data reporting provided;

\_\_\_\_\_  
 \_\_\_\_\_ ✓ \_\_\_\_\_  
 \_\_\_\_\_ ✓ \_\_\_\_\_

- e. Closure plan provided describing methods to control gas after recovery facility ceases operation and any other requirements contained in Rule 62-701.400(10), FAC;
- f. Performance bond provided to cover closure costs if not already included in other landfill closure costs.

**P. LANDFILL FINAL CLOSURE REQUIREMENTS (62-701.600, FAC)**

1. Closure schedule requirements; (62-701.600(2), FAC)

✓ Section P.1 \_\_\_\_\_  
 \_\_\_\_\_  
 ✓ Section P.1 \_\_\_\_\_  
 \_\_\_\_\_  
 ✓ Section P.1 \_\_\_\_\_  
 \_\_\_\_\_

- a. Documentation that a written notice including a schedule for closure will be provided to the Department at least one year prior to final receipt of wastes;
- b. Notice to user requirements within 120 days of final receipt of wastes;
- c. Notice to public requirements within 10 days of final receipt of wastes.

2. Closure permit general requirements; (62-701.600(3), FAC)

\_\_\_\_\_ ✓ \_\_\_\_\_  
 \_\_\_\_\_ ✓ \_\_\_\_\_  
 \_\_\_\_\_ ✓ \_\_\_\_\_  
 \_\_\_\_\_ ✓ \_\_\_\_\_  
 \_\_\_\_\_ ✓ \_\_\_\_\_  
 \_\_\_\_\_ ✓ \_\_\_\_\_  
 \_\_\_\_\_ ✓ \_\_\_\_\_

- a. Application submitted to Department at least 90 days prior to final receipt of wastes;
- b. Closure plan shall include the following:
  - (1) Closure report;
  - (2) Closure design plan;
  - (3) Closure operation plan;
  - (4) Closure procedures;
  - (5) Plan for long term care;
  - (6) A demonstration that proof of financial responsibility for long term care will be provided.

3. Closure report requirements; (62-701.600(4), FAC)

\_\_\_\_\_ ✓ \_\_\_\_\_

- a. General information requirements;
  - (1) Identification of landfill;





S      LOCATION      N/A    N/C

PART P CONTINUED

\_\_\_\_\_ ✓ \_\_\_\_\_

(2) Schedule for installing final cover after final receipt of waste;

\_\_\_\_\_ ✓ \_\_\_\_\_

(3) Description of drought-resistant species to be used in the vegetative cover;

\_\_\_\_\_ ✓ \_\_\_\_\_

(4) Top gradient design to maximize runoff and minimize erosion;

\_\_\_\_\_ ✓ \_\_\_\_\_

(5) Provisions for cover material to be used for final cover maintenance.

g. Final cover design requirements:

\_\_\_\_\_ ✓ \_\_\_\_\_

(1) Protective soil layer design;

\_\_\_\_\_ ✓ \_\_\_\_\_

(2) Barrier soil layer design;

\_\_\_\_\_ ✓ \_\_\_\_\_

(3) Erosion control vegetation;

\_\_\_\_\_ ✓ \_\_\_\_\_

(4) Geomembrane barrier layer design;

\_\_\_\_\_ ✓ \_\_\_\_\_

(5) Geosynthetic clay liner design if used;

\_\_\_\_\_ ✓ \_\_\_\_\_

(6) Stability analysis of the cover system and the disposed waste.

\_\_\_\_\_ ✓ \_\_\_\_\_

h. Proposed method of stormwater control;

\_\_\_\_\_ ✓ \_\_\_\_\_

i. Proposed method of access control;

\_\_\_\_\_ ✓ \_\_\_\_\_

j. Description of proposed final use of the closed landfill, if any;

\_\_\_\_\_ ✓ \_\_\_\_\_

k. Description of the proposed or existing gas management system which complies with Rule 62-701.530, FAC.

5. Closure operation plan shall include:  
(62-701.600(6), FAC)

\_\_\_\_\_ ✓ \_\_\_\_\_

a. Detailed description of actions which will be taken to close the landfill;

\_\_\_\_\_ ✓ \_\_\_\_\_

b. Time schedule for completion of closing and long term care;

\_\_\_\_\_ ✓ \_\_\_\_\_

c. Describe proposed method for demonstrating financial responsibility;

\_\_\_\_\_ ✓ \_\_\_\_\_

d. Indicate any additional equipment and personnel needed to complete closure.

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>
—	—	✓	—
—	—	✓	—
—	—	✓	—

PART P CONTINUED

- e. Development and implementation of the water quality monitoring plan required in Rule 62-701.510, FAC.
  - f. Development and implementation of gas management system required in Rule 62-701.530, FAC.
6. Justification for and detailed description of procedures to be followed for temporary closure of the landfill, if desired; (62-701.600(7),FAC)

**Q. CLOSURE PROCEDURES (62-701.610, FAC)**

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	
✓	Section Q	___	___	1. Survey monuments; (62-701.610(2), FAC)
✓	Section Q	___	___	2. Final survey report; (62-701.610(3), FAC)
✓	Section Q	___	___	3. Certification of closure construction completion; (62-701.610(4), FAC)
✓	Section Q	___	___	4. Declaration to the public; (62-701.610(5), FAC)
✓	Section Q	___	___	5. Official date of closing; (62-701.610(6), FAC)
✓	Section Q	___	___	6. Use of closed landfill areas; (62-701.610(7), FAC)
✓	Section Q	___	___	7. Relocation of wastes; (62-701.610(8), FAC)

**R. LONG TERM CARE REQUIREMENTS (62-701.620, FAC)**

✓	Section R	___	___	1. Maintaining the gas collection and monitoring system; (62-701.620(5), FAC)
✓	Section R	___	___	2. Right of property access requirements; (62-701.620(6), FAC)
✓	Section R	___	___	3. Successors of interest requirements; (62-701.620(7), FAC)
✓	Section R	___	___	4. Requirements for replacement of monitoring devices; (62-701.620(9), FAC)
✓	Section R	___	___	5. Completion of long term care signed and sealed by professional engineer (62-701.620(10), FAC).

**S. FINANCIAL RESPONSIBILITY REQUIREMENTS (62-701.630, FAC)**

✓	Section S	___	___	1. Provide cost estimates for closing, long term care, and corrective action costs estimated by a PE for a third party performing the work, on a per unit basis, with the source of estimates indicated; (62-701.630(3)&(7), FAC).
✓	Section S	___	___	2. Describe procedures for providing annual cost adjustments to the Department based on inflation and changes in the closing, long-term care, and corrective action plans; (62-701.630(4)&(8), FAC).
✓	Section S	___	___	3. Describe funding mechanisms for providing proof of financial assurance and include appropriate financial assurance forms; (62-701.630(5), (6), &(9), FAC).

CERTIFICATION BY APPLICANT AND ENGINEER OR PUBLIC OFFICER

1. Applicant:

The undersigned applicant or authorized representative of Hardee County  
Solid Waste Department is aware that statements made in this form and attached  
information are an application for a Operations Permit from the  
Florida Department of Environmental Protection and certifies that the information in  
this application is true, correct and complete to the best of his/her knowledge and  
belief. Further, the undersigned agrees to comply with the provisions of Chapter  
403, Florida Statutes, and all rules and regulations of the Department. It is  
understood that the Permit is not transferable, and the Department will be notified  
prior to the sale or legal transfer of the permitted facility.

Janice Williamson  
Signature of Applicant or Agent  
Janice Williamson, Solid Waste Superintendent  
Name and Title (please type)

\_\_\_\_\_  
E-Mail address (if available)

685 Airport Road  
\_\_\_\_\_  
Mailing Address  
Wauchula, FL 33873  
\_\_\_\_\_  
City, State, Zip Code  
(863) 773-5089  
\_\_\_\_\_  
Telephone Number

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

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

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

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

Raymond J. Dever  
Signature  
Raymond J. Dever, P.E. Vice President  
Name and Title (please type)  
\_\_\_\_\_  
43031  
Florida Registration Number  
(please affix seal)

SCS Engineers, 3012 U.S. Hwy 201 N., Suite 700  
\_\_\_\_\_  
Mailing Address  
Tampa, FL 33619  
\_\_\_\_\_  
City, State, Zip Code  
rdever@scsengineers.com  
\_\_\_\_\_  
E-Mail address (if available)  
(813) 621-0080  
\_\_\_\_\_  
Telephone Number

Date: 5/16/03

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## SECTION A

### GENERAL INFORMATION

Hardee County (County) owns and operates the Hardee County Landfill under Florida Department of Environmental Protection (FDEP) Permit Number 38414-002-SO, modification 38414-006). The landfill is located on Airport Road, approximately one mile north of State Road 636, in Wauchula, Florida. The site location is shown in Attachment A-1, Figure A-1. The facility serves Hardee County. This application is for the renewal of the operation permit the on-site 12.5 acre Class I landfill.

This permit application has been prepared in accordance with applicable sections of Rule 62-701 F.A.C., and provides the required facility information for agency review and approval. Required information that has previously been submitted and is applicable to this permit renewal has not been resubmitted. These portions of the application not resubmitted have been marked "No Substantial Change" on the application form.

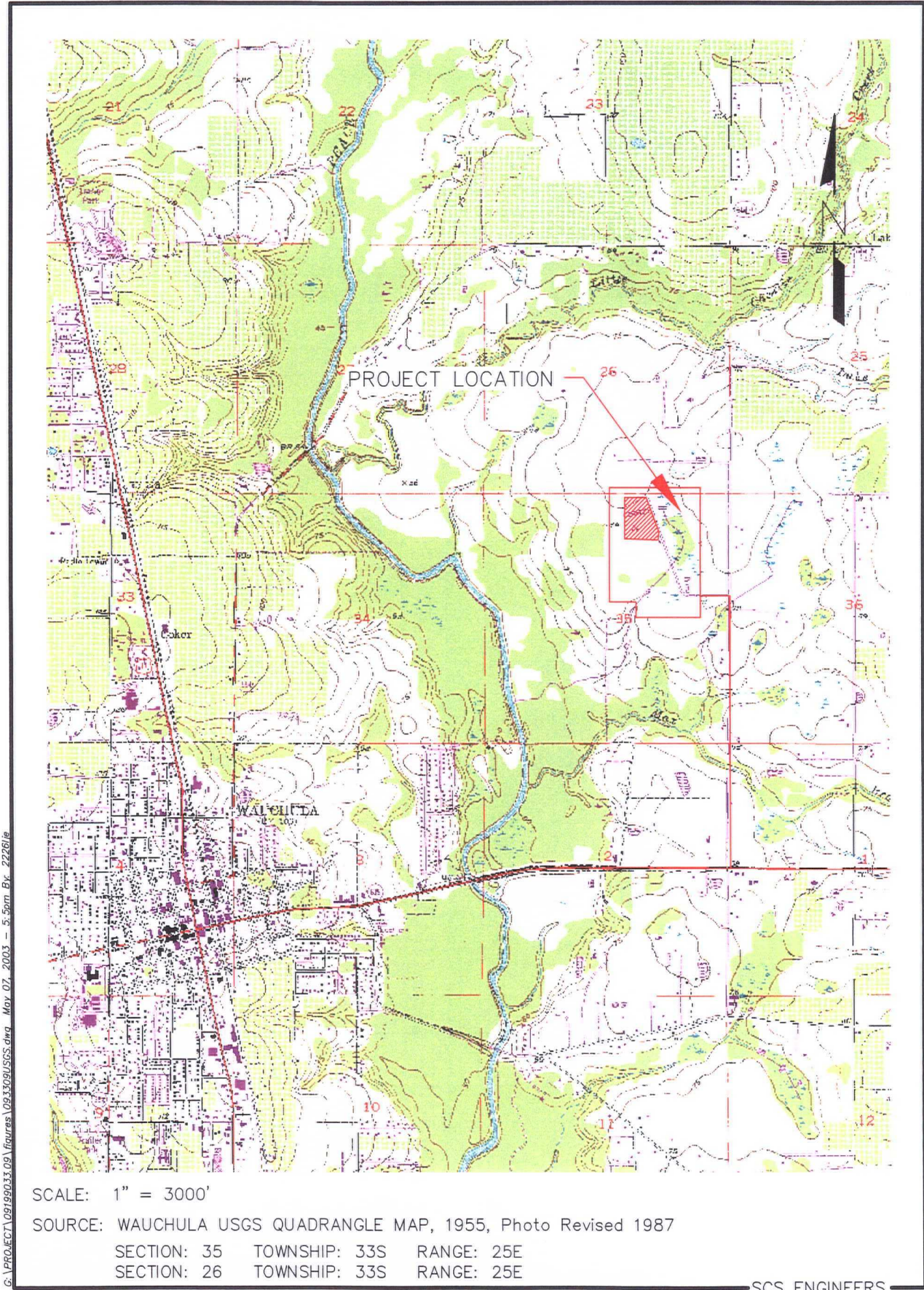
This application is for the operation permit renewal of Hardee County's Class I Landfill, which includes the following components:

- Operation of the Class I Landfill
- Operation of a Household Hazardous Waste Collection Facility
- Operation of a Scrap Metal/White Goods Collection Facility

The information required for Part A of the permit application is included on the application form.

**ATTACHMENT A-1**

**SITE LOCATION**



G:\PROJECT\09199033\09\figures\093309USGS.dwg, May 07, 2003 - 5:50m, Plt. 22261e

SCALE: 1" = 3000'

SOURCE: WAUCHULA USGS QUADRANGLE MAP, 1955, Photo Revised 1987

SECTION: 35 TOWNSHIP: 33S RANGE: 25E

SECTION: 26 TOWNSHIP: 33S RANGE: 25E

SCS ENGINEERS

Figure A-1 Site Location Map Hardee County Landfill  
Hardee County, Florida

## **SECTION B**

### **DISPOSAL FACILITY GENERAL INFORMATION**

The required information for Part B of the permit application is included on the application form, which is attached at the beginning of this permit application report.

## **SECTION C**

### **NON-DISPOSAL FACILITY GENERAL INFORMATION**

Part C of the permit application does not apply to this permit renewal and is designated as "Not Applicable" on the application form.

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**SECTION D**  
**PROHIBITIONS**

**D.1 SITING**

The landfill disposal area remains the same as previously permitted. No additional siting or changes in the limits of the previously permitted disposal area is requested at this time.

Per Rule 62-701.300(2)(b) – No waste shall be stored or disposed of by being placed within 500 feet of an existing or approved potable water well unless storage or disposal takes place at a facility for which a complete permit application was filed or which was originally permitted before the potable water well was in existence.

The water well located immediately south of the maintenance building, refer to Sheet 3 of the Operations Drawings, was installed in 1983 (refer to SWFWMD Well Construction Permit No. 384468-20) and was included as part of the original construction drawings for the waste disposal area for the Facility. Therefore the waste disposal area is within 500 feet of the existing well; however, the well was part of the original facility permit. Currently, the water well is used for fire protection and dust control.

**D.2 EXEMPTIONS**

There are five general exemptions contained in Rules 62-701.300(12) through (16), FAC.

Paragraph (12) applies to yard trash.

Per Rule 62-701.300(12), the Yard Trash Processing Area, as shown on Sheet 3 of the Operations Drawings, is;

- 100 feet from an off-site potable water well.
  - a. There are no known potable water wells within 100 feet of the processing area.
- 50 feet from a water body.
  - b. The processing area is separated from the wetland limits by a 50 foot offset and a 20 foot perimeter road.
- 200 feet from a well serving a community water supply.
  - c. There are no community water supply wells within 200 feet of the processing area.



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The facility is therefore in compliance with Rule 62-701.300(12).

Paragraph (13) applies to tanks and offsets from wells.

The water well, located immediately south of the maintenance building, only provides water to the four water hydrants located on the eastside of the landfill. The water is used for fire protection and dust control.

The following offsets are applicable for the permit application;

- a) Tanks are to be offset 500 from community water systems.

Per the following FDEP drinking water definitions;

- Community water systems – means a public water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.
- Non-Transient Non-Community water system – means a public water system that is not a community water system and that regularly serves at least 25 of the same persons over 6 months per year.

The water well, located immediately south of the maintenance building, does not serve employees or personnel at the facility therefore the facility is in compliance with Rule 62-701.300(12),

- b) Tanks are to be offset 100 feet from other potable wells.

The primary containment tanks on the leachate storage tanks are located 100 feet to the west of the well located immediately south of the maintenance building. The tanks were permitted and constructed after the installation of the well (well installation occurred in 1983, refer to SWFWMD Well Construction Permit No. 384468-20). The well was identified on the PBS&J Drawings, specifically Sheet C-2, dated April 1998. The PBS&J Drawing were for the construction of the tanks.

The well is only used for supplying water to the four water hydrants located on the eastside of the landfill.

The facility is therefore in compliance with Rule 62-701.300(13).

Paragraph (14) applies to waste stored indoors.

This exemption does not apply to this permit application. Waste is not stored indoors.

Paragraph (15) applies to storage in vehicles.

This exemption does not apply to this permit. The County does not store waste in vehicles.



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Paragraph (16) relates to existing facilities.

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The landfill was permitted prior to May 27, 2001, and remains subject to the prohibitions that were in effect at the time the construction permit was issued.

**D.3 BURNING**

The County does not burn waste at the landfill. The County takes active steps to prevent the burning of waste, including load inspections and stockpiling cover soil to smother any fire that might break out in the in-place waste.

**D.4 HAZARDOUS WASTE**

Hazardous waste is not accepted for disposal in the Class I landfill.

**D.5 PCB DISPOSAL**

PCB's are not accepted for disposal in the Class I landfill.

**D.6 BIOMEDICAL WASTE**

Biomedical wastes are not accepted for disposal within the Class I landfill. The Hardee County Landfill has a Household Sharps Collection Program (permitted through the Florida Department of Health; Permit No. 25-64-00334), that allows citizens to deliver their biomedical waste products (needles) in approved sharps containers to the landfill. The sharps containers are collected and stored in a locked room at the Animal Control Facility located at the landfill. The sharps containers are then transported, offsite, to the Hardee County Fire and Rescue Department where a private waste hauler disposes of the waste in an approved facility.

**D.7 CLASS I SURFACE WATERS**

There are no Class I surface waters within 3000 feet of the landfill.

**D.8 SPECIAL WASTE**

Special wastes include lead-acid batteries, used oil, yard trash, white goods, and whole waste tires. These wastes are not accepted for disposal in the Class I landfill.

**D.9 WASTE-TO-ENERGY FACILITIES RESTRICTIONS**

These restrictions do not apply to this project.

**D.10 LIQUIDS**

Bulk liquids and noncontainerized liquids are not accepted for disposal in the Class I landfill.

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**D.11 USED OIL**

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

Used oil, generated by residents only, is collected and stored in containers in the Household Hazardous Waste Center. The used oil is collected by a private waste disposal service for proper offsite recycling.

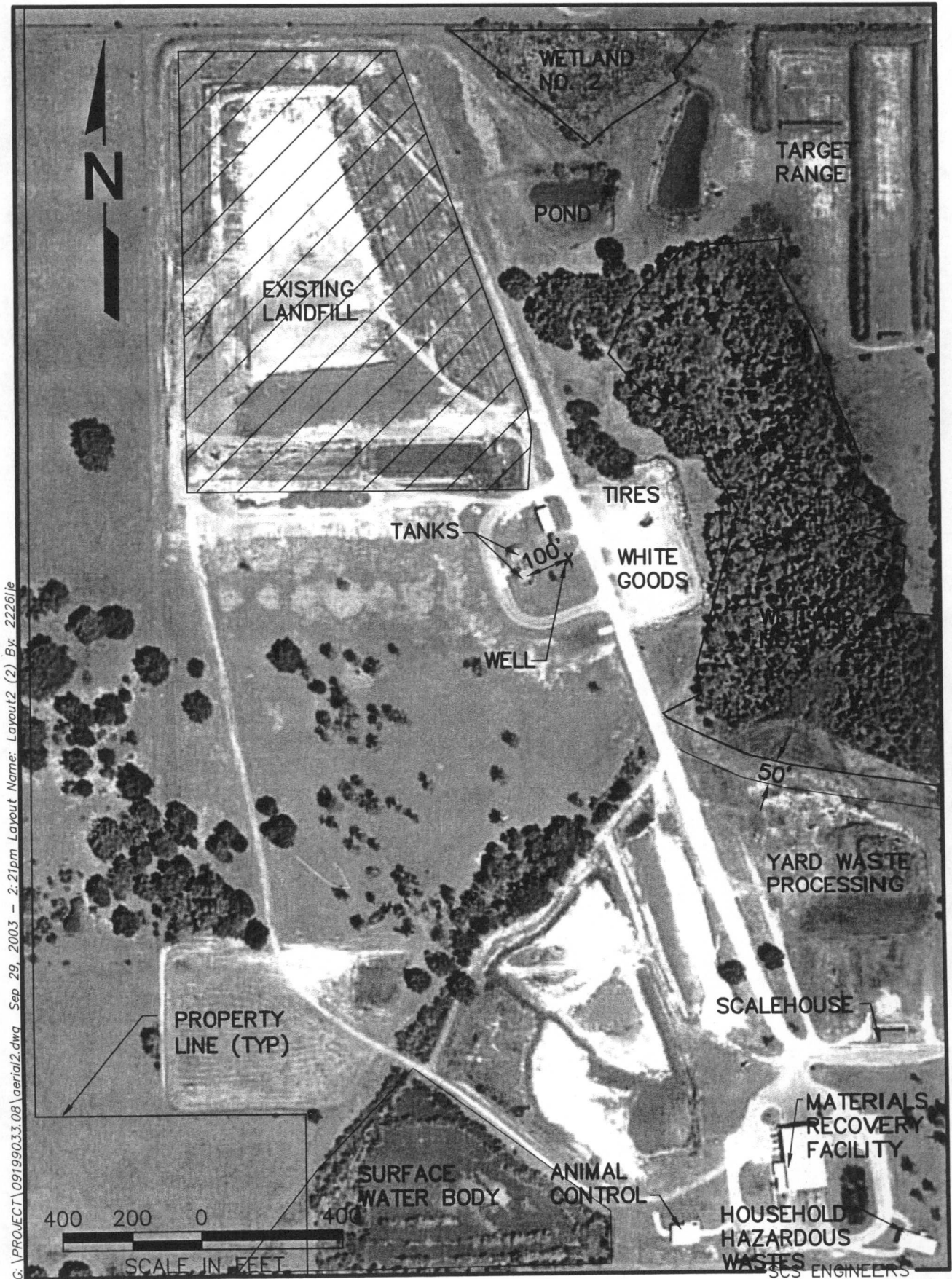


Figure 1. Hardee County Landfill

## **SECTION E**

### **SOLID WASTE MANAGEMENT FACILITY PERMIT REQUIREMENTS, GENERAL**

#### **E.1 PERMIT APPLICATION COPIES**

Four copies of the completed Permit Application form, including all supporting data, are submitted to FDEP for approval.

#### **E.2 CERTIFICATIONS**

The appropriate professional certifications are provided on the application packages submitted to FDEP.

#### **E.3 TRANSMITTAL LETTER**

The transmittal letter is included in the front of this permit application report.

#### **E.4 PERMIT APPLICATION FORM**

The completed application form, dated and signed is included in this permit application report.

#### **E.5 PERMIT APPLICATION FEE**

In accordance with Rule 62-4.050(4)(h)14, F.A.C., the application fee of \$10,000 is required for an operation permit renewal. Pursuant to Florida State Law 94-278, Hardee County requests a permit fee reduction to be granted on the basis of fiscal hardship. Therefore, a check in the amount of \$100 is included with this permit application package. See Attachment E-1 for certification of fiscal hardship.

#### **E.6 ENGINEERING REPORT**

The information requested on the application form which is applicable to this permit renewal application have been discussed herein or included as attachments to subsequent sections of text in this report.

#### **E.7 OPERATION PLAN AND CLOSURE PLAN**

The Operation Plan is discussed in Section L of this report. The Closure Plan is discussed in Section P of this report.

#### **E.8 CONTINGENCY PLAN**

The Contingency Plan is discussed in Section L of this report.

## **E.9 SOLID WASTE MANAGEMENT FACILITY PLANS**

### **E.9.a Regional Map**

A regional map is contained in Attachment E-2, Figure E-1 and shown on the Cover Sheet of the permit drawings, showing the project location and the area surrounding the Hardee County Landfill.

### **E.9.b Vicinity Map/Aerial Photograph**

An aerial photograph, flown by I. F. Rooks and Associates in April of 2001 is included as Sheet 2 of the permit drawings. The aerial is over one year old however SCS has driven around the surrounding property and confirmed that no major changes have occurred since the April 2001 aerial was produced. A one-mile radius from the property limits of the landfill, showing land use and zoning is shown on Sheet 2 of the permit drawings.

### **E.9.c Site Plan**

Sheet 3 of the permit drawings depicts the current limits of the property owned by Hardee County to be used by the Hardee County Solid Waste Department. Additional property, a parcel approximately 250 feet to the west of the landfill and a parcel approximately 100 feet to the north of the landfill, was acquired by the County to provide buffer zones and allow possible expansion of the disposal area. The property deeds and titles for the new parcels, and a boundary survey of the new parcels, conducted by Chastain Skillman Incorporated, is contained in Attachment E-3. The property boundaries for the original landfill facility remain unchanged from previous permit applications.

### **E.9.d Details**

Engineering details necessary for this permit renewal are shown in the permit drawings submitted with this permit application.

## **E.10 PROOF OF PROPERTY OWNERSHIP**

Hardee County owns the Hardee County Landfill site. As described in Section E.9.c, the landfill facility comprises of three separate parcels of land. Copies of the deeds are included in Attachment E-3.

## **E.11 RECYCLING ACTIVITIES**

The Hardee County Landfill is a bale fill-type landfill. Wastes are baled at the on-site Materials Recovery Facility (MRF). The MRF allows the Solid Waste Department to provide the County with a waste reduction method for the Class I landfill by segregating recyclables from the non-recyclable wastes and then baling the non-recyclable waste. Furthermore, residents of Hardee County are asked to segregate recyclables prior to collection. These wastes are also segregated from non-recyclables at the MRF.

Yard trash is not disposed in the disposal area of the Landfill. Yard trash, as defined by FDEP as "vegetative matter resulting from landscaping maintenance or land clearing operations", are diverted from the incoming waste stream and placed in the Yard Waste Processing Area. The processed yard waste is used for erosion control at the Landfill. Processed yard waste is available for public re-use.

#### **E.12 HISTORY OF DEPARTMENT ENFORCEMENT ACTIVITIES**

The County received a Warning Letter (#WL94-0011SW25SWD) on July 22, 1994 due to a violation of Rule 62-701.500(7)(e), specifically:

"Inadequate daily cover was observed on the MSW bale working face. Plastic tarps are being used but they only partially cover the bales. It appears that cover material is being placed on top of these tarps."

This operational error was corrected and the applicable civil penalties were settled through the performance of an in-kind project. The case was officially closed on February 13, 1995.

Since that time, there has been no other enforcement actions taken against the Hardee County Landfill.

#### **E.13 PROOF OF PUBLICATION OF NOTICE OF APPLICATION**

Notice of application for renewal of the operating permit for the Hardee County Landfill was published in the edition of the Herald Advocate, a local newspaper of general circulation in Hardee County in accordance with Rule 62-701.320(8), F.A.C. The required proof of publication is provided in Attachment E-4.

#### **E.14 AIRPORT SAFETY REQUIREMENTS**

Based on project files and the County's knowledge of the area, there are no licensed and operating airport runways within a five-mile radius of the landfill site. In order to confirm this, letters were sent to the Florida Department of Transportation (FDOT) requesting the location of any airport runways the vicinity of the landfill. The response letter from the FDOT is included in Attachment E-5.

#### **E.15 OPERATOR TRAINING REQUIREMENTS**

Operator training requirements are discussed in Section L of this application report.

Yard trash is not disposed in the disposal area of the Landfill. Yard trash, as defined by FDEP as "vegetative matter resulting from landscaping maintenance or land clearing operations", are diverted from the incoming waste stream and placed in the Yard Waste Processing Area. The processed yard waste is used for erosion control at the Landfill. Processed yard waste is available for public re-use.

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## **E.15 OPERATOR TRAINING REQUIREMENTS**

In accordance with Rule 62-701.320(15), F.A.C., key supervisory staff have received Landfill Operator Certification Training. Operator training requirements certificates and hours completed are discussed located in Appendix C of Section L of within this application report.

As required by Rule 62-701.320(15), F.A.C., a State-certified Landfill Operator will be on site when waste is received for disposal and a trained spotter will be on site during all times when waste is deposited at the landfill working face to detect any unauthorized wastes. In addition, the equipment operators have sufficient training and knowledge to move waste and soil, and to

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ENVIRONMENTAL PROTECTION

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develop the site in accordance with the design and operational standards described in this application.

The trained operators and spotters are as follows:

- Solid Waste Director - Janice Williamson
- Executive Assistant - Teresa Carver
- MRF Operator - Jerry Hutto
- MRF Operator - Ed Pearce
- MRF Operator - Moises Serrano
- Heavy Equipment Operator, Spotter - Donald Albritton
- Heavy Equipment Operator, Spotter - Steve Strickland
- Leachate Tanker Driver - Stephen Wingo
- Weighmaster - Joe Roman
- Weighmaster - Brandie Steiner

Operator training includes a 24-hour course and 16 hours of continuing education every three years. Spotter training includes an 8-hour course and 4 hours of continuing education every three years. Operator and Spotter training courses will be attended as offered by the University of Florida Center for Training, Research and Education for Environmental Occupations (TREEO) and through other FDEP approved sources. A listing of TREEO training courses and schedule is available at [www.treeo.ufl.edu](http://www.treeo.ufl.edu) and as presented in Appendix C of Attachment L.

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**ATTACHMENT E-1**

**FISCAL HARDSHIP**

**HARDEE COUNTY**  
**BOARD OF COUNTY COMMISSIONERS**  
412 W. Orange Street, Room A-203  
Wauchula, Florida 33873  
(863)773-9430 \* (863)773-6952 \* Fax (863)773-0958  
[bcc@hardeecounty.net](mailto:bcc@hardeecounty.net) [www.hardeecounty.net](http://www.hardeecounty.net)

October 01, 2002

Florida Dept. of Environmental Protection  
3804 Coconut Palm Drive  
Tampa, FL 33619

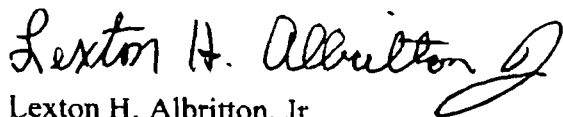
Re: Permit Fee Reduction

To Whom It May Concern:

Pursuant to Florida Statutes, Chapter 218.075, Hardee County is eligible for a permit fee reduction.

Hardee County is currently at 8.25 mills and Florida Law states that millage greater than eight mills would justify a permit fee reduction or waiver to be granted on the basis of hardship. Hardee County certifies that the cost of the permit processing fee is a fiscal hardship due to the fact that ad valorem operating millage is greater than eight mills.

Sincerely,



Lexton H. Albritton, Jr.  
County Manager

LHA/sd

permit fee reduction county manager

Clifton N. Timmerman - Walter B. Olliff, Jr.  
E. Milton Lanier - William R. Lambert, Jr. - Gordon R. Norris  
County Manager Lexton H. Albritton, Jr. - County Attorney Ken Evers

"An Equal Opportunity Employer"

**RESOLUTION NO. 02-51**

**A RESOLUTION ADOPTING THE FINAL MILLAGE RATE FOR THE HARDEE COUNTY BOARD OF COUNTY COMMISSIONERS FOR FISCAL YEAR COMMENCING ON OCTOBER 1, 2002 AND ENDING SEPTEMBER 30, 2003; PROVIDING FOR AN EFFECTIVE DATE.**


WHEREAS, the Board of County Commissioners of Hardee County, Florida held a public hearing to adopt the final millage rate for Fiscal Year 2002/2003 as required by Florida Statute 200.065; and

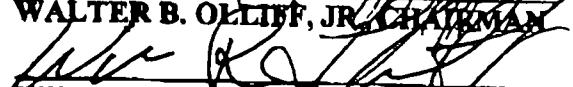
WHEREAS, the value of real property not exempt from taxation within Hardee County has been certified by the County Property Appraiser to the Board of County Commissioners as \$1,041,678,667.


**NOW, THEREFORE BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF HARDEE COUNTY THAT:**


1. The Governing Board does hereby adopt its final millage rate of 8.25 mills to be levied for the General Fund and the Fine and Forfeiture Fund upon all real and tangible personal property located within the boundaries of the above named taxing authority.
2. **THE FINAL LEVY OF 8.25 MILLS WILL RESULT IN A 13.14% PERCENT INCREASE OVER THE ROLLED BACK RATE OF 7.2917 MILLS.**
3. This final millage rate of 8.25 mills for the General Fund and Fine and Forfeiture Fund is for the calendar year 2002 to fund the expenses for the fiscal year commencing October 1, 2002 and ending September 30, 2003.
4. This resolution shall take effect immediately upon its adoption.


**DULY ADOPTED AT A PUBLIC HEARING THIS 24<sup>TH</sup> DAY OF SEPTEMBER, 2001.**

  
 WALTER B. OLLIFF, JR. CHAIRMAN

  
 WILLIAM R. LAMBERT, SR.

  
 E. MILTON LASTER

  
 GORDON R. NORRIS

  
 CLIFTON N. TIMMERMAN

ATTEST:

  
 B. HUGH BRADLEY  
 EX-OFFICIO CLERK TO THE BOARD

**ATTACHMENT E-2**

**REGIONAL MAP**

G:\PROJ\ECT\09189033\_09\rawres\093109\USGS.dwg, May 07, 2003 - 5:50pm Br. 22261e

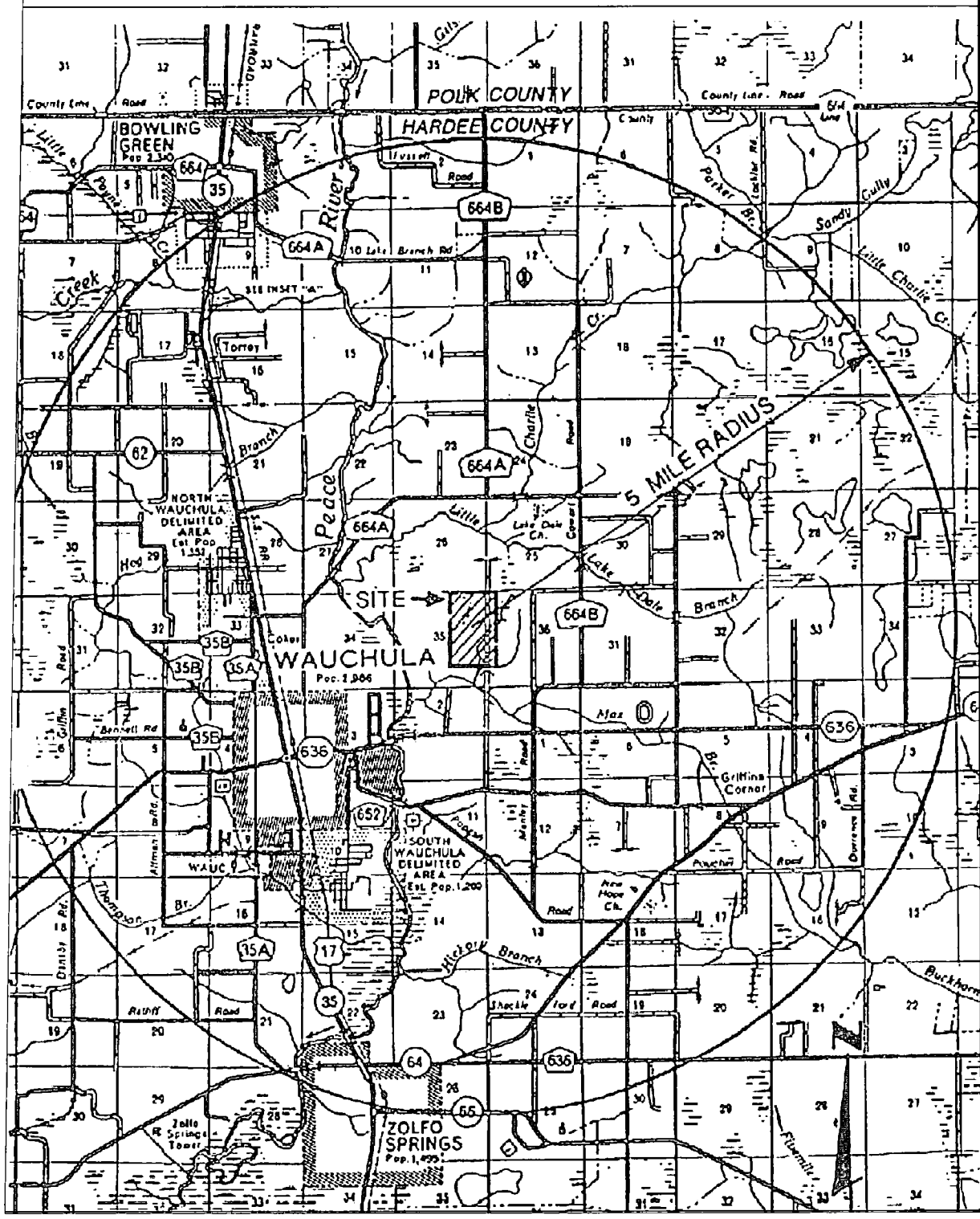


Figure E-1 Regional Map Hardee County Landfill  
Hardee County, Florida

**ATTACHMENT E-3**  
**PROOF OF PROPERTY OWNERSHIP**

*Wagner  
Deed folder*

# Wauchula Abstract & Title Co., Inc.

123 South 9th Avenue  
Wauchula, Florida 33873  
Telephone: (863) 773-9054  
Facsimile: (863) 773-5857

Date 7-5-02

Hardee County, a political subdivision  
412 West Orange St. Rm A-203  
Wauchula, FL 33873

RE: H20020393  
Property around Landfill, Wauchula, Florida 33873

Dear Hardee County, a political subdivision:

Please find enclosed the following documents relative to the above captioned property:

- Recorded Warranty Deed
- Owner's Title Insurance Policy
- Satisfaction
- Release
- Amortization Schedule
- Transfer of Title Application
- 
- 
- 

After you have had an opportunity to review the enclosed, please feel free to contact us if you have any questions.

It has been a pleasure to have been of service to you, and we hope that we may be of service to you again in the future.

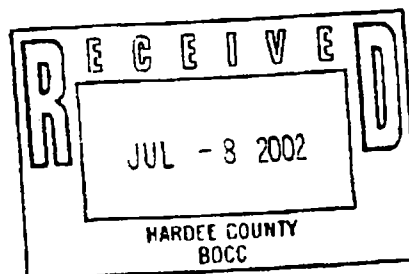
Respectfully,

*Tina Hines*  
for:

Dorothy A. Conerly, President  
Wauchula Abstract & Title Co., Inc.

DAC/tlh

enclosures



AMERICAN LAND TITLE ASSOCIATION  
OWNER'S POLICY (10-17-92)  
(WITH FLORIDA MODIFICATIONS)

Policy No. 7210609-36946

CHICAGO TITLE INSURANCE COMPANY

SUBJECT TO THE EXCLUSIONS FROM COVERAGE, THE EXCEPTIONS FROM COVERAGE CONTAINED IN SCHEDULE B AND THE CONDITIONS AND STIPULATIONS, CHICAGO TITLE INSURANCE COMPANY, a Missouri corporation, herein called the Company, insures, as of Date of Policy shown in Schedule A, against loss or damage, not exceeding the Amount of Insurance stated in Schedule A, sustained or incurred by the insured by reason of:

1. Title to the estate or interest described in Schedule A being vested other than as stated therein;
2. Any defect in or lien or encumbrance on the title;
3. Unmarketability of the title;
4. Lack of a right of access to and from the land.

The Company will also pay the costs, attorneys' fees and expenses incurred in defense of the title, as insured, but only to the extent provided in the Conditions and Stipulations.

*In Witness Whereof*, CHICAGO TITLE INSURANCE COMPANY has caused this policy to be signed and sealed as of the Date of Policy shown in Schedule A, the policy to become valid when countersigned by an authorized signatory.

CHICAGO TITLE INSURANCE COMPANY

WAUCHULA ABSTRACT & TITLE  
COMPANY, INC.  
123 S. 9th Avenue  
Wauchula, FL 33873

(863) 773-9054



By: *Robert A. Stone*

ATTEST

President

*Barbara*  
Secretary



## OWNERS

## SCHEDULE A

OFFICE FILENUMBER	POLICY NUMBER	DATE OF POLICY	AMOUNT OF INSURANCE
H20020393	<sup>2</sup> 7210609-36946	<sup>3</sup> May 16, 2002 12:04:34 PM	<sup>4</sup> \$ 88,400.00

1. Name of Insured:  
Hardee County, a political subdivision of the State of Florida
2. The estate or interest in the land which is covered by this Policy is:  
**Fee Simple**
3. Title to the estate or interest in the land is vested in the Insured.
4. The land herein described is encumbered by the following mortgage or trust deed, and assignments:  
**None**

and the mortgages or trust deeds, if any, shown in Schedule B hereof.

5. The land referred to in this Policy is described as follows:  
**See Attached Owners Schedule A Continuation**

## SCHEDULE A

Owners Form

Reorder Form No. 3529 (Rev. 1/89)

This Policy valid only if Schedule B is attached.

Policy Number 7210609-36946  
Owners

Policy Number \_\_\_\_\_  
Loan

**Parcel 1:**

Commence at the Northeast corner of Section 35, Township 33 South, Range 25 East, Hardee County, Florida; thence run S 89°51'17" W along the North line of said Section 35, which is also the South line of Section 26, Township 33 South, Range 25 East, a distance of 2,323.42 feet to the Point of Beginning; thence S 00°28'08" E, a distance of 2,316.45 feet; thence S 89°47'00" W, a distance of 250.00 feet; thence N 00°28'08" W, a distance of 2,317.86 feet to said North line of Section 35; thence S 89°51'17" W along said North line of Section, a distance of 250.00 feet to the Point of Beginning.

Together with

**Parcel 2:**

Commence at the Southeast corner of Section 26, Township 33 South, Range 25 East, Hardee County, Florida; thence run S 89°51'17" W along the South line of said Section 26, which is also the North line of Section 35, Township 33 South, Range 25 East, a distance of 663.83 feet to the Point of Beginning; thence continue S 89°51'17" W. along said South line of Section 26, a distance of 1,909.59 feet; thence N 00°28'08" W, a distance of 100.00 feet; thence N 89°51'17" E, a distance of 1,909.77 feet; thence S 00°22'10" E, a distance of 100.00 feet to the Point of Beginning.

**POLICY FORM**

**SCHEDULE B**

Form No: H20020393

Policy Number: 7210609-36946

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of

**General Exceptions:**

- (1) Rights or claims of parties in possession not shown by the public records.
- (2) Encroachments, overlaps, boundary line disputes, and any other matters which would be disclosed by an accurate survey and inspection of the premises.
- (3) Easements or claims of easements not shown by the public records.
- (4) Any lien, or right to a lien, for services, labor or material heretofore or hereafter furnished, imposed by law and not shown by the public records.
- (5) Taxes or special assessments which are not shown as existing liens by the public records.

**Special Exceptions:** The mortgage, if any, referred to in Item 4 of Schedule A., if this schedule is attached to an Owner's Policy.

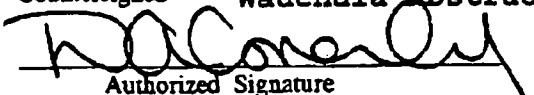
(6) Any claim that any portion of said lands are sovereignty lands of the State of Florida, including submerged, filled or artificially exposed lands and lands accreted to such lands.

(7) Taxes and assessments for the year 2002 and subsequent years.

8. This Policy to be issued hereunder does not insure access to the insured land.

9. Schedule B, general exceptions 1, 4 and 6 are hereby deleted from said policy.

Countersigned **Wauchula Abstract & Title Co., Inc.**

  
Authorized Signature  
**Dorothy A. Conerly**

Note: If this schedule is attached to a Loan Policy, junior and subordinate matters, if any, are not reflected herein.

Note: This Policy consists of insert pages labeled Schedules A and B. This Policy is of no force and effect unless both pages are included along with any added pages incorporated by reference.

# Corporate Warranty Deed

This Indenture, made this 15th day of May

A.D. 2002, Between

Cargill Fertilizer, Inc.

INST: 2002003620 DATE: 05/16/2002 TIME: 12:04:34  
DOC STAMP-DEED: 618.80

nz DC.B. HIGH BRADLEY, HARDEE COUNTY B:627 P:708

whose post office address is: 8813 Highway 41 South  
Riverview, Florida 33569

a corporation existing under the laws of the  
State of Delaware, Grantor and  
Hardee County, a political subdivision of  
the State of Florida

whose post office address is: 412 West Orange Street, Room A-203  
Wauchula, Florida 33873

Grantees' Tax Id # :  
Grantee,

Witnesseth, that the said Grantor, for and in consideration of the sum of ( Ten & NO/100 Dollars, to it in hand paid by the said Grantee, the receipt whereof is hereby acknowledged, has granted, bargained and sold to the said Grantee forever, the following described land, situate, lying and being in the County of HARDEE, State of Florida, to wit:  
See Schedule A attached hereto and by this reference made a part hereof.

Subject to covenants, restrictions and easements of record. Subject also to taxes for 2002 and subsequent years.

Parcel Identification Number: 26-33-25-0000-02500-0000

And the said Grantor does hereby fully warrant the title to said land, and will defend the same against the lawful claims of all persons whomsoever. Additional Parcel ID#: 35-33-25-0000-00040-0000

In Witness Whereof, the said Grantor has caused this instrument to be executed in its name by its duly authorized officer and caused its corporate seal to be affixed the day and year first above written.

Cargill Fertilizer, Inc.

Signed and Sealed in Our Presence:

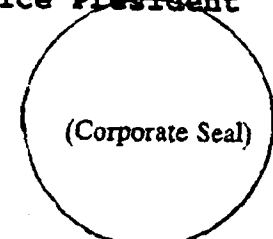
By:

Thomas E. Myers III  
Thomas E. Myers III  
Its Vice President

Carol J. Hancock  
Witness Print Name: Carol J. Hancock

DAVID CURT WADE  
Witness Print Name: David Curt Wade

State of Florida  
County of Polk



(Corporate Seal)

of Cargill Fertilizer, Inc.

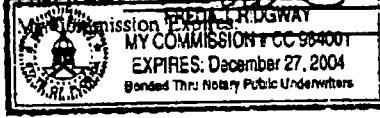
a corporation existing under the laws of the State of  
He/She is personally known to me or has produced

Delaware

, on behalf of the corporation  
as identification

PREPARED BY: Dorothy A. Conerly  
RECORD & RETURN TO:  
Wauchula Abstract & Title Co., Inc.  
123 South 9th Avenue  
Wauchula, Florida 33873  
File No: H20020393

*Freda J. Ridgway*  
Notary Public  
*Freda J. Ridgway*  
12-27-2004



CWD-1  
6/99

Schedule A

Parcel 1:

Commence at the Northeast corner of Section 35, Township 33 South, Range 25 East, Hardee County, Florida; thence run S 89°51'17" W along the North line of said Section 35, which is also the South line of Section 26, Township 33 South, Range 25 East, a distance of 2,323.42 feet to the Point of Beginning; thence S 00°28'08" E, a distance of 2,316.45 feet; thence S 89°47'00" W, a distance of 250.00 feet; thence N 00°28'08" W, a distance of 2,317.86 feet to said North line of Section 35; thence S 89°51'17" W along said North line of Section, a distance of 250.00 feet to the Point of Beginning.

Together with

Parcel 2:

Commence at the Southeast corner of Section 26, Township 33 South, Range 25 East, Hardee County, Florida; thence run S 89°51'17" W along the South line of said Section 26, which is also the North line of Section 35, Township 33 South, Range 25 East, a distance of 663.83 feet to the Point of Beginning; thence continue S 89°51'17" W. along said South line of Section 26, a distance of 1,909.59 feet; thence N 00°28'08" W, a distance of 100.00 feet; thence N 89°51'17" E, a distance of 1,909.77 feet; thence S 00°22'10" E, a distance of 100.00 feet to the Point of Beginning.

INST:2002003620 DATE:05/16/2002 TIME:12:04:34  
DOC STAMP-DEED : 618.60  
mk DC.B. HUGH BRADLEY, HARDEE COUNTY 8:627 P:709

File No: H20020393

SPECIAL WARRANTY DEED

THIS SPECIAL WARRANTY DEED Made the 1<sup>st</sup> day of July, 1987 by MOBIL OIL CORPORATION, a corporation existing under the laws of the State of New York, and having its principal place of business at New York, New York, hereinafter called the grantor, to HARDEE COUNTY, a political subdivision of the State of Florida, whose post office address is 412 West Orange Street, Wauchula, Florida 33873, hereinafter called the grantee:

WITNESSETH: That the grantor, for and in consideration of the sum of \$10.00 and other valuable considerations, receipt whereof is hereby acknowledged, by these presents does grant, bargain, sell, alien, remise, release, convey and confirm unto the grantee, all that certain land situate in Hardee County, Florida, viz:

Begin at the SE corner of the NE-1/4 of Section 35, Township 33 South, Range 25 East and go West 660 feet to the point of beginning, thence run North 2,640 feet, thence West 1,650 feet, thence South 2,310 feet, thence East 330 feet, thence South 330 feet, thence East 1,320 feet to the point of beginning.

TOGETHER with all the tenements, hereditaments and appurtenances thereto belonging or in anywise appertaining.

TO HAVE AND TO HOLD, the same in fee simple forever.

AND the grantor hereby covenants with said grantee that it is lawfully seized of said land in fee simple; that it has good right and lawful authority to sell and convey said land; that it hereby fully warrants the title to said land and will defend the same against the lawful claims of all persons claiming by, through or under the said grantor.

AND the grantee shall defend, indemnify and hold harmless the grantor, its agents, employees and assigns, from any and all losses, liabilities, penalties, expenses, damages, demands, and claims (including costs of defense and reasonable attorneys' fees) in connection with or arising out of any injury or alleged injury (including death) to any person, or damage or alleged damage to property, or contamination of or adverse effects on the environment, or any violation of governmental laws, regulations, orders, permits or permit conditions, caused or sustained or alleged to have been caused or sustained in connection with, or to have arisen out of or to have occurred in connection with, the use or occupancy of the land, whether by the grantee or by any transferee, lessee, assignee, licensee or contractor of the grantee or by any successor in interest to the grantee, and whether or not the event, cause, circumstance or condition giving rise to the claim or liability is (i) known or unknown as of the date hereof, or (ii) occurred prior or subsequent to the date hereof.

AND the grantee further agrees that the above obligations shall be inserted in any transfer, lease or assignment of the land or in any license or contract with respect to the use of the land, and that those obligations shall, to the extent legally permissible, be a covenant running with the land, binding on the grantee's successors and assigns and all other subsequent owners of the land.

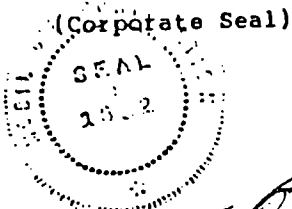
AND the parties hereby acknowledge and confirm that the prior Lease Agreement between the parties regarding said lands is hereupon terminated.

IN WITNESS WHEREOF the grantor has caused these presents to be executed in its name, and its corporate seal to be hereunto



affixed, by its proper officers thereunto duly authorized, the day and year first above written.

MOBIL OIL CORPORATION



By J. P. Rogers  
Attorney in Fact

By J. P. Rogers  
Attorney in Fact

ATTEST: [Signature]  
Assistant Secretary

Signed, sealed and delivered in the presence of:

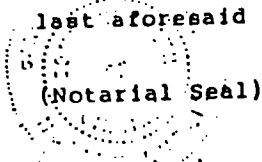
[Signature]

[Signature]

STATE OF NEW YORK VIRGINIA  
COUNTY OF NEW YORK HANOVER

I HEREBY CERTIFY that on this day, before me, an officer duly authorized in the State and County aforesaid to take acknowledgments, personally appeared J. P. Rogers and D. C. Jesso and D. B. Wyatt well known to me to be the Attorneys in Fact and Assistant Secretary of the corporation named as grantor in the foregoing deed, and that they severally acknowledged executing the same in the presence of two subscribing witnesses freely and voluntarily under authority duly vested in them by said corporation and that the seal affixed thereto is the true corporate seal of said corporation.

WITNESS my hand and official seal in the County and State last aforesaid this 1st day of July, 1987.



Carole A. Pemberton  
Notary Public

My commission expires:

MY COMMISSION EXPIRES OCTOBER 6, 1990

FILED AND RECORDED IN  
OFFICIAL RECORDS, RECORD VERIFIED  
AUG 25 1987 8:30 AM  
COLEMAN W. BEST, CLERK CIRCUIT CRT.  
BY BSC HARDEE COUNTY, FL

RECEIVED THIS 25 DAY OF  
AUG 1987 IN PAYMENT OF DOCUMENTARY STAMPS  
AND \$ 0 INTANGIBLE TAX  
COLEMAN W. BEST  
CLERK OF COURT  
HARDEE COUNTY, FLORIDA  
BY BSC D.C.

WARRANTY DEED.

THIS INDENTURE, Made this 15th day of June A D 1921, between The Wauchula Development Co., a corporation existing under the laws of the State of Florida, party of the first part, and W. A. COLE, party of the second part,

WITNESSETH: That the said party of the first part, for and in consideration of the sum of One dollar and other good and valuable considerations, to it in hand paid the receipt whereof is hereby acknowledged, has bargained, sold and transferred, unto the said party of the second part, his successors and assigns forever, all that certain parcel of land lying and being in the County of Hardee, State of Florida, more particularly described as follows:

West one half (W 1/2) of the South-east one-quarter (SE 1/4) of the North-east one-quarter (NE 1/4) of Section Thirty-five (35) Township Thirty-three (33) South Range Twenty-five (25) East. (\$1.00 U S Rev Stamps Cancelled)

Excepting and Reserving, however, unto the party of the first part, its successors and assigns, a strip of ground fifteen feet wide along section and half-section lines to be used as one-half of right of way for public roads.

And the said party of the first part does hereby fully warrant the title to said lands, and will defend the same against the lawful claims of all persons.

IN WITNESS WHEREOF, said party of the first part has caused these presents to be signed in its name by its President, and its corporate seal to be affixed, hereto, the day and year above written.

Signed, sealed and delivered in

our presence as witnesses;

C L Richardson Jr  
P M Dewey

.....  
'CORPORATE'  
'S E A L'  
.....

THE WAUCHULA DEVELOPMENT COMPANY  
By H B Rainey  
Vice-President.

STATE OF FLORIDA )  
COUNTY OF HARDEE.)

I do hereby certify that on this 20th day of June A D 1921, before me personally appeared Homer B Rainey, Vice-President of The Wauchula Development Company, a corporation existing under the laws of the State of Florida, to me known to be the person described, in and who executed the foregoing conveyance and acknowledged the execution thereof to be his free act and deed as such officer for the uses and purposes therein mentioned, and that he caused to be affixed thereto the official seal of said corporation.

WITNESS my signature and official seal at Wauchula, in the County of Hardee, State of Florida, the day and year aforesaid.

(S E A L)

C A Samuelson, (Seal) Notary Public, State of Florida. My commission as Notary expires on the 8 day of January 1925.

I Hereby certify that the above and foregoing is a true and correct copy of the original as filed for record this the 21st day of December 1921.

Geo M Hardee  
Clerk Circuit Court  
By *Mills Warren*  
Deputy Clerk

*Wauchula Abstract & Title Co., Inc.*  
*Abstracts - Title Insurance - Title Searches*

PHONE 773-9054 & 773-4378

P. O. BOX 1028

123 SOUTH 9TH AVE.

WAUCHULA, FLORIDA 33873

#87-827

October 23, 1987, at 5:00 P. M.

Board of County Commissioners  
Hardee County  
Public Works Department  
412 West Orange Street  
Wauchula, Florida 33873

Gentlemen:

This is to certify that we have made a search of the public records of Hardee County, Florida, regarding the root title to the following described property:

See Schedule "A" attached hereto

We find root title to this property begins with a Deed from The Trustees of the Internal Improvement Fund of the State of Florida to Florida Southern Railway Company, dated April 9, 1886, filed August 10, 1888, and recorded in Deed Book 4, page 773, re-recorded in Deed Book 17, page 95, Public Records of DeSoto County, Florida, as to E $\frac{1}{2}$  of NE $\frac{1}{4}$  of Section 35, Township 33 South, Range 25 East;

and with a Patent from the United States of America to Henry W. Edwards, dated September 24, 1912, filed January 23, 1913, and recorded in Deed Book 93, page 19, Public Records of DeSoto County, Florida, as to W $\frac{1}{2}$  of NE $\frac{1}{4}$  of Section 35, Township 33 South, Range 25 East.

We find that the E $\frac{1}{2}$  of NE $\frac{1}{4}$  was patented by the United States of America to the State of Florida as shown in Mayo Certificate recorded in O. R. Book 63, page 257.

Title was searched from date of the above Deed and Patent to and including October 23, 1987, at 5:00 P. M., and we find the fee simple title vested in:

Hardee County, a political subdivision of the State  
of Florida

by virtue of that certain Special Warranty Deed from Mobil Oil Corporation, a corporation existing under the laws of the State of New York, to Hardee County, a political subdivision of the State of Florida, dated July 1, 1987, filed August 25, 1987, and recorded in O. R. Book 342, page 547;

and by virtue of that certain Easement from Mobil Oil Corporation, a New York corporation, to Hardee County, a political subdivision of the State of Florida, dated July 1, 1987, filed August 25, 1987, and recorded in O. R. Book 342, page 549.

Subject to the following:

- (1) Outstanding mineral rights of record as to the SE $\frac{1}{4}$  of SE $\frac{1}{4}$  of NE $\frac{1}{4}$  and affects the property described in the Easement only.
- (2) Special Warranty Deed from Mobil Oil Corporation to Hardee County recorded in O. R. Book 342, page 547, was signed in name of Mobil Oil Corporation by J. P. Rogers and D. C. Ferro as Attorney-in-Fact. No Power of Attorney for either party is recorded in public records of Hardee County.
- (3) Easement from Mobil Oil Corporation to Hardee County recorded in O. R. Book 342, page 549, was signed in name of Mobil Oil Corporation by J. P. Rogers, Attorney-in-Fact. No Power of Attorney is recorded in Public Records of Hardee County.
- (4) Reservation of a strip of ground 15 feet wide along section and half section lines to be used as one-half of right of way for public roads in Deed Book 1, page 407, public records of Hardee County, Florida.
- (5) Obligations and Hold Harmless agreement set out in Special Warranty Deed from Mobil Oil Corporation to Hardee County, filed August 25, 1987, and recorded in O. R. Book 342, page 547.
- (6) Obligations and Hold Harmless agreement as set out in Easement from Mobil Oil Corporation to Hardee County, filed August 25, 1987, and recorded in O. R. Book 342, page 549.

The County Taxes are paid up to and including 1986.

We find no other reservations or easements of record except as shown above.

There are no outstanding mortgages, liens or other encumbrances of any kind against the foregoing described land for the time covered by this Certificate.

This report is not to be construed as a Certificate of Title or a Guaranty of said Title, but is limited to the record information specified above. Liability hereunder shall be limited to the amount paid for this report.

Respectfully,

WAUCHULA ABSTRACT & TITLE CO., INC.



Max A. Campbell, President

MAC:afn

Attachments

SCHEDULE "A"

Begin at the Southeast corner of the NE $\frac{1}{4}$  of Section 35, Township 33 South, Range 25 East, and go West 660 feet to the Point of Beginning, thence run North 2,640 feet, thence West 1,650 feet, thence South 2,310 feet, thence East 330 feet, thence South 330 feet, thence East 1,320 feet to the Point of Beginning;

Together with an non-exclusive easement over, along and across the real property located in Hardee County, Florida, described as follows:

Begin at the Southeast corner of the NE $\frac{1}{4}$  of Section 35, Township 33 South, Range 25 East, and go West 660 feet, thence North 455 feet to a Point of Beginning, being a tract of land 30 feet right and 30 feet left of the following described line: From a point of beginning proceed East approximately 660 feet to the centerline of Airport Road.

*Wauchula Abstract & Title Co., Inc.*  
*Abstracts - Title Insurance - Title Searches*

PHONE 773-9054 & 773-4378

P. O. BOX 1028

123 SOUTH 9TH AVE.

WAUCHULA, FLORIDA 33873

#87-827

October 23, 1987, at 5:00 P. M.

Board of County Commissioners  
Hardee County  
Public Works Department  
412 West Orange Street  
Wauchula, Florida 33873

Gentlemen:

This is to certify that we have made a search of the public records of Hardee County, Florida, regarding the root title to the following described property:

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and with a Patent from the United States of America to Henry W. Edwards, dated September 24, 1912, filed January 23, 1913, and recorded in Deed Book 93, page 19, Public Records of DeSoto County, Florida, as to W $\frac{1}{2}$  of NE $\frac{1}{4}$  of Section 35, Township 33 South, Range 25 East.

We find that the E $\frac{1}{2}$  of NE $\frac{1}{4}$  was patented by the United States of America to the State of Florida as shown in Mayo Certificate recorded in O. R. Book 63, page 257.

Title was searched from date of the above Deed and Patent to and including October 23, 1987, at 5:00 P. M., and we find the fee simple title vested in:

Hardee County, a political subdivision of the State  
of Florida

by virtue of that certain Special Warranty Deed from Mobil Oil Corporation, a corporation existing under the laws of the State of New York, to Hardee County, a political subdivision of the State of Florida, dated July 1, 1987, filed August 25, 1987, and recorded in O. R. Book 342, page 547;

and by virtue of that certain Easement from Mobil Oil Corporation, a New York corporation, to Hardee County, a political subdivision of the State of Florida, dated July 1, 1987, filed August 25, 1987, and recorded in O. R. Book 342, page 549.

Subject to the following:

- (1) Outstanding mineral rights of record as to the SE $\frac{1}{4}$  of SE $\frac{1}{4}$  of NE $\frac{1}{4}$  and affects the property described in the Easement only.
- (2) Special Warranty Deed from Mobil Oil Corporation to Hardee County recorded in O. R. Book 342, page 547, was signed in name of Mobil Oil Corporation by J. P. Rogers and D. C. Ferro as Attorney-in-Fact. No Power of Attorney for either party is recorded in public records of Hardee County.
- (3) Easement from Mobil Oil Corporation to Hardee County recorded in O. R. Book 342, page 549, was signed in name of Mobil Oil Corporation by J. P. Rogers, Attorney-in-Fact. No Power of Attorney is recorded in Public Records of Hardee County.
- (4) Reservation of a strip of ground 15 feet wide along section and half section lines to be used as one-half of right of way for public roads in Deed Book 1, page 407, public records of Hardee County, Florida.
- (5) Obligations and Hold Harmless agreement set out in Special Warranty Deed from Mobil Oil Corporation to Hardee County, filed August 25, 1987, and recorded in O. R. Book 342, page 547.
- (6) Obligations and Hold Harmless agreement as set out in Easement from Mobil Oil Corporation to Hardee County, filed August 25, 1987, and recorded in O. R. Book 342, page 549.

The County Taxes are paid up to and including 1986.

We find no other reservations or easements of record except as shown above.

There are no outstanding mortgages, liens or other encumbrances of any kind against the foregoing described land for the time covered by this Certificate.

This report is not to be construed as a Certificate of Title or a Guaranty of said Title, but is limited to the record information specified above. Liability hereunder shall be limited to the amount paid for this report.

Respectfully,

WAUCHULA ABSTRACT & TITLE CO., INC.



Max A. Campbell, President

MAC:afn

Attachments

SCHEDULE "A"

Begin at the Southeast corner of the NE $\frac{1}{4}$  of Section 35, Township 33 South, Range 25 East, and go West 660 feet to the Point of Beginning, thence run North 2,640 feet, thence West 1,650 feet, thence South 2,310 feet, thence East 330 feet, thence South 330 feet, thence East 1,320 feet to the Point of Beginning;

Together with an non-exclusive easement over, along and across the real property located in Hardee County, Florida, described as follows:

Begin at the Southeast corner of the NE $\frac{1}{4}$  of Section 35, Township 33 South, Range 25 East, and go West 660 feet, thence North 455 feet to a Point of Beginning, being a tract of land 30 feet right and 30 feet left of the following described line: From a point of beginning proceed East approximately 660 feet to the centerline of Airport Road.



2

**LEGEND:**

- Set Concrete Marker (SCM)
  - Found Concrete Marker (FCM)
  - Iron Pipe (IP)
  - Iron Rod & Cap (IR&C)
  - ⊙ Railroad Spike (RS)
  - ⊙ Nail & Washer (N&W)
  - ⊙ Nail & Disk (N&D)
  - ⊙ Drill Hole (DH)
  - ⊙ Axle
  - FRD. Found
  - REC. Recovered
  - (F) Field Measurement
  - (D) Described (Dead) Measurement
  - (P) Platted Measurement
  - (C) Calculated
  - ⊙ Water Meter (WM)
  - △ Ditto (Central Angle)
  - R Radius
  - L Length of Arc
  - C Chord Distance
  - CB Chord Bearing
  - D Degree of Curve
  - MH Manhole
  - N North
  - S South
  - E East
  - W West
  - ° Degrees
  - ' Minutes
  - " Seconds
  - ⊕ Handicap Parking Space
- CSI Chastain Skillman
  - Fire Hydrant
  - Light Pole
  - Centerline
  - Property Line
  - B.L. Boundary Line
  - POB Point of Beginning
  - R/W Right-of-Way
  - EOP Edge of Pavement
  - BOC Back of Curb
  - TOC Top of Curb
  - TOB Top of Bank
  - BOB Bottom of Bank
  - GRD Ground
  - CB Catch Basin
  - PP Power Pole (PP)
  - CONCRETE
  - Guy Anchor (GA)
  - Telephone Pole (TP)
  - Water Valve (WV)
  - Fire Hydrant (FH)
  - Sanitary Sewer Manhole
  - Storm Sewer Manhole
  - BM Bench Mark
  - CM Corrugated Metal Pipe
  - ROP Reinforced Concrete Pipe
  - O.R. Official Records
  - M.B. Map Book
  - D.B. Deed Book
  - Base Line
  - INV. Invert
  - A/C Air Conditioning
  - EM Electric Meter
- FENCE
  - LOT LINE
  - POWER LINE
  - EDGE OF PAVT.
  - RIGHT OF WAY
  - PROPERTY LINE
  - BUILDING OUTLINE
  - CENTER LINE
  - SECTION LINE

**REPORT:**

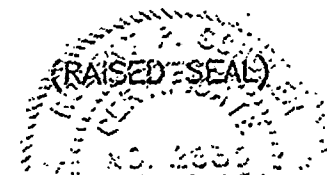
1. THIS SURVEY PERFORMED WITHOUT THE BENEFIT OF AN ABSTRACT OR TITLE OPINION SEARCH, THEREFORE, EASEMENTS OR OTHER ENCUMBRANCES MAY EXIST THAT ARE NOT SHOWN HEREON.
2. THIS SURVEY IS NOT VALID UNLESS ORIGINAL SIGNATURE AND RAISED SEAL IS AFFIXED.
3. THIS PROPERTY IS LOCATED IN FLOOD ZONE 'C' AS SHOWN ON THE FLOOD INSURANCE RATE MAP NUMBER 12049C0185C PREPARED BY THE EMERGENCY MANAGEMENT AGENCY. EFFECTIVE DATE: MAY 4, 1988.
4. UNDERGROUND IMPROVEMENTS, IF ANY, HAVE NOT BEEN LOCATED.
5. BEARINGS BASED ON THE SOUTH LINE OF SECTION 26 AS BEING S89°51'17"W.

**CERTIFICATION**

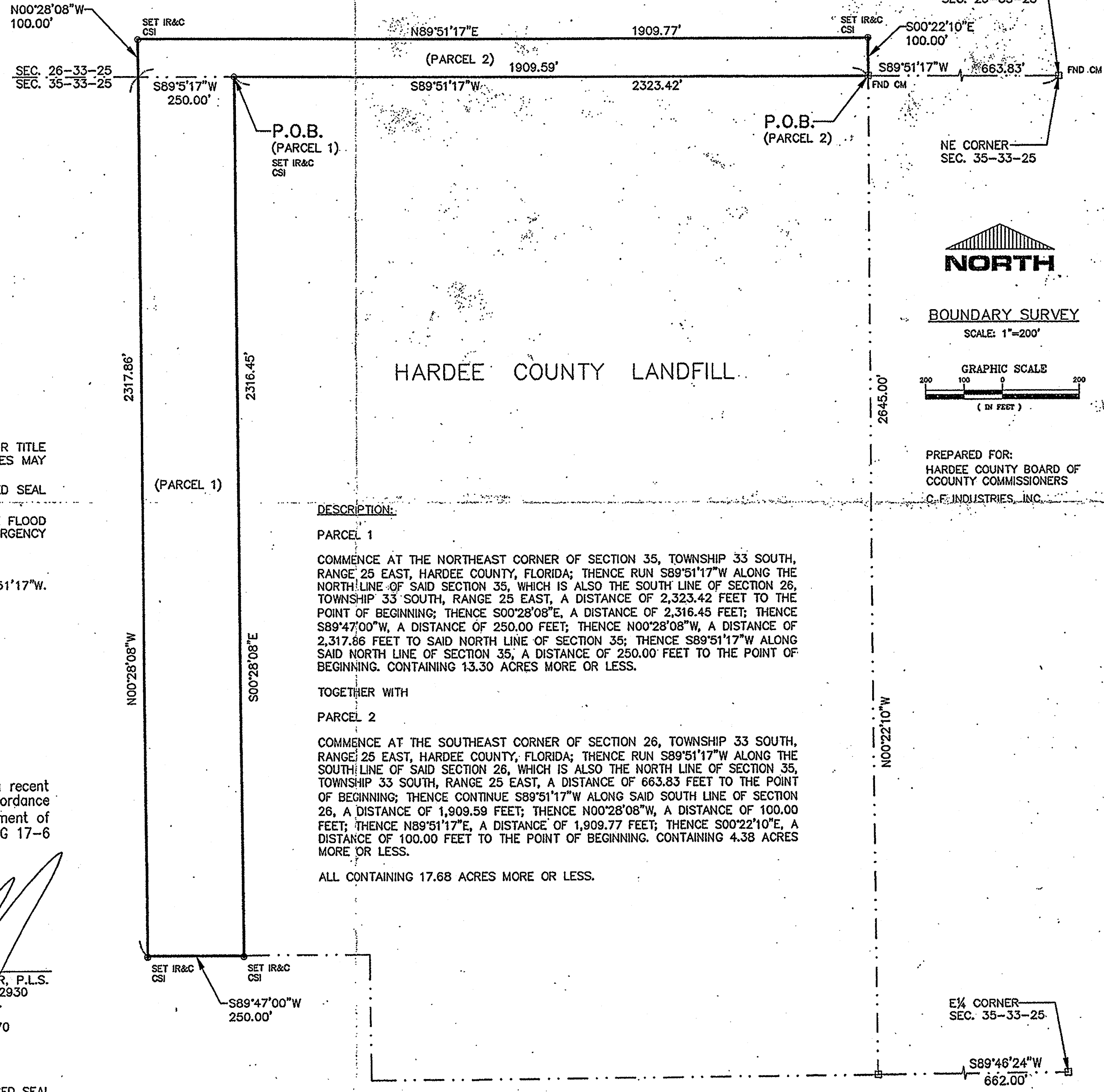
I hereby certify that this drawing correctly reflects the results of a recent survey made under my direction and this survey was made in accordance with minimum technical standards adopted by the Florida Department of Professional Regulation, Board of Surveyors & Mappers, Chapter 61 G 17-6 of the Florida Administrative Code.

PREPARED BY:

ROBERT PHILLIP SCHULER, P.L.S.  
 FLORIDA REGISTRATION #2930  
 CHASTAIN-SKILLMAN, INC.  
 363 U.S. 27 SOUTH  
 SEBRING, FLORIDA 33870  
 863) 382-4160  
 L. B. #262



NOT VALID WITHOUT THE WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.



**DESCRIPTION:**

**PARCEL 1**

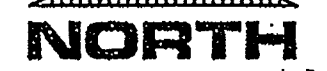
COMMENCE AT THE NORTHEAST CORNER OF SECTION 35, TOWNSHIP 33 SOUTH, RANGE 25 EAST, HARDEE COUNTY, FLORIDA; THENCE RUN S89°51'17"W ALONG THE NORTH LINE OF SAID SECTION 35, WHICH IS ALSO THE SOUTH LINE OF SECTION 26, TOWNSHIP 33 SOUTH, RANGE 25 EAST, A DISTANCE OF 2,323.42 FEET TO THE POINT OF BEGINNING; THENCE S00°28'08"E, A DISTANCE OF 2,316.45 FEET; THENCE S89°47'00"W, A DISTANCE OF 250.00 FEET; THENCE N00°28'08"W, A DISTANCE OF 2,317.86 FEET TO SAID NORTH LINE OF SECTION 35; THENCE S89°51'17"W ALONG SAID NORTH LINE OF SECTION 35, A DISTANCE OF 250.00 FEET TO THE POINT OF BEGINNING. CONTAINING 13.30 ACRES MORE OR LESS.

**TOGETHER WITH**

**PARCEL 2**

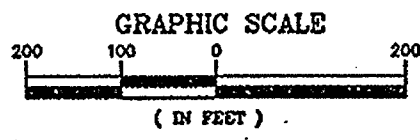
COMMENCE AT THE SOUTHEAST CORNER OF SECTION 26, TOWNSHIP 33 SOUTH, RANGE 25 EAST, HARDEE COUNTY, FLORIDA; THENCE RUN S89°51'17"W ALONG THE SOUTH LINE OF SAID SECTION 26, WHICH IS ALSO THE NORTH LINE OF SECTION 35, TOWNSHIP 33 SOUTH, RANGE 25 EAST, A DISTANCE OF 663.83 FEET TO THE POINT OF BEGINNING; THENCE CONTINUE S89°51'17"W ALONG SAID SOUTH LINE OF SECTION 26, A DISTANCE OF 1,909.59 FEET; THENCE N00°28'08"W, A DISTANCE OF 100.00 FEET; THENCE N89°51'17"E, A DISTANCE OF 1,909.77 FEET; THENCE S00°22'10"E, A DISTANCE OF 100.00 FEET TO THE POINT OF BEGINNING. CONTAINING 4.38 ACRES MORE OR LESS.

ALL CONTAINING 17.68 ACRES MORE OR LESS.



**BOUNDARY SURVEY**

SCALE: 1"=200'



PREPARED FOR:  
 HARDEE COUNTY BOARD OF COUNTY COMMISSIONERS  
 C.F. INDUSTRIES, INC.

engineers - architects - surveyors - scientists

**chastain skillman** incorporated

Lakeland  
 Sebring  
 Tampa  
 Orlando  
 Atlanta

Registered: 4705 6th Highway SE, P.O. Box 5710, (863) 848-1402  
 Sebring: 303 U.S. 27 SOUTH, P.O. Box 1281, (863) 382-4160  
 Tampa: 4505 Oak For Boulevard, Suite 101, (813) 871-8229

REVISION NO.	REVISION DATE

HARDEE COUNTY  
 BOARD OF COUNTY COMMISSIONERS  
 SOLID WASTE DEPT.  
 BOUNDARY SURVEY

FIELD BOOK: S-80
PAGE: 9
SCALE HORIZ. 1" = 200'
DATE OF SURVEY: 11/9/01
DRAWING NO. CSS 7020.27

**ATTACHMENT E-4**  
**PROOF OF PUBLICATION**

*James W.*

**AFFIDAVIT OF PUBLICATION**  
**The Herald-Advocate**  
Published Weekly at Wauchula, Florida

STATE OF FLORIDA,  
COUNTY OF HARDEE

Before the undersigned authority personally appeared Denise Mays  
who on oath says he is the bookkeeper of The Herald-Advocate, a  
newspaper published at Wauchula, in Hardee County, Florida; that the attached copy of advertise-  
ment, being a Notice of Application  
in the matter of Solid Waste Management  
in the \_\_\_\_\_ Court, was published in said newspaper in the issues  
of May 8 2003

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

Denise Mays

Sworn to and subscribed before me this 8 day of May  
A.D. 2003.

Amy Jane Brown  
Notary Public

My Commission Expires June 22, 2004

**STATE OF FLORIDA**  
**DEPARTMENT OF**  
**ENVIRONMENTAL PROTECTION**  
**NOTICE OF APPLICATION**

The Department announces receipt of an application for permit from Hardee County Board of County Commissioners for the continued operations of a solid waste management facility, Class I Landfill (approx. 12.5 acres disposal area), subject to Department Rules, located at 685 Airport Road, Wauchula, 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, 33619-8318.

*Stone*

**ATTACHMENT E-5**

**FLORIDA DEPARTMENT OF TRANSPORTATION RESPONSE LETTER**



## Florida Department of Transportation

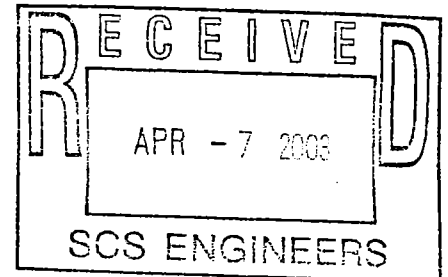
JEB BUSH  
GOVERNOR

605 Suwannee Street  
Tallahassee, FL 32399-0450

JOSÉ ABREU  
SECRETARY

Aviation Office  
March 28, 2003

Ms. Lindsey Kennelly, E.I.  
SCS Engineers  
3012 U.S. Highway 301 North, Suite 700  
Tampa, FL 33619-2242



Dear Ms. Kennelly:

This letter is in response to your letter received March 28, 2003, requesting information regarding the location of airport runways 1) using piston engine aircraft within 5,000 feet of Hardee County Landfill; 2) using turbine powered aircraft within 10,000 feet of Hardee County Landfill; and 3) within 5 miles of the Hardee County Landfill, Hardee County, Florida.

Upon completion of our analysis, there are no airports that lie within the criteria described above. Wauchula Municipal Airport is the closest airport, 6.75 statute miles southwest of Point #8, Latitude 27-34-4.32 and Longitude 81-47-3.20, per the Hardee County Landfill Site Plan provided.

For future reference, Florida airport facility information is located on FDOT's Aviation Database web site, <http://www.florida-aviation-database.com>. Select FDOT Aviation Facility Directory to begin your search. A graphical search may suite your needs.

Please do not hesitate to contact me at 850-414-4514, if you have any questions or need further assistance.

Sincerely,

Aaron N. Smith  
Airspace and Land Use Manager

Attached: Public Airports in Proximity of Case Study  
Private Landing Facilities in Proximity of Case Study

Study: HARDEELANDFILL

Wauchula, FL

Site Information

Latitude:..... 27-34-4.32    27.5678666666667  
Longitude:..... 81-47-3.2    81.7842222222222  
Ground Elevation:..... 80 feet AMSL  
Structure Height:..... 50 feet AGL  
Overall Height:..... 130 feet AMSL

City Information

Nearest City:..... Wauchula, FL  
Distance:..... 2.2 Statute Miles  
Direction:..... 225 Degrees (true bearing)

Nearest Landing Facility Information

Analyzed by Airspace® on: 03-28-2003. Using AIRSPACE® Version 8.0.1

Nearest Public Use landing facility is: CHN: WAUCHULA MUNI

Distance to ARP is: 36638 ft. or 6.0298 nm.

Direction to ARP is: 238.15 degrees (true bearing)

Distance to the nearest runway is: 35642 ft. or 5.8659 nm.

DNE FAR 77.13(a)(1). DNE FAR 77.13(a)(2).

~~LOWEST MOCA FOUND: 1400 AMSL ON AIRWAY V157~~

**INFORMATION ONLY**

Private use landing facilities are not studied under FAR Part 77.

Nearest Private Use landing facility is: GRIFFINS PEACE RIVER RANCH

Distance to this facility is: 9.277 NM

Direction to this facility is: 196.14 degrees.

Date Printed: 03-28-2003

\*\*\*\*\*  
 \* PUBLIC AIRPORTS IN PROXIMITY OF CASE \*  
 \*\*\*\*\*

File: HARDEELANDFILL

OVERALL ELEVATION (AMSL): 130  
 LATITUDE: 27-34-4.32'  
 LONGITUDE: 81-47-3.2

FACIL IDENT	TYP	NAME	BEARING To FACIL	DISTANCE IN N.M.	DELTA ARP ELEVATION	FAR P77
1HN	AIR	WAUCHULA MUNI	238.15	6.03	+24	YES

This facility has at least one runway over 3,200 feet in length.

Your structure DNE FAR 77.13(a)(1) or 77.13(a)(2) Notice Criteria for this airport. However, you may EXCEED other Notice Standards. As a minimum, please review reports for FAR Part 77 Obstruction Surfaces, Air Navigation and Communication facilities.

You are 35642 feet from the nearest runway threshold and the threshold elevation is 100 feet. Please review runway analysis for remaining airport surfaces.

No Circling or Straight-In Instrument Approach Procedures were found for this landing facility or your proposed location is greater than 10 nautical miles from the airport. No Expected Terps<sup>®</sup> impact.

AVO	AIR	AVON PARK MUNI	84.13	13.743	-25	YES
-----	-----	----------------	-------	--------	-----	-----

This facility has at least one runway over 3,200 feet in length.

Your structure DNE FAR 77.13(a)(1) or 77.13(a)(2) Notice Criteria for this airport. However, you may EXCEED other Notice Standards. As a minimum, please review reports for FAR Part 77 Obstruction Surfaces, Air Navigation and Communication facilities.

You are 80943 feet from the nearest runway threshold and the threshold elevation is 165 feet. Please review runway analysis for remaining airport surfaces.

No Circling or Straight-In Instrument Approach Procedures were found for this landing facility or your proposed location is greater than 10 nautical miles from the airport. No Expected Terps<sup>®</sup> impact.

FD65	HEL	BARTOW HIGH SCHOOL	350.8	18.92	+14	YES
------	-----	--------------------	-------	-------	-----	-----

Your structure DOES NOT EXCEED FAR 77.13(a)(2) Notice Criteria for this heliport. You are not locating within 5,000 feet of facility. You are beyond limit by: 109959.8 feet.

9FD3	HEL	HIGHLANDS REGIONAL MEDICAL C	108.14	19.751	+24	YES
------	-----	------------------------------	--------	--------	-----	-----

Your structure DOES NOT EXCEED FAR 77.13(a)(2) Notice Criteria for this heliport. You are not locating within 5,000 feet of facility. You are beyond limit by: 115009.1 feet.

17FD	HEL	SHERIFFS HELISTOP	350.77	20.134	+10	YES
------	-----	-------------------	--------	--------	-----	-----

Your structure DOES NOT EXCEED FAR 77.13(a)(2) Notice Criteria for this heliport. You are not locating within 5,000 feet of facility. You are beyond limit by: 117336.2 feet.

FD85	HEL	DE SOTO MEMORIAL HOSPITAL	189.85	20.67	+65	YES
------	-----	---------------------------	--------	-------	-----	-----

Your structure DOES NOT EXCEED FAR 77.13(a)(2) Notice Criteria for this heliport. You are not locating within 5,000 feet of facility. You are beyond limit by: 120593 feet.

X	AIR	LAKE WALES MUNI	24.09	21.356	+3	YES
---	-----	-----------------	-------	--------	----	-----

This facility has at least one runway over 3,200 feet in length.

Your structure DNE FAR 77.13(a)(1) or 77.13(a)(2) Notice Criteria for this airport. However, you may EXCEED other Notice Standards. As a minimum, please review reports for FAR Part 77 Obstruction Surfaces, Air Navigation and Communication facilities.

You are 128022 feet from the nearest runway threshold and the threshold elevation is 126 feet. Please review runway analysis for remaining airport surfaces.

No Circling or Straight-In Instrument Approach Procedures were found for this landing facility or your proposed location is greater than 10 nautical miles from the airport. No Expected Terps® impact.

D62	HEL	MULBERRY HIGH SCHOOL	333.16	22.075	+5	YES
-----	-----	----------------------	--------	--------	----	-----

Your structure DOES NOT EXCEED FAR 77.13(a)(2) Notice Criteria for this heliport. You are not locating within 5,000 feet of facility. You are beyond limit by: 129129.9 feet.

30W	AIR	BARTOW MUNI	.12	22.465	+5	YES
-----	-----	-------------	-----	--------	----	-----

This facility has at least one runway over 3,200 feet in length.

Your structure DNE FAR 77.13(a)(1) or 77.13(a)(2) Notice Criteria for this airport. However, you may EXCEED other Notice Standards. As a minimum, please review reports for FAR Part 77 Obstruction Surfaces, Air Navigation and Communication facilities.

You are 134626 feet from the nearest runway threshold and the threshold elevation is 109 feet. Please review runway analysis for remaining airport surfaces.

No Circling or Straight-In Instrument Approach Procedures were found for this landing facility or your proposed location is greater than 10 nautical miles from the airport. No Expected Terps® impact.

X06	AIR	ARCADIA MUNI	187.16	22.669	+70	YES
-----	-----	--------------	--------	--------	-----	-----

This facility has at least one runway over 3,200 feet in length.

Your structure DNE FAR 77.13(a)(1) or 77.13(a)(2) Notice Criteria for this airport. However, you may EXCEED other Notice Standards. As a minimum, please review reports for FAR Part 77 Obstruction Surfaces, Air Navigation and Communication facilities.

You are 135126 feet from the nearest runway threshold and the threshold elevation is 57 feet. Please review runway analysis for remaining airport surfaces.

No Circling or Straight-In Instrument Approach Procedures were found for this landing facility or your proposed location is greater than 10 nautical miles from the airport. No Expected Terps® impact.

AGR	AIR	MACDILL AFB AUX FLD	77.85	23.697	+62	YES
-----	-----	---------------------	-------	--------	-----	-----

This facility has at least one runway over 3,200 feet in length.

Your structure DNE FAR 77.13(a)(1) or 77.13(a)(2) Notice Criteria for this airport. However, you may EXCEED other Notice Standards. As a minimum, please review reports for FAR Part 77 Obstruction Surfaces, Air Navigation and Communication facilities.

You are 142655 feet from the nearest runway threshold and the threshold elevation is 64 feet. Please review runway analysis for remaining airport surfaces.

No Circling or Straight-In Instrument Approach Procedures were found for this landing facility or your proposed location is greater than 10 nautical miles from the airport. No Expected Terps® impact.

5	AIR	SEBRING REGIONAL	105.9	24.506	+67	YES
---	-----	------------------	-------	--------	-----	-----



This facility has at least one runway over 3,200 feet in length.

You must structure DNE FAR 77.13(a)(1) or 77.13(a)(2) Notice Criteria for this airport. However, you may EXCEED other Notice Standards. As a minimum, please review reports for FAR Part 77 Obstruction Surfaces, Air Navigation and Communication facilities.

You are 146777 feet from the nearest runway threshold and the threshold elevation is 54 feet. Please review runway analysis for remaining airport surfaces.

No Circling or Straight-In Instrument Approach Procedures were found for this landing facility or your proposed location is greater than 10 nautical miles from the airport. No Expected Terps<sup>®</sup> impact.

THE NEAREST AIRPORT TO CASE COORDINATES IS: CHN

AUCHULA MUNI is an Airport type landing facility and is associated with the city of WAUCHULA, FL. The facility is eligible for Study under FAR Part 77 sub-Part C.

Its Reference Point (ARP) elevation is: 106 feet AMSL and you are locating 36637 feet from this landing facility.

AIRSPACE<sup>®</sup> Version 8.0.1

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Copyright <sup>®</sup> 1989 - 2003

03-28-2003  
15:45:57

The mathematical algorithms used by this program are derived directly from Federal Aviation Regulations Part 77, sub-part C.

\*\*\*\*\*  
 \* PRIVATE LANDING FACILITIES IN PROXIMITY OF CASE \*  
 \*\*\*\*\*

File: HARDEELANDFILL

OVERALL ELEVATION (AMSL): 130

LATITUDE: 27-34-4.32

LONGITUDE: 81-47-3.2

FACIL IDENT	TYP	NAME	BEARING To FACIL	DISTANCE IN N.M.	DELTA ARP ELEVATION	FAR P77
FL00	AIR	GRIFFINS PEACE RIVER RANCH	196.14	9.277	+65	NO
FL01	AIR	CREWS HOMESTEAD RANCH	70.95	9.788	+40	NO
FD40	AIR	GARDNER	181.85	13.372	+54	NO
FA67	HEL	WALKER MEMORIAL MEDICAL CENTER	74.67	14.688	+10	NO
3FL9	HEL	SUN N LAKE	96.88	14.739	-26	NO
FA52	HEL	FLORIDA HOSPITAL-SEBRING	97	14.773	-24	NO
52FL	AIR	LAKE CLINCH AIRPARK	47.59	16.201	-10	NO
0FA1	AIR	FRIERSON GROVE	197.98	16.604	+65	NO
38FD	HEL	GRIFFIN'S MAIN OFFICE	52.96	16.821	+5	NO
FD46	SEA	GODDARD SEADROME	52.02	18.251	+52	NO
67FL	AIR	MYAKKA HEAD	248.49	18.385	+50	NO
6FL1	AIR	SUNSHINE RANCHETTES	127.37	20.108	-10	NO
1FL7	HEL	BARTOW MEMORIAL HOSPITAL	351.25	21.253	+23	NO
9FL3	SEA	LAKE JOSEPHINE	118.27	21.648	+45	NO
FA27	AIR	ELLSWORTH FIELD	179.01	21.68	+70	NO
FA03	AIR	SOUTHFORK	275.75	21.893	+21	NO
8FL5	HEL	DANCING OAKS	349.52	23.158	+23	NO
8FL1	AIR	MC DONALD'S FIELD	197.52	23.273	+76	NO
03FA	AIR	LAKE PERSIMMON AIRSTRIP	122.71	23.834	+60	NO
FA45	HEL	LAKE WALES	30.98	24.32	+5	NO
30FA	HEL	FLORIDA HOSPITAL LAKE PLACID	123.92	26.585	-11	NO
90FD	AIR	GRIFFIN BLUE HEAD RANCH	152.06	27.465	+53	NO
09F	AIR	PLACID LAKES	134.3	27.649	+0	NO
FA	AIR	VINCE'S CONDOMINIUM ASSOCIATIO	132.87	28.978	+15	NO
FL78	AIR	LEWIS	313.11	29.009	+85	NO
9FD0	SEA	SAGE SEADROME	41.8	30.359	+77	NO
FD72	AIR	KINGS PORT	137.71	31.188	-18	NO

THE NEAREST PRIVATE USE LANDING FACILITY IS: GRIFFINS PEACE RIVER RANCH

GRIFFINS PEACE RIVER RANCH is an Airport type landing facility.  
 The facility is not eligible for Study under FAR Part 77 sub-Part C.

AIRSPACE® Version 8.0.1

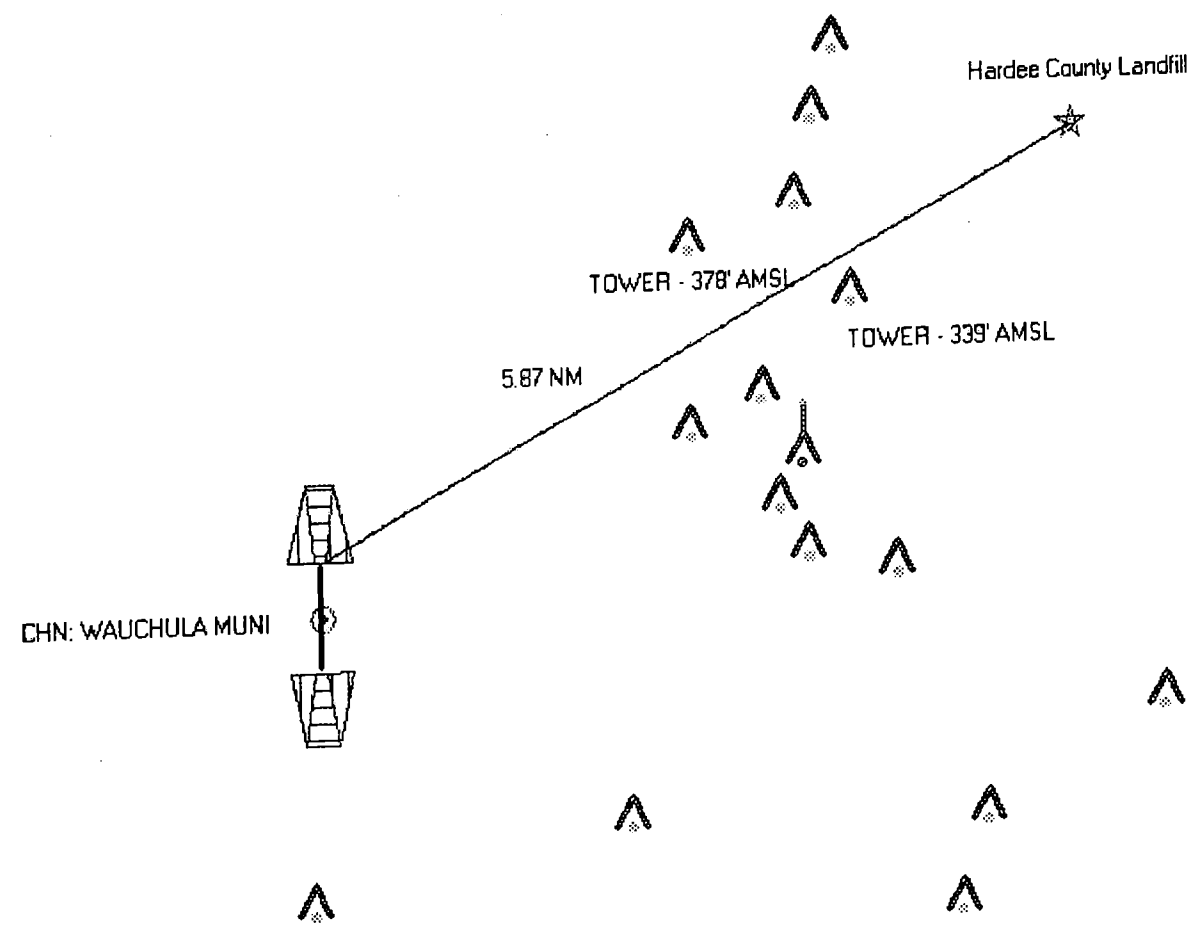
AIRSPACE® and TERPS® are registered ® trademarks of Federal Airways & Airspace®  
 Copyright © 1989 - 2003

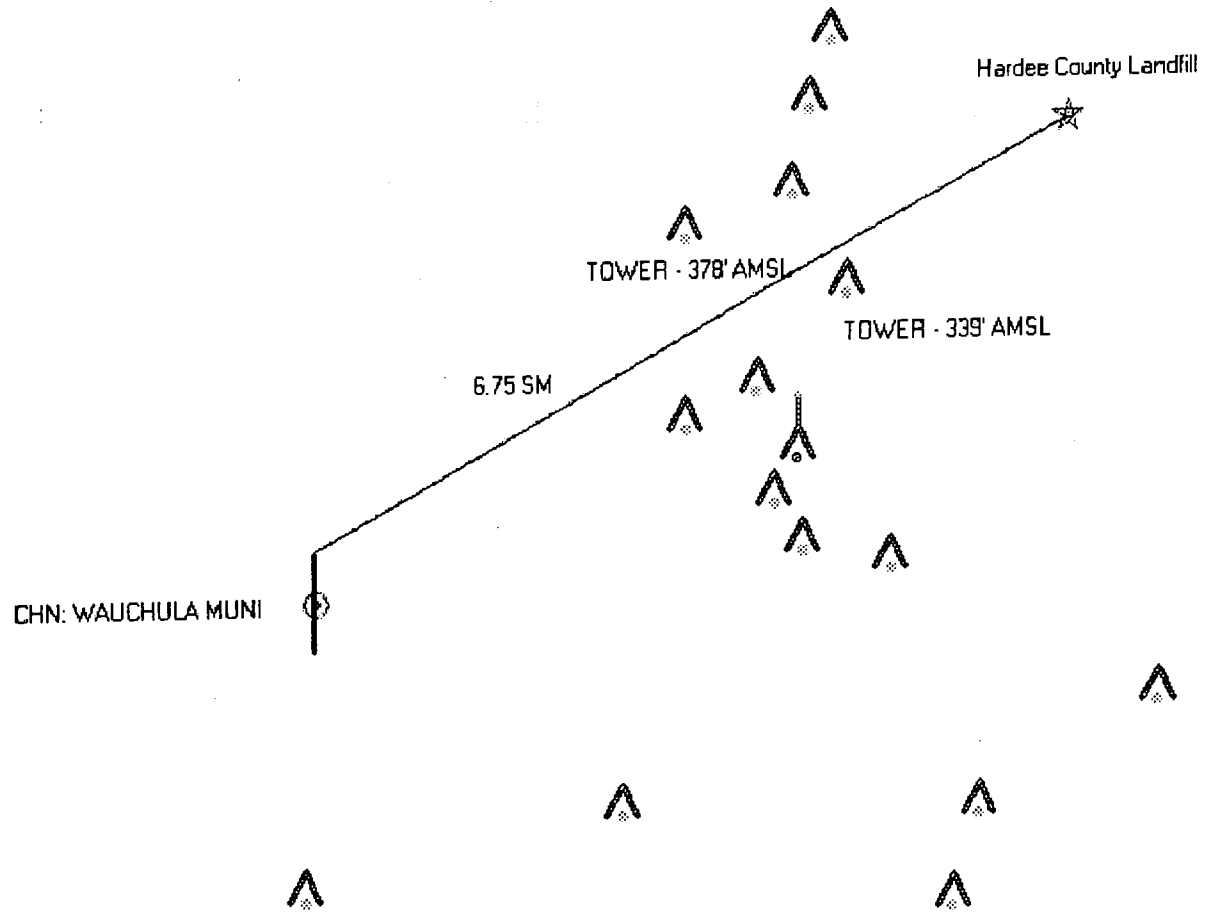
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 15:46:00

The mathematical algorithms used by this program are derived directly from  
 Federal Aviation Regulations Part 77, sub-part C.

Terps® F

sional





## SECTION F

### LANDFILL PERMIT REQUIREMENTS

#### F.1 LAND USE AND ZONING MAP

An aerial photograph is included as Sheet 2 of the permit drawings. The photograph shows the area within one mile of the perimeter of the site. It depicts land use, major roads, water bodies, and other significant features.

The Hardee County Landfill is zoned as Agriculture (A-1) and the land use is designated as Public Institution.

Within a 1-mile radius of the landfill, the metal recycling facility located on Airport road is Zoned "Industrial 1" and the former Wauchula Airport and Landfill, located at the intersection of Airport Road and SR 636 is Zoned "City".

Within a 1-mile radius of the landfill, the land use of all surrounding properties is designated as "Agricultural" with the exception of the former Wauchula Airport and Landfill that is designated as "City" land use.

The Zoning and Land Use Maps, obtained from Hardee County, for the areas surrounding the Landfill are contained in Attachment F-1.

#### F.2 AIRPORT LOCATION PLAN

Figure E-1, located in Attachment E-2 is a vicinity map showing the area within five miles of the site property boundary. As depicted on the figure and verified with the FDOT, there are no airports or landing facilities located within a five-mile radius of the landfill site.

#### F.3 PLOT PLAN

The Landfill property boundary and dimensions are shown on Sheet 3 of the permit drawings and shown on the property boundary survey contained in Attachment E-3 of this permit application.

The locations of the existing groundwater monitoring wells are depicted on Sheet 3 of the permit drawings. The Biennial Report, attached to the permit application recommends the placement of one additional monitoring well down gradient of the landfill.

Several previous geotechnical investigations of the site have been performed and the boring locations and soil strata information is contained in Attachment F-2. Soil boring profiles and seismic survey results were provided on Sheets 3 and 4 of 14 of the Envisors Record Drawings for the facility, dated 10/82, and PSI conducted soil borings along the southern limit of the current disposal area in March 1997. This information was previously submitted to the FDEP.

The Class I disposal area, including previously filled waste disposal areas, is outlined on Sheet 4 of the enclosed permit drawings. The operational phasing of the landfill was previously submitted to FDEP and approved. These fill sequence drawings are included on Sheets 5, 6, and 7 of the enclosed Permit Drawings.

Cross sections showing the original elevations and the proposed final fill contours are shown on Sheet 9 of the enclosed permit drawings.

Fencing and gates used to restrict site access are depicted on Sheet 3 of the permit drawings.

#### **F.4 TOPOGRAPHIC MAPS**

The current topography, as of March 14, 2003 of the Hardee County Landfill is depicted on Sheet 4 of the enclosed Permit Drawings. The landfill topography was mapped, by I.F. Rooks and Associates, using aerial photography methods on March 14, 2003.

The borrow area is shown on Sheet 3 of the Permit Drawings.

Access roads to the disposal area shown on Sheet 4 of the Permit Drawings.

The grades required for proper drainage of the surface water management system will be constructed during the sequencing of the landfill. These grades, depicted on the sequencing plans previously submitted to FDEP, are shown on Sheets 5, 6 and 7 of the enclosed Permit Drawings.

Cross sections of the lifts are shown on Sheet 9 of the enclosed Permit Drawings.

Fencing and the on-site equipment facilities are depicted on Sheet 3 of the permit drawings.

#### **F.5 REPORT**

##### **F.5.a Current and Projected Population and Area Served**

Current and future population estimates for Hardee County was obtained from the Florida Legislative Office of Economic and Demographic Research. The population data for 2002 estimated that 27,152 people reside in Hardee County. Due to the recently instated mandatory collection for the municipalities and rurals area, the Hardee County Landfill services the entire population of Hardee County. Projections for the population to be served in the future are provided on Table F-1. To estimate the landfill capacity remaining, the service area was assumed to remain constant throughout the period from 2003 through 2010.

**TABLE F-1 SERVICE AREA POPULATION  
HARDEE COUNTY LANDFILL  
OPERATION PERMIT RENEWAL**

YEAR	SERVICE AREA POPULATION
2002	27,152
2003	27,607
2004	28,178
2005	28,756
2006	29,270
2007	29,712
2008	30,111
2009	30,484
2010	30,866

**F.5.b Anticipated Type, Annual Quantity, and Source of Solid Waste**

The Hardee County Landfill facility accepts municipal solid wastes (MSW), construction & demolition (C&D) debris, yard waste, and special wastes. Currently, only MSW and C&D debris are disposed of in the Class I landfill. MSW includes residential wastes, commercial wastes, and agricultural wastes. The majority of incoming wastes are baled prior to being landfilled in the Class I disposal area. Special wastes accepted by the facility include used oil (from residents only), waste tires, white goods, household hazardous wastes, lead-acid batteries, scrap metal, lawn mowers, appliances other than white goods, and electronics. Waste tires are processed and stored on site until a recycling contractor hauls the tires offsite. Yard waste is processed onsite and used for erosion control or distributed to residents. The facility does not accept hazardous waste. The facility does not accept biomedical waste with the exception of the collection and offsite disposal of medical sharps. These waste types will continue to be received throughout the next permit period.

Table F-2 shows the population and waste generation for the years 1996 through 2002. The 2002 quantity represents the tonnage received when mandatory collection was instated; therefore, the 2002 data point of 0.738 tons per year per capita is the only representative annual waste tonnage per capita point and would probably be the most representative value for future disposal estimates. The waste quantities reported by Hardee County Solid Waste Department for 2002 is contained in Attachment F-3.

Table F-3 presents future quantities of solid waste estimated to be disposed in the landfill based on the population estimates provided in Table F-1.

**TABLE F-2. 1996-2002 WASTE LOADING  
HARDEE COUNTY LANDFILL  
OPERATION PERMIT RENEWAL**

YEAR	POPULATION <sup>1</sup>	WASTE DISPOSED OF IN CLASS I LANDFILL (tons/yr)	ANNUAL WASTE TONNAGE PER CAPITA
1996	24,958	14,281.20	0.572
1997	25,408	13,895.88	0.547
1998	26,134	14,699.13	0.562
1999	26,407	16,061.17	0.608
2000	26,938	16,165.36	0.600
2001	26,921	18,843.71	0.700
2002	27,152	20,051.17	0.738

TONS PER CAPITA<sup>2</sup>: 0.738

Gross Airspace Available<sup>3</sup> = 119,700 CY  
 Estimated Percent Cover = 10%  
 Airspace for Cover = 11,970 CY  
 Net Airspace available for waste = 107,730 CY  
 Waste Density<sup>4</sup> = 43 lb/CF

**TABLE F-3 WASTE LOAD PROJECTIONS  
HARDEE COUNTY LANDFILL  
OPERATION PERMIT RENEWAL**

YEAR	POPULATION <sup>1</sup>	WASTE DISPOSED OF IN CLASS I LANDFILL (tons/yr) <sup>5</sup>	AIRSPACE CONSUMED (CY)	AVAILABLE AIRSPACE (CY)
2002	27,152	20,051.17	34,541.21	107,730
2003	27,607	20,387.18	35,120.03	72,609.97
2004	28,178	20,808.85	35,846.42	36,763.55
2005	28,756	21,235.69	36,581.72	181.82
2006	29,270	21,615.27	37,235.60	-37,053.78
2007	29,712	21,941.68	37,797.89	-74,851.67
2008	30,111	22,236.33	38,305.47	-113,157.14
2009	30,484	22,511.78	38,779.98	-151,937.13
2010	30,866	22,793.88	39,265.94	-191,203.07

<sup>1</sup>Source : Florida Legislative Office of Economic and Demographic Research

<sup>2</sup>The 2002 quantity represents the tonnage received when mandatory collection was instated; therefore, the 2002 data point is the only representative annual waste tonnage per capita point.

<sup>3</sup>Airspace computed using March 2003 topography versus the permitted final buildout.

<sup>4</sup>Waste density based upon average bale weight (2150 lb)/(bale size 2.6' x 3.8' x 5.1')

<sup>5</sup>Waste quantity disposed in landfill (loose and baled) provided by Hardee County.



**F.5.c Anticipated Facility Life**

For estimating the remaining disposal capacity and life of site, the final buildout, shown on the permit drawings, were compared to the March 2003 topographic map to determine the available airspace. The gross available airspace is 119,700 cubic yards (CY). SCS estimated that 10 of that airspace would be used for cover material, leaving approximately 107,730 CY of airspace available for waste disposal.

SCS used an estimated in-place density for the waste material of approximately 43 pounds per cubic foot (pcf) or approximately 1100 pounds per cubic yard. This density is consistent with waste density for landfill using dozers for compaction. Table F-3 represents the available and consumed airspace on a yearly basis. The consumed airspace was estimated by converting the annual waste disposal quantity into pounds per year and dividing by the estimated in-place waste density.

As shown in Table F-3, the landfill will use the available airspace by the end of 2005. The estimated maximum remaining life is approximately 2.0 years.

The site life estimates presented in Table F-3, assume waste disposal above Elevation 135 with 3:1 sideslopes. Slope stability calculations will be provided to FDEP for the waste-filling configuration with the upcoming permit operations renewal application. The estimated amount of waste disposal airspace available from Elevation 135 to Elevation 161 is approximately 43,900 cubic yards. SCS subtracted the airspace above Elevation 135 to estimate an available on the lower portions of the landfill. Table F-4 was prepared to show the estimated site life- assuming disposal below Elevation 135. As shown in Table 3, the estimated site life below Elevation 135 will be consumed by September 2004.

**TABLE F-4. ESTIMATED SITE LIFE BELOW ELEVATION 135  
HARDEE COUNTY LANDFILL  
OPERATION PERMIT RENEWAL**

Year	Waste Disposed of in Class I Landfill (tons/yr) <sup>5</sup>	Airspace Consumed (CY)	Available Airspace (CY)
2002	20,051.17	34,541.21	63,813
2003	20,387.18	35,120.03	28,692.97
2004	20,808.85	35,846.42	-7,153.45
2005	21,235.69	36,581.72	-43,735.18
2006	21,615.27	37,235.60	-80,970.78
2007	21,941.68	37,797.89	-118,768.67
2008	22,236.33	38,305.47	-157,074.14
2009	22,511.78	38,779.98	-195,854.13
2010	22,793.88	39,265.94	-235,120.07

**F.5.d Source and Type of Cover Material**

Cover material soils are obtained from either the on-site borrow pit or from an off-site County borrow pit.

Based on previous soil borings and soil data from the Soil Survey of Hardee County, Florida, USDA Soil Conservation Service, the excavation borrow pit consists of poorly drained sands to a depth of five to fifteen feet. Clayey sands and clays are found at lower depths.

**F.6 WATER QUALITY LABORATORY REQUIREMENTS**

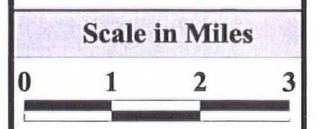
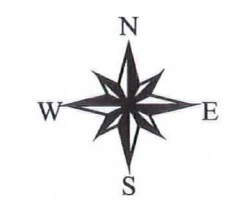
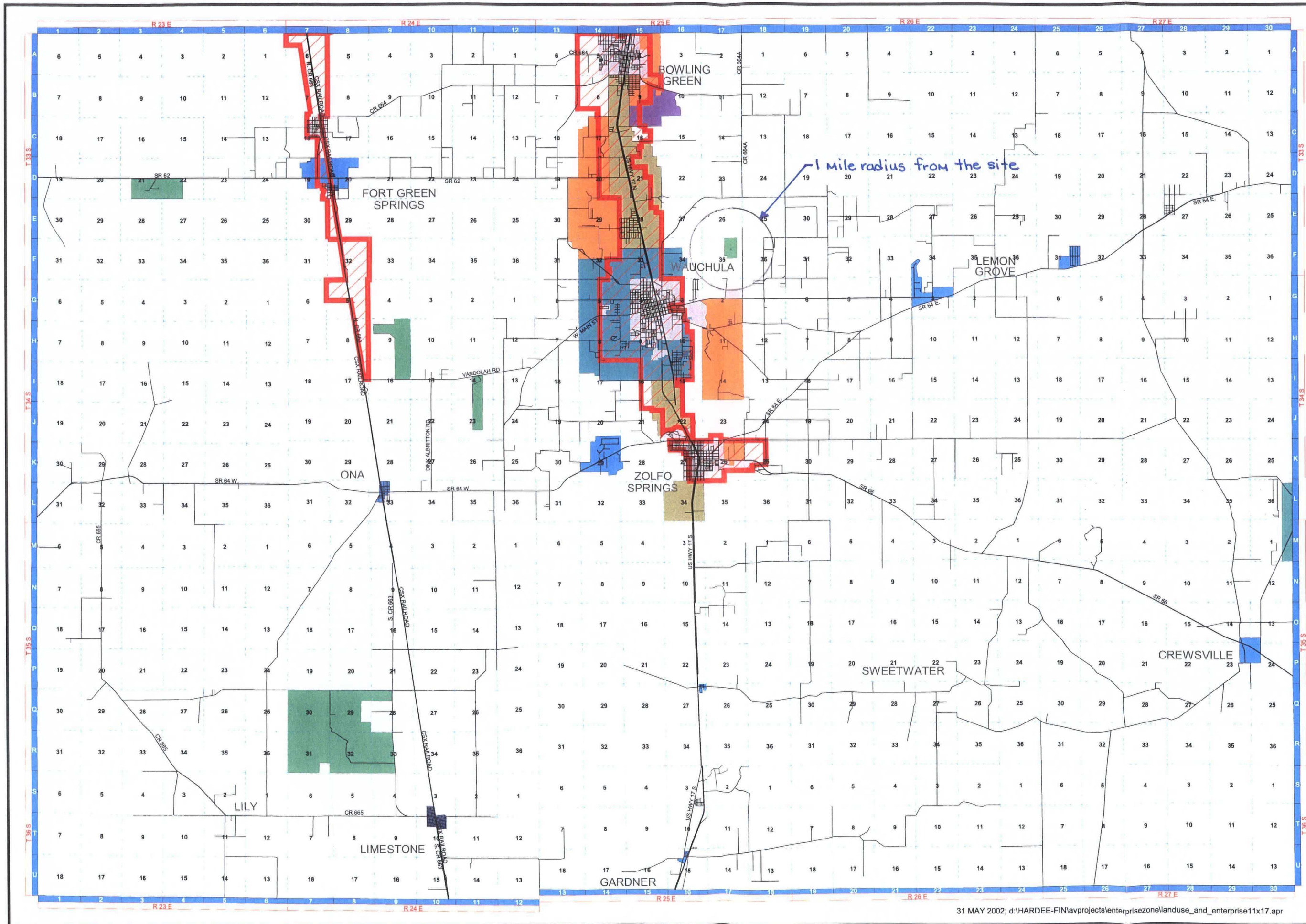
All water quality sampling and testing for the Hardee County Landfill is currently being conducted by Short Environmental Laboratories, Inc. The laboratory is authorized under FDEP CompQAP #880516.

**F.7 CLOSURE AND LONG TERM CARE FINANCIAL RESPONSIBILITY**

Financial responsibility information is discussed in Section S of this report.

**ATTACHMENT F-1**

**ZONING MAP**



**Legend**

	Enterprise Zone		Cities
	County Boundary		Roads

**Land Use:**

	AGR - Agriculture
	CON - Conservation
	HMX - Mixed Highway Use
	PBI - Public Institution
	RCN - Rural Center
	REC - Recreation
	RMX - Residential Mixed Use
	TNC - Town Center

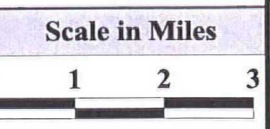
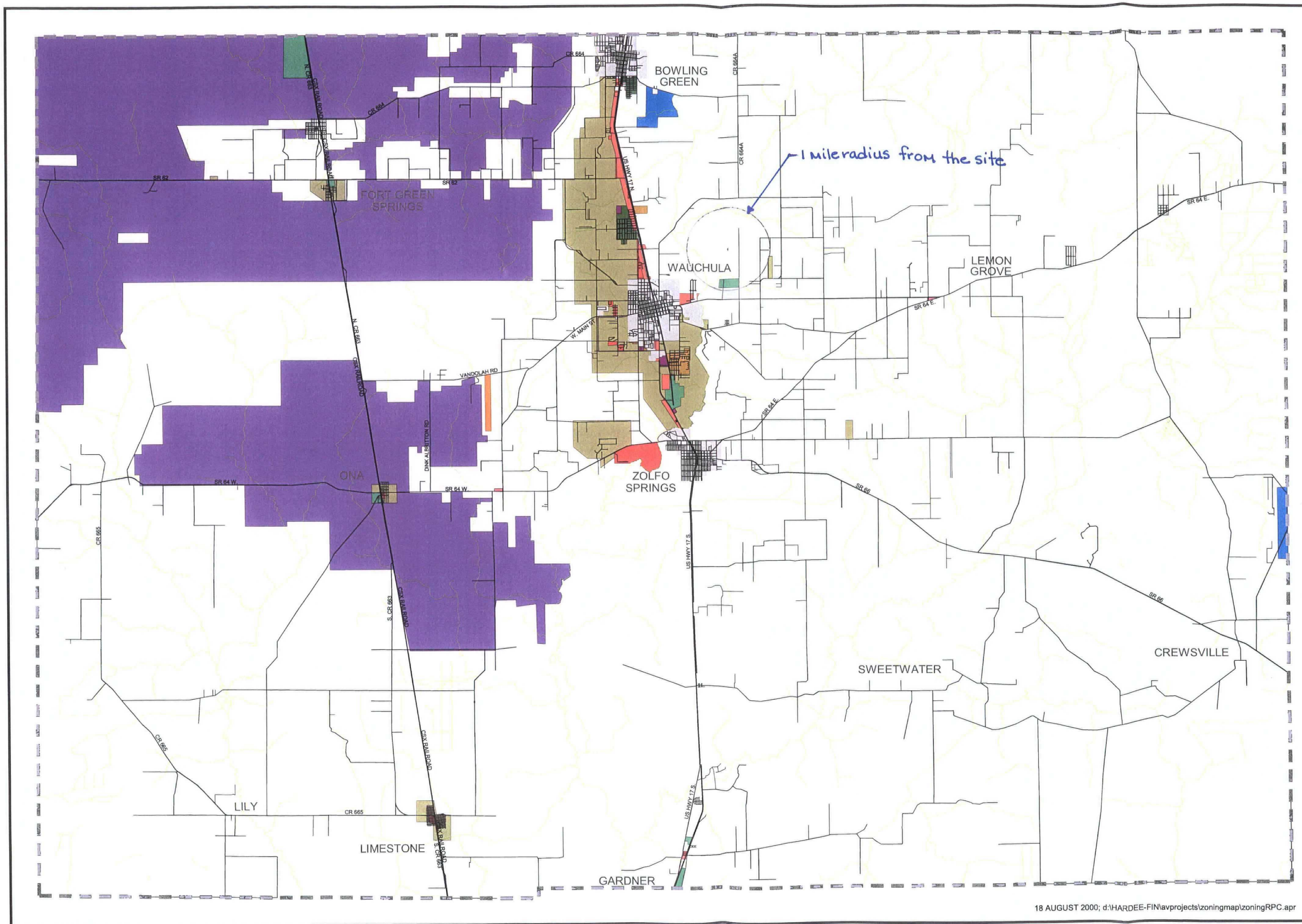
**LAND USE**  
**(including Enterprise Zone)**

**HARDEE COUNTY LAND USE**  
**(Excluding Incorporated Cities)**



Figure F-1. Hardee County Zoning Map





Legend

C-1/2	PI
CITY	PR
F-R	R-1
I-1	R-2
I-2	R-3
Mining	Roads

**ZONING DISTRICTS**

**HARDEE COUNTY EXISTING LAND USE**  
(Including Incorporated Cities)



18 AUGUST 2000; d:\HARDEE-FIN\avprojects\zoningmap\zoningRPC.apr

Figure F-2. Hardee County Zoning Map

**ATTACHMENT F-2**

**GEOTECHNICAL INVESTIGATION DATA**



**Report**  
**Geotechnical Engineering Services**  
**Hardee County Sanitary Landfill**  
**PSI Project No. 757-75054**

*Information To Build On*

March 10, 1997

Post, Buckley, Schuh & Jernigan, Inc.  
1560 Orange Avenue, Suite 700  
Winter Park, Florida 32789

Attention: Mr. Bob Mackey, P.E.  
Project Manager

RE: Report  
Geotechnical Engineering Services  
Hardee County Sanitary Landfill  
PSI Project No.: 757-75054

Dear Mr. Mackey:

In accordance with our proposal to you dated February 5, 1997, Professional Service Industries, Inc. (PSI) has provided geotechnical engineering services in connection with the referenced project. This report includes an overview of the field work and laboratory testing that we completed for the assignment. Also provided are preliminary recommendations for site preparation and foundation design of the leachate storage tanks.

### PROJECT CONSIDERATIONS

The Hardee County Sanitary Landfill is located in northeast Hardee County, east of U.S. 17 and north of County Road 636. The property is located in Section 35, Township 33 South, Range 25 East. The landfill site is generally rectangular in shape occupying a plan area of approximately 100 acres.

At the present time, geotechnical engineering services have been directed at the northwest corner of the site, where a liner wall will be constructed as well as above ground leachate storage tanks. The liner wall will be located south of the existing dewatering ditch and will consist of installing a High Density Polyethylene (HDPE) liner in a trench. The HDPE liner will be keyed into low permeable clays at depth providing a hydraulic cut off barrier.

The leachate storage tanks are to be built near the maintenance building. They will comprise two 50,000 gallon above ground tanks. It is proposed that the tanks be supported on a shallow foundation system.

A generalized plan view of the facility and the area of interest at this time is included on Sheet 1.

*Information To Build On*



## SUBSOIL AND GROUNDWATER CONDITIONS

### General

To evaluate subsoil and groundwater conditions in the area of interest to this assignment, we drilled/sampled six Standard Penetration Test (SPT) borings. These borings were completed in general accordance with the procedures outlined in ASTM D-1586. The borings were advanced to depths in the range 25 to 40 feet below grade. The approximate locations at which the borings were drilled are indicated on Sheet 1.

In the upper 10 feet, SPT samples were recovered continuously then at 5 foot centers thereafter to boring termination. Samples recovered from the borings were visually stratified in the laboratory by a geotechnical engineer, following guidelines contained in the Unified Soil Classification System (USCS). Records of the materials encountered in the borings are presented as soil profiles on Sheet 2. Sheet 2 includes a legend describing the various materials in USCS format.

### Stratigraphy

The borings disclosed reasonably consistent subsoil conditions in the area of evaluation. For the purpose of discussions, these conditions have been generalized as follows. From the ground surface to depths in the range 12 to 18 feet below grade is a varying sequence of fine sands. These sands grade from being relatively clean to slightly silty and silty/clayey in composition (i.e. SP, SP/SM, SM and SC materials). Based on the SPT blow counts, these materials are in a loose to medium dense condition.

Underlying the upper sands is clays. These clays grade from being sandy to silty in composition and from soft to extremely hard in consistency. There are clay zones that are primarily derived from weathered limestone, with SPT blow counts in excess of 50 blows for a few inches. All four of the proposed liner wall borings were terminated in clay.

### Groundwater

Groundwater level measurements were made in the borings at the time of drilling. These measurements disclosed the water table at depths in the range 4.0 to 7.8 feet below grade. As a result of recharge during the rainy season, the water table will rise some 2 to 3 feet above current levels. The groundwater levels at the site will also be impacted by construction activities.

## LABORATORY TESTING

As noted earlier, the laboratory testing work included the stratification of all soil samples in accordance with USCS procedures. Additionally, we carried out four laboratory permeability tests plus nominal classification tests to determine pertinent engineering characteristics/parameters. All permeability tests were performed in a triaxial cell at a



confining pressure of 5 psi. Results of the laboratory tests are presented in Table 1. This table also includes details on boring numbers and sample depths for the test specimens.

## SUMMARY OF FINDINGS AND RECOMMENDATIONS

### General

The results of the borings and laboratory testing indicate low permeable soils at depth in the area of the proposed liner wall. Subsoils at the site of leachate storage tanks are considered generally suitable for grade support of these structures. In order to enhance foundation performance, the tanks should be supported on subgrade soils that have been densified by surface proof rolling. A design bearing value of 3000 pounds per square foot can be used to size foundations.

### Site Preparation For Storage Tanks

At the outset of construction, the site should be stripped of the existing vegetation cover and topsoils. Next, the subgrade soils should be compacted in-situ by surface rolling with a large self propelled vibratory roller. The roller should be capable of imparting a dynamic drum force of at least 36,000 pounds. The tank subgrade soils should be uniformly compacted with the roller to attain a degree of densification that is at least 95 percent of the materials ASTM D-1557 maximum dry density for a depth of 2 feet.

Proof rolling operations should be observed by a representative of this office. Observations would be made as to the general stability of the subgrade in response to rolling. In the event that yielding/pumping soils are encountered during vibratory compaction, such materials should be removed and replaced with clean granular fill. The replacement fill should also be thoroughly compacted to provide a stable subgrade.

Fill required to raise site grades should comprise clean sand with less than 12 percent by dry weight passing the U.S. Standard Number 200 sieve. The fill should be placed in one foot lifts and be compacted to 95 percent or more of the materials ASTM D-1557 maximum dry density.

### Foundation Support

Results of our evaluations indicate that the subsurface materials have adequate shear strength to support fully loaded tanks. We estimate that foundations designed for a bearing pressure of 3000 psf will have a factor of safety against a bearing capacity failure in excess of three. This value is based on the assumption that the structures will be founded on thoroughly compacted native soils and/or engineered fill. The outside foundations/edges of the tank should be adequately protected by soil as to prevent undermining.

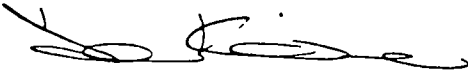


Based on our current understanding of the general loading conditions for the tanks, we anticipate settlement performance being within tolerable structural limits. We would be pleased to address settlement matters more fully when actual design loads are known.

PSI appreciates the opportunity to be of service to you on this assignment and we trust that the foregoing and accompanying attachments are of assistance to you at this time. In the event that you have any questions on the report or if you require additional information, please call.

Very truly yours,

PROFESSIONAL SERVICE INDUSTRIES, INC.



Ian Kinnear, P. E.  
Senior Geotechnical Engineer  
FL Registration No. 32614

IK:cd  
IK\75775054.311

Attachments

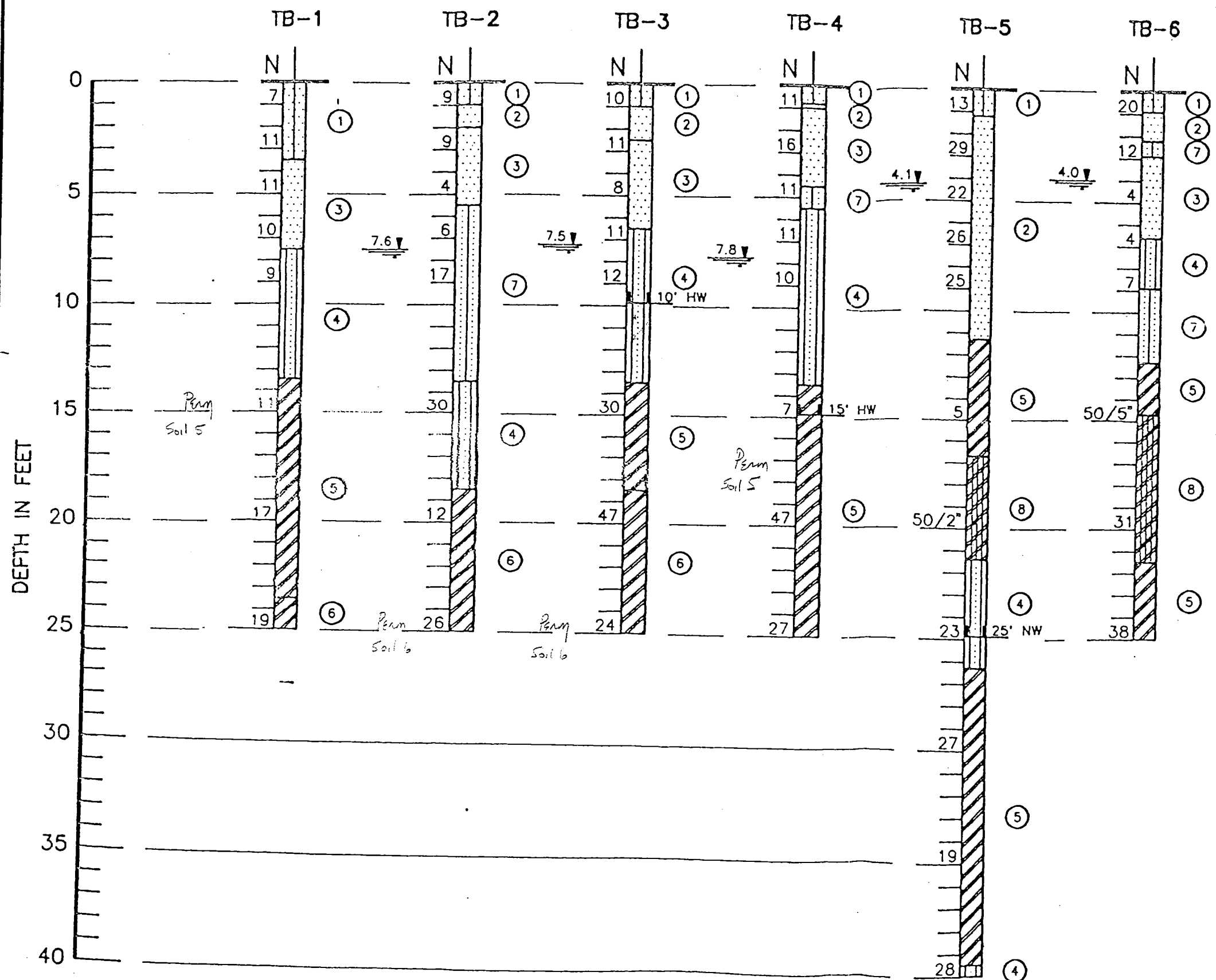
- Table 1
- Sheets 1 and 2



TABLE 1

SUMMARY OF LABORATORY TEST RESULTS  
HARDEE COUNTY SANITARY LANDFILL

Permeability Test Results			
Boring TB-1 at 15 Feet			
Permeability	=	3.3 x 10 <sup>-7</sup> cm/sec	
Wet Density	=	104.4 pcf	
Moisture Content	=	56.4 %	
Confining Pressure	=	5 psi	
Boring TB-2 at 25 Feet			
Permeability	=	7.7 x 10 <sup>-8</sup> cm/sec	
Wet Density	=	89.0 pcf	
Moisture Content	=	112.7 %	
Confining Pressure	=	5 psi	
Boring TB-3 at 25 Feet			
Permeability	=	4.3 x 10 <sup>-7</sup> cm/sec	
Wet Density	=	93.5 pcf	
Moisture Content	=	80.7 %	
Confining Pressure	=	5 psi	
Boring TB-4 at 17 Feet			
Permeability	=	6.1 x 10 <sup>-8</sup> cm/sec	
Wet Density	=	118.9 pcf	
Moisture Content	=	30.8 %	
Confining Pressure	=	5 psi	



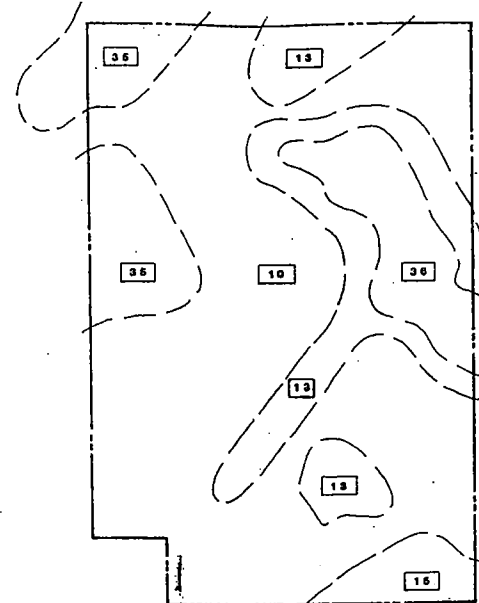
**LEGEND**

- ① GRAY TO BROWN FINE SAND TO SLIGHTLY SILTY FINE SAND TRACE ROOTS, (SP), (SP-SM)
- ② LIGHT GRAY FINE SAND, (SP)
- ③ LIGHT BROWN FINE SAND, (SP)
- ④ GRAY TO BROWN SILTY FINE SAND TO CLAYEY FINE SAND, (SM), (SC)
- ⑤ GREEN TO GRAY CLAY WITH SAND SEAMS OCCASIONAL PHOSPHATES, (CL)
- ⑥ GREEN CLAY, (CH)
- ⑦ LIGHT TO DARK RED-BROWN SLIGHTLY SILTY TO SILTY FINE SAND, OCCASIONAL WEAKLY CEMENTED FINE SAND, (SP-SM), (SM)
- ⑧ LIGHT GRAY BROWN INDURATED CLAY/SILT TO WEATHERED LIMESTONE
- (SP) UNIFIED SOIL CLASSIFICATION GROUP SYMBOL
- 7.6 DEPTH TO GROUNDWATER LEVEL IN FEET: 2/13/97 TO 2/17/97
- N STANDARD PENETRATION RESISTANCE IN BLOWS PER FOOT
- 50/5' NUMBERS OF BLOWS REQUIRED (50) TO DRIVE SAMPLING SPOON 5 INCHES
- 10' HW DEPTH TO WHICH NW/HW CASING WAS DRIVEN IN FEET, (NOTE: 3" CASING/4" CASING RESPECTIVELY)

GEOTECHNICAL ENGINEERING SERVICES  
 HARDEE COUNTY LANDFILL  
 WACHULA, FLORIDA



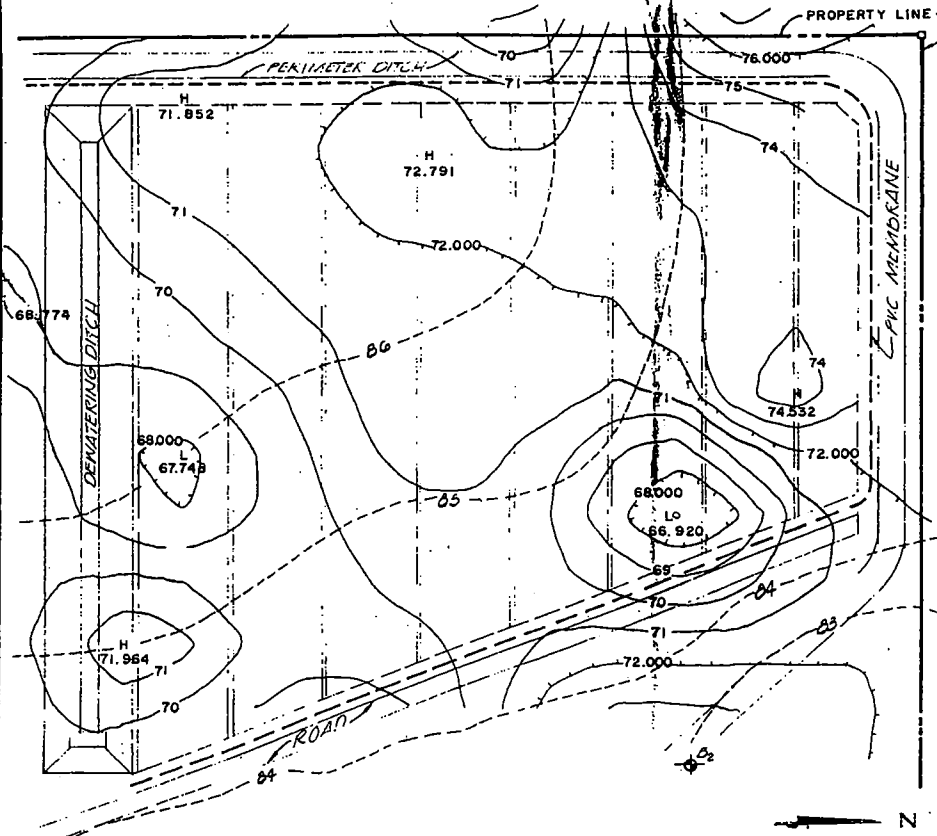
DRAWN: DCB	SCALE: NOTED	PROJ. NO: 757-75054
CHKD: IK	DATE: 2-21-97	SHEET: 2



**LEGEND**  
 10 POMONA FINE SAND  
 13 FLORIDANA MUCKY FINE SAND, DEPRESSIONAL  
 18 IMMOKALEE FINE SAND  
 36 OLDSMAR FINE SAND  
 38 TOMOKA MUCKY SAND  
 --- SITE BOUNDARY  
 --- LIMITS OF SOILS ASSOCIATION

Reference: Interim Soil Survey Report, Maps and Interpretations by U.S.D.A. Soil Conservation Service.

**SURFACE SOILS ASSOCIATIONS PLAN**



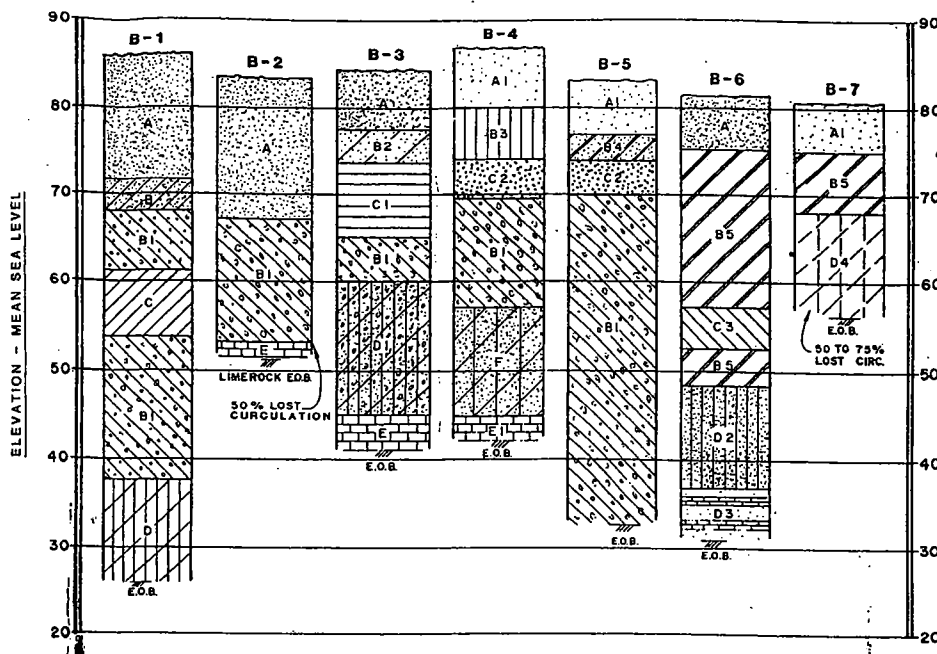
**NOTES**  
 1) THIS FIGURE REPRESENTS THE RESULTS OF A REFRACTION SEISMIC SURVEY OF THE NORTHWEST CORNER OF THE SITE, PERFORMED BY ARMAC ENGINEERS, INC., 8430 NORTH 40TH STREET, TAMPA, FLORIDA 33604. THIS SURVEY WAS PERFORMED IN ORDER TO ESTABLISH THE EXISTENCE OF AND ESTIMATE THE DEPTH TO THE UNDERLYING CONFINING CLAY LAYER. CORRELATION WITH KNOWN SOIL DEPTH DATA WAS ESTABLISHED BY PERFORMING THE SURVEY IN CLOSE PROXIMITY TO PREVIOUSLY PERFORMED SPT BORINGS B-2 AND B-4. CHARACTERISTIC COMPRESSION WAVE VELOCITIES WERE ESTABLISHED FOR BOTH THE UPPER SURFICIAL SOILS AND UNDERLYING CLAY SOILS. THESE AVERAGE COMPRESSION WAVE VELOCITIES WERE FOUND TO BE 1362 AND 4824, RESPECTIVELY. THIS HIGH VELOCITY DIFFERENTIAL WAS USED TO IDENTIFY THESE SEPARATE SOIL STRATA.

THE FIGURE SHOWS THE RESULTS OF THIS SEISMOGRAPH INVESTIGATION WHICH INDICATE THAT THE UNDERLYING COHESIVE CLAY LAYER IS ESTIMATED TO LIE AT DEPTHS RANGING FROM ABOUT 8.4 TO 18.0 FEET BELOW GROUND SURFACE (ELEVATION 67.8 TO 77.3 FEET MSL). THE COHESIVE SOIL STRATA WAS FOUND TO BE CONTINUOUS IN THE SUBJECT AREA, BUT POSSIBLE HIGH VELOCITY HARDPAN OR SURFICIAL CLAY LAYERS WERE FOUND TO EXIST AT THREE OUT OF 22 SURVEY GRID LOCATIONS. THESE NEAR-SURFACE HIGH VELOCITY SOIL LAYERS PRODUCED ANOMALOUS WAVE REVERSALS PREVENTING DEEPER SOIL ANALYSIS AT THESE LOCATIONS.

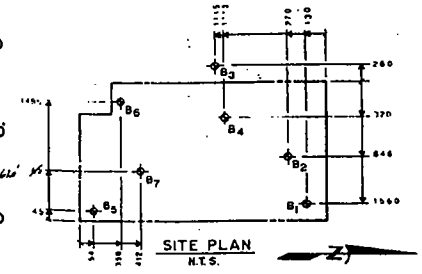
2) CLAY CONTOURS AT ONE FOOT (1') INTERVALS.

**LEGEND**  
 --- 68,000 --- SUBSURFACE CLAY CONTOUR W/ELEVATION  
 L LOW CLAY  
 H HIGH CLAY  
 --- 86 --- GROUND CONTOUR  
 ◆ BORING LOCATION  
 --- IMPERMEABLE PVC MEMBRANE BARRIER

**CLAY LAYER ELEVATIONS**  
 SCALE: 1" = 100'

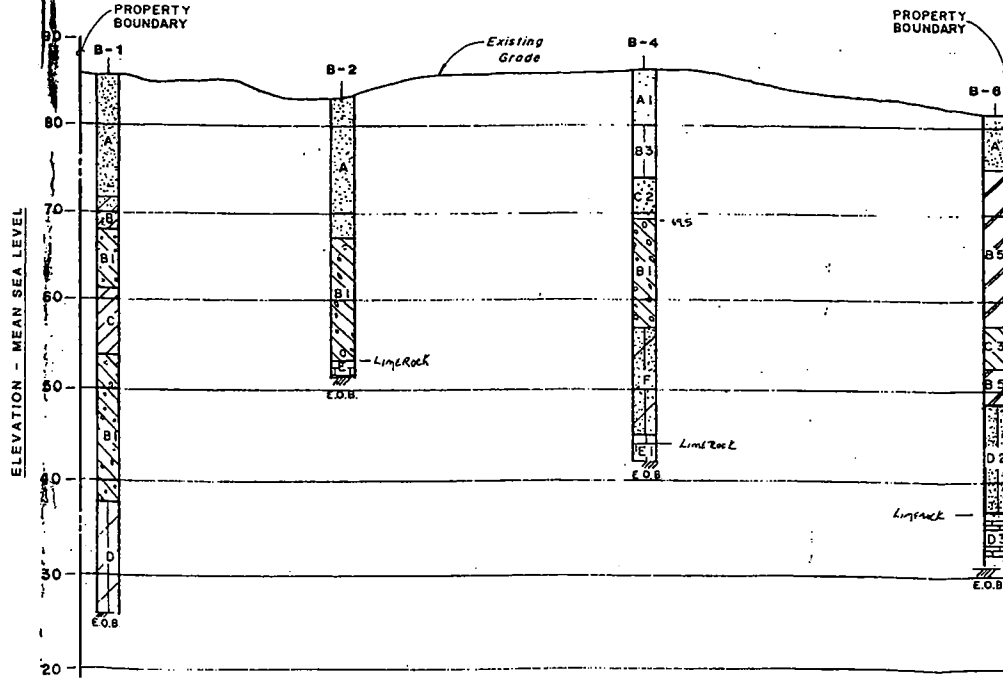


**SOIL BORING PROFILES**

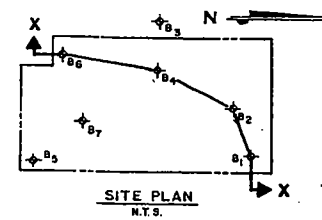


**LEGEND**  
 A GRAY & BROWN SAND  
 A1 BROWN SAND  
 B CLAYEY SAND  
 B1 GRAY-GREEN SANDY CLAY W/ PHOSPHATE  
 B2 GRAY SANDY CLAY  
 B3 HARDPAN  
 B4 GRAY CLAYEY SAND  
 B5 GRAY-GREEN SANDY CLAY  
 C HARD GRAY-GREEN CLAY  
 C1 GREEN CLAY  
 C2 GRAY SAND  
 C3 GRAY-GREEN CLAY  
 D GREEN SANDY CALCAREOUS  
 D1 GRAY-GREEN CALCAREOUS SANDY CLAY W/ PHOSPHATE  
 D2 GRAY-GREEN CALCAREOUS  
 D3 GRAY-GREEN CALCAREOUS CLAY W/ L.R. LENSES  
 D4 GRAY TO TAN CALCAREOUS SANDY CLAY  
 E GREENISH GRAY CLAYEY LIMEROCK W/ PHOSPHATE  
 E1 GREENISH GRAY LIMEROCK & SANDY CLAY  
 F YELLOW MOTTLED GRAY-GREEN SANDY CLAY

**NOTE: ALL SUBSURFACE SOILS WORK CONDUCTED BY ARMAC ENGINEERING, INC., TAMPA, FLORIDA.**



**SECTION X-X**



**LEGEND**  
 A GRAY & BROWN SAND  
 A1 BROWN SAND  
 B CLAYEY SAND  
 B1 GRAY-GREEN SANDY CLAY W/ PHOSPHATE  
 B2 GRAY SANDY CLAY  
 B3 HARDPAN  
 B4 GRAY CLAYEY SAND  
 B5 GRAY-GREEN SANDY CLAY  
 C HARD GRAY-GREEN CLAY  
 C1 GREEN CLAY  
 C2 GRAY SAND  
 C3 GRAY-GREEN CLAY  
 D GREEN SANDY CALCAREOUS  
 D1 GRAY-GREEN CALCAREOUS SANDY CLAY W/ PHOSPHATE  
 D2 GRAY-GREEN CALCAREOUS  
 D3 GRAY-GREEN CALCAREOUS CLAY W/ L.R. LENSES  
 D4 GRAY TO TAN CALCAREOUS SANDY CLAY  
 E GREENISH GRAY CLAYEY LIMEROCK W/ PHOSPHATE  
 E1 GREENISH GRAY LIMEROCK & SANDY CLAY  
 F YELLOW MOTTLED GRAY-GREEN SANDY CLAY

D.E.P.  
 JUN - 6 1997  
 TAMPA

**RECORD DRAWING**  
 NOTE: The information presented hereon is based upon drawings, specifications, addenda, shop drawings, modifications, etc. issued by the contractor during the construction period to reflect the in-situ parameters of the improvements to be constructed.  
 This Engineer, Envisors, Inc., is not responsible for the accuracy or validity of the Record Drawing information depicted hereon.

DESIGNED		DRAWN		CHECKED		APPROVED		DATE		NO.		REVISION DESCRIPTION	
								10/82					
<b>HARDEE COUNTY, FLORIDA</b> <b>REGIONAL SANITARY LANDFILL</b> <b>SOILS INFORMATION</b>												<b>ENVISORS, Inc.</b> Consulting Civil & Environmental Engineers Economists, and Planners WINTER HAVEN, TAMPA, & MARGATE, FLORIDA	
SHEET NUMBER												3	
OF 4 SHEETS													



**LEGEND**

- B Boring no. of boring
- SW Exist. Shallow Monitoring Well
- Existing Ground Contour w/ Elevation
- Concrete Corner Monument
- Existing Spot Grade Elevation
- Proposed Finished Ground Contour
- PVC Membrane
- Stormwater Runoff Direction
- Water Main & Water Risers
- Proposed Spot Grade Elevation
- New Monitoring Well
- D.I. Ditch Invert
- Road
- Property Line
- Detail
- Detail Sheet Shown Or Taken From
- Section Number
- Sheet Number Section Drawing
- Sheet Number Section Cut



**RECORD DRAWING**

NOTE: The information presented herein is based upon drawings, specifications, addenda, shop drawings, modifications, etc. annotated by the contractor during the construction period to reflect the in-situ parameters of the improvements he constructed.

The Engineer, Envisors, Inc., is not responsible for the accuracy or validity of the Record Drawing information depicted hereon.

BRANCH MARK CONC. MON. EL. = 86.95

NOTE: BRANCH MARK SHOWN IS DERIVED FROM SURVEY OF 9 DECEMBER 1981 PERFORMED BY MARK P. PORTER, P.E., OF PROFESSIONAL SURVEYING AND MAPPING, WINDYBUSH, FLORIDA

HARDEE COUNTY, FLORIDA	
REGIONAL SANITARY LANDFILL	
<b>PHASE I SITE PLAN</b>	
Designed	N.W.
Drawn	N.W.
Checked	D.D.
Approved	D.D.
Job No.	81014
Complete Reference	
RELOCATED 2 GRMS DITCH TO ROAD. DELETE FROM OUTLINE	
ADDED 4 ROAD ELEVATIONS & SWALES	
L.G.	
7-18-85	
G.S.L.D.	
9/2/85	

**ENVISORS, Inc.**  
 Consulting Civil & Environmental Engineers

SHEET No. 2





**ATTACHMENT F-3**  
**2002 WASTE QUANTITY REPORT**

**WASTE QUANTITY REPORT 2002**

	RESIDENTIAL (tons)	COMMERCIAL (tons)	C&D DEBRIS (tons)	WOOD & YARD WASTE (tons)	SCRAP METAL (tons)	TIRES (tons)	TOTAL TONNAGE
Jan-02	739.30	688.17	472.95	100.51		7.32	2,008.25
Feb-02	685.10	629.85	316.25	166.50		7.66	1,805.36
Mar-02	689.85	621.37	903.55	179.72	55.27	10.20	2,459.96
Apr-02	744.58	663.16	454.65	150.87	44.13	9.80	2,067.19
May-02	798.65	602.78	281.22	67.67	44.47	11.85	1,806.64
Jun-02	816.20	537.28	279.13	124.63	11.64	12.90	1,781.78
Jul-02	762.11	511.68	286.83	158.15	46.21	12.96	1,777.94
Aug-02	662.28	545.70	259.59	103.65	51.87	7.90	1,630.99
Sep-02	669.19	453.88	303.10	79.40	50.53	10.42	1,566.52
Oct-02	734.35	537.39	232.32	98.15	39.36	15.97	1,657.54
Nov-02	740.83	631.19	189.37	67.10	66.98	10.07	1,705.54
Dec-02	869.09	723.66	88.63	67.93	48.58	7.67	1,805.56
<b>TOTAL</b>	<b>8,911.53</b>	<b>7,146.11</b>	<b>4,067.59</b>	<b>1,364.28</b>	<b>459.04</b>	<b>124.72</b>	<b>22,073.27</b>

	PROCESSED THROUGH MRF (tons)	MRF BYPASS (tons)	DISPOSED IN CLASS I <sup>1</sup> (tons)	RECYCLED THROUGH MRF (tons)	SCRAP METAL RECYCLED (tons)	WOOD/YARD WASTE PROCESSED (tons)	WASTE TIRES REMOVED FOR RECYCLING (tons)
Jan-02	1,030.08	870.34	1,892.27	8.15	0.00	0.00	6.27
Feb-02	685.01	946.19	1,618.07	13.13	0.00	757.22	7.52
Mar-02	1,058.19	1,156.58	2,191.82	22.95	291.08	0.00	6.10
Apr-02	495.03	1,367.36	1,851.21	11.18	0.00	0.00	6.29
May-02	5.08	1,677.57	1,682.65	0.00	0.00	0.00	14.85
Jun-02	0.00	1,632.61	1,629.47	3.14	0.00	0.00	10.18
Jul-02	0.00	1,560.62	1,559.28	1.34	0.00	0.00	11.24
Aug-02	0.00	1,467.57	1,467.57	0.00	0.00	819.55	2.87
Sep-02	732.11	694.06	1,426.17	0.00	0.00	0.00	17.10
Oct-02	888.13	615.93	1,502.81	1.25	276.74	0.00	7.88
Nov-02	1,139.30	422.09	1,561.39	0.00	0.00	0.00	19.10
Dec-02	1,256.11	425.27	1,668.46	12.92	0.00	0.00	7.31
<b>TOTAL</b>	<b>7,289.04</b>	<b>12,836.19</b>	<b>20,051.17</b>	<b>74.06</b>	<b>567.82</b>	<b>1,576.77</b>	<b>116.71</b>

<sup>1</sup> Disposed in Class I Total = Residential + Commercial + C&D - Recycled in MRF

## **SECTION G**

### **GENERAL CRITERIA FOR LANDFILLS**

#### **G.1 LOCATION IN 100-YEAR FLOOD PLAIN**

Figure G-1, located in Attachment G-1 contains the Flood Insurance Rate Map (FIRM Map Panel No. 12049CO185C, May 1988) for Hardee County. The map shows the location of the landfill site with respect to the flood zone designation for the Landfill and surrounding area. The Landfill and the surrounding areas are designated Flood Zone "X" which is outside of the anticipated 500-year flood zone. Therefore, the site is also located outside of the 100-year floodplain.

#### **G.2 MINIMUM HORIZONTAL SEPARATION**

The County has recently acquired additional parcels of land, specifically a parcel of land approximately 250 feet to the west and a parcel of land approximately 100 feet to the north of the previously property limits. Refer to Section E Attachment E-3 for the additional property limits.

The additional parcels of land allow for the required 100 foot separation from the property limit and the toe of the proposed final cover slope (reference Chapter 62-701.340 (4)c.) on all sides of waste disposal area.

#### **G.3 LANDFILL SCREENING**

The Hardee County Landfill is located in a remote area, approximately one mile north of State Road 636. The Class I landfill is located in the northeast corner of the property. Several isolated residential homes are located to the east and south of the property. Natural vegetation exists along the eastern and southern sides of the property. No residential homes or roads are located to the west and north of the property only pastures therefore no screening is currently existing along the northern and western sides of the disposal area.

**ATTACHMENT G-1**  
**FLOOD INSURANCE RATE MAP**

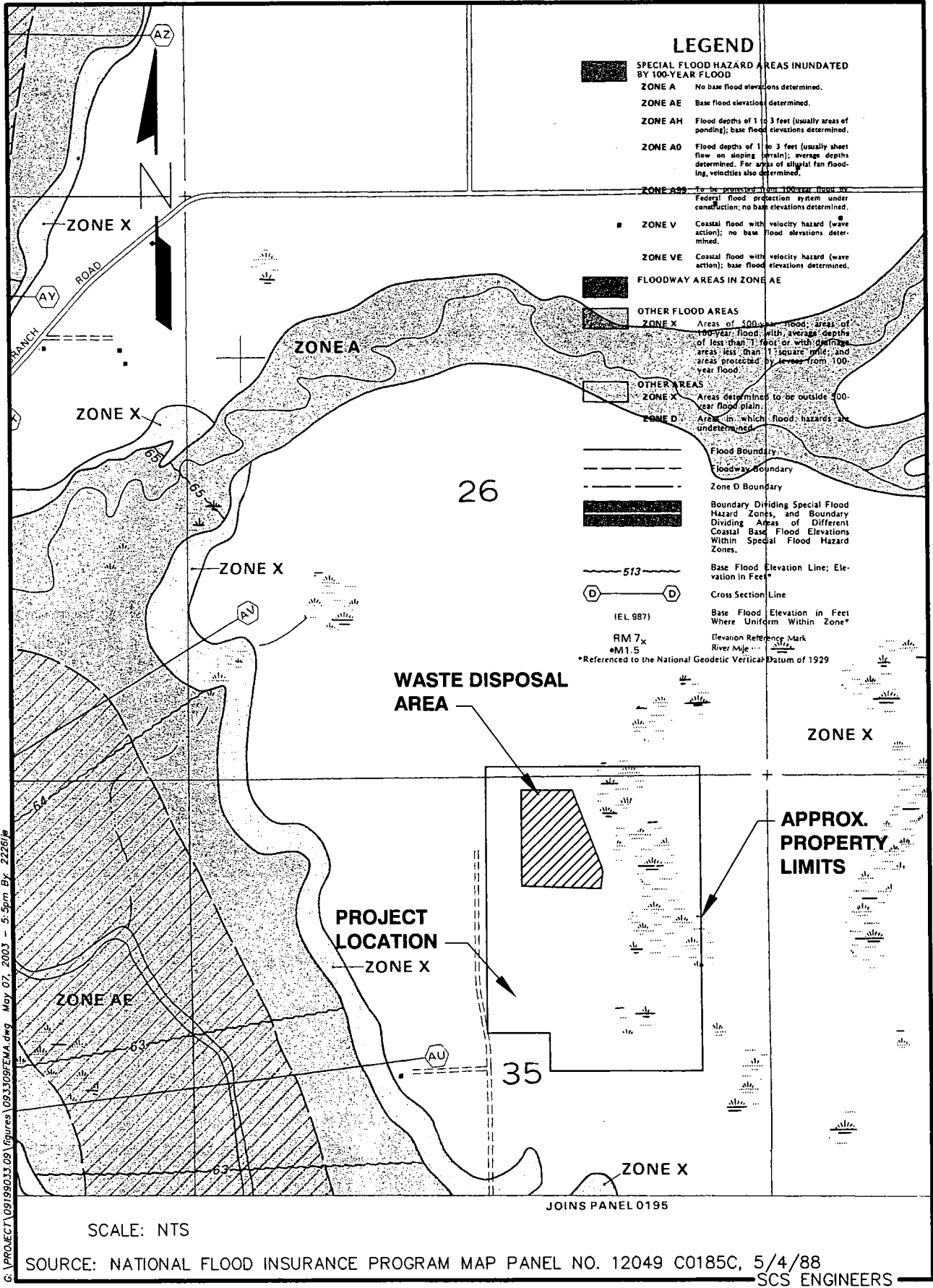


Figure G-1. Flood Insurance Rate Map, Hardee County Landfill  
Hardee County, Florida.

## **SECTION H**

### **LANDFILL CONSTRUCTION REQUIREMENTS**

Part H of the permit application does not apply to this permit renewal and is designated as “Not Applicable” on the application form. This permit application does not propose any new construction or expansion of the previously permitted disposal area.

**SECTION I**  
**HYDROGEOLOGICAL INVESTIGATION REQUIREMENTS**

**I.1 HYDROLOGICAL INVESTIGATION AND SITE REPORT**

A hydrological investigation and site report was included in the 1997 application for permit renewal and is referred to for reference in this application report.

**I.1.a Site Specific Geology and Hydrogeology**

The hydrological investigation and site report included in the 1997 application for permit renewal discusses the site geology and hydrogeology.

**I.1.b Direction and Rate of Groundwater Flow**

The Biennial Groundwater Monitoring Plan Evaluation Report, included as Attachment M-1 in Section M of this report, discusses the direction and rate of groundwater flow.

**I.1.c Background Water Quality**

The Biennial Groundwater Monitoring Plan Evaluation Report, included as Attachment M-1 in Section M of this report, discusses the background water quality.

**I.1.d On-site Aquifer Hydraulic Connections**

As discussed in Section 4 of the Biennial Groundwater Monitoring Plan Evaluation Report, included as Attachment M-1 in Section M of this report, there is no on-site connection between the surficial aquifer and the Floridan aquifer.

**I.1.e Site Stratigraphy**

The Biennial Groundwater Monitoring Plan Evaluation Report, included as Attachment M-1 in Section M of this report, discusses the site stratigraphy and aquifer characteristics.

**I.1.f Topography and Soil Types**

The hydrological investigation and site report included in the 1997 application for permit renewal discusses the soil types, and surface drainage systems. The current site topography is shown on Sheet 4 of the permit drawings.

**I.1.g Well Inventory**

An inventory of public and private wells within a one-mile radius of the site is included in Attachment I-1. A search of the following Township, Sections, and Ranges within one of the Hardee County Landfill was searched for public and private wells;

<u>Section</u>	<u>Township</u>	<u>Range</u>
23	33S	25E
24	33S	25E
25	33S	25E
26	33S	25E
27	33S	25E
34	33S	25E
35	33S	25E
36	33S	25E
1	34S	25E
2	34S	25E
3	34S	25E

The inventory contained in Attachment I-1 is from a computer search of the Southwest Florida Water Management District's database of well permits.

**I.1.h Existing Contaminated Areas**

Based on the information presented in the Biennial Groundwater Monitoring Plan Evaluation Report, included as Attachment M-1 in Section M of this report, there is no reason to believe that there are contaminated areas at the site.

**I.1.i Well Map**

A map of the potable wells within 500 feet of the site is included in Attachment I-1. The only potable wells within the 500 foot radius of the landfill are two onsite wells used for water to supply the facility toilets and operations within the Materials Recycling Facility. The two wells are not used for drinking water (Bottled water is for drinking water). There are no community supply wells within 1000 feet of the waste storage and disposal areas.



**ATTACHMENT I-1**

**WELL INVENTORY AND SUPPLEMENTAL MAP**

SWFWMD WELL INVENTORY

WCP No.	Well No.	Issued	Completed	Section	Township	Range	Diameter	Well Use Code	Owner's Name	Owner's Address	Owner's City	Owner's State	Owner's Zip	Well Location	Reference No.	Well Depth	Casing Mat'l	Case Depth	Latitude	Longitude	Pump (gpm)
309778	1	1/1/70	7/1/79	25	33	25	4	A	NO NAME	NO ADDRESS	NO CITY	FL			72002880	45	Z	20			
318121	1	1/1/70	7/1/79	25	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			73122540	170	Z	42			
318122	1	1/1/70	7/1/79	25	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			73122550	170	Z	42			
318898	1	1/1/70	7/1/79	23	33	25	4	D	MOORE, JOHNNIE L.	P.O.BOX 1202	WACHULA	FL	33873		73140530	144	Z	36			
323891	1	1/1/70	7/1/79	26	33	25	4	D	L ROBERTS	NO ADDRESS	NO CITY	FL			74115250	124	Z	51			
326042	1	1/1/70	7/1/79	23	33	25	6	A	EWELL SWEET	NO ADDRESS	NO CITY	FL			75032480	210	Z	121			
326323	1	1/6/75	7/1/79	23	33	25	4	D	LYKES, LUTHER	RO.2 BOX 60	WACHULA	FL	33873		75039540	168	Z	108			
328857	1	9/8/75	7/1/79	24	33	25	4	D	STAMEY, LEONARD C.	P.O.BOX 1389	WACHULA	FL	33873		75095440	191	Z	84			
330631	1	1/1/70	7/1/79	26	33	25	4	D	K CONLEY	NO ADDRESS	NO CITY	FL			76033330	138	Z	72			
331249	1	1/1/70	7/1/79	23	33	25	4	D	F F WINFREE	NO ADDRESS	NO CITY	FL			76046620	150	Z	112			
331735	1	1/1/70	7/1/79	26	33	25	4	D	H D WILLIS	NO ADDRESS	NO CITY	FL			76056750	42	Z	18			
333188	1	1/13/77	7/1/79	23	33	25	4	D	MALCOLM ADAMS	RT 2 BOX 41	WACHULA	FL	33873		77088490	147	Z	41			
333600	1	3/10/77	7/1/79	24	33	25	4	A	BUFORD E LONG	PO BOX 1620	WACHULA	FL	33873		77097310	160	Z	55			
335290	1	1/1/70	7/1/79	24	33	25	4	Z	BOWMEN K W	NO ADDRESS	NO CITY	FL			77134490	182	Z	84			
336776	1	1/1/70	7/1/79	27	33	25	5	D	G DAVIS	NO ADDRESS	NO CITY	FL			78008060	127	Z	21			
340269	1	1/1/70	7/1/79	27	33	25	4	D	MILLER, E J	NO ADDRESS	NO CITY	FL			78074740	122	Z	52			
347802	1	9/18/79	10/6/79	26	33	25	2	D	B.T. PRESTRIDGE	ROUTE 2, BOX 32	WACHULA	FL	33873			125	Z	30			
364997	1	5/12/81	9/11/81	24	33	25	6	A	PAUL CHILDRESS	ROUTE 2, BOX 50	WACHULA	FL	33873			225	Z	135			
367538	1	7/20/81	7/24/81	24	33	25	4	D	RIVERS, ARNOLD	RT 2, BOX 51	WACHULA	FL	33873			150	Z	62			
374548	1	5/17/82	6/11/82	27	33	25	6	A	LOLA ORTON	ROUTE 2, BOX 26	WACHULA	FL	33873			300	Z	125	273459.2	814749.14	
394987	1	8/13/84	10/22/84	27	33	25	4	A	MILLER, EARL J	RT 2 BOX 22C	WACHULA	FL	33873			90	Z	21			
401180	1	2/27/85	3/6/85	25	33	25	4	D	MILLIGAN, SHIRLEY	152 AIRPORT ROAD	WACHULA	FL	33873			175	C	50			
407787	1	8/29/85	1/18/86	23	33	25	6	A	JESSE BARNETT	6 E BROADWAY	FORT MEADE	FL	33815			550	C	75			
426518	1	1/13/87	1/29/87	27	33	25	6	A	CONSOLIDATED PRODUCTS, INC.	500 EAST CENTRAL AVE.	WINTER HAVEN	FL	33880			213	A	135	273434.9	814226.2	
426519	1	1/13/87	2/13/87	27	33	25	6	A	CONSOLIDATED PRODUCTS, INC.	500 EAST CENTRAL AVE.	WINTER HAVEN	FL	33880			715	A	320	273427.8	814225.87	
438324	1	9/22/87	11/5/87	23	33	25	6	A	GRACE, BILLY T	RT 2 BOX 53	WACHULA	FL	33873			675	A	370			
440098	1	11/3/87	1/30/88	27	33	25	4	B	PARRISH, WAYNE	HEARD BRIDGE ROAD	WACHULA	FL	33873			154	A	30			
501244	1	7/5/90	8/26/90	27	33	25	4	D	PARRISH, WAYNE	RT 2 BOX 22 WAUCHULA	WACHULA	FL	33873			176	B	83			
531754	1	11/10/92	11/12/92	24	33	25	2	O	MOBIL MINING AND MINERALS	PO BOX 550	FORT MEADE	FL	33841			13	B	3			
531754	2	11/10/92	11/12/92	24	33	25	2	O	MOBIL MINING AND MINERALS	PO BOX 550	FORT MEADE	FL	33841			13	B	3			
531754	3	11/10/92	11/12/92	24	33	25	2	O	MOBIL MINING AND MINERALS	PO BOX 550	FORT MEADE	FL	33841			13	B	3			
535781	1	3/12/93	3/30/93	27	33	25	4	D	ADRIAN R CHAPMAN	PO BOX 366	WACHULA	FL	33873-0366			256	B	130			
584187	1	11/7/96	7/2/97	25	33	25	4	B	LAKE DALE BAPTIST CHURCH	3122 HEARD BRIDGE RD	WACHULA	FL	33873	3122 HEARD BRIDGE RD		171	A	74			
601175	1	1/12/98	2/5/98	26	33	25	4	D	MARK SCHUMANN	1986 HEARD BRIDGE RD	WACHULA	FL	33873	1998 HEARD BRIDGE RD		180	B	119			
605132	1	5/5/98	5/7/98	25	33	25	3	Y	CARGILL FERTILIZER INC	3900 PEEPLES RD	FORT MEADE	FL	33841	BOYD COWART ROAD		80	Z	80			
608917	1	8/6/98	8/24/98	27	33	25	2	Y	CARGILL FERTILIZER INC	3900 PEEPLES RD	FORT MEADE	FL	33841	HEARD BRIDGE ROAD		81	Z	81			
611051	1	10/7/98	11/4/98	23	33	25	6	H	CARGILL FERTILIZER INC	3900 PEEPLES RD	FORT MEADE	FL	33841	OFF DR. BANKS RD		900			273556.2	814659.3	
637224	1	6/5/00	6/9/00	25	33	25	5	D	CARGILL FERTILIZER INC	3900 PEEPLES RD	FORT MEADE	FL	33841	2894 HEARD BRIDGE ROAD		132	B	86			
680065	1	1/24/03		26	33	25	4	D	WILLIAM E DAVIS	1986 HEARD BRIDGE RD	WACHULA	FL	33873	1992 HEARN BRIDGE RD			B				
309968	1	1/1/70	7/1/79	36	33	25	4	B	NO NAME	NO ADDRESS	NO CITY	FL			72011840*	198	Z	48			
312355	1	1/1/70	7/1/79	36	33	25	4	D	W B GILL	NO ADDRESS	NO CITY	FL			72098760	188	Z	66			
312795	1	1/1/70	7/1/79	36	33	25	4	D	R J LOWE JR	NO ADDRESS	NO CITY	FL			72109600	190	Z	107			
313254	1	1/1/70	7/1/79	36	33	25	4	D	CATALINA CO	NO ADDRESS	NO CITY	FL			72121520*	168	Z	61			
315440	1	1/1/70	7/1/79	36	33	25	6	B	ED R BRAUN	NO ADDRESS	NO CITY	FL			73053890*	400	Z	75			
315821	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			73063280*	197	Z	40			
316335	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			73076020*	165	Z	42			
316336	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			73076030*	165	Z	42			
322299	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			74072550*	158	Z	50			
324600	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			74130420*	160	Z	50			
324601	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			74130430*	170	Z	52			
324603	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			74130450*	175	Z	50			
324604	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			74130460*	155	Z	51			
324605	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			74130470*	160	Z	50			
324606	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			74130480*	165	Z	42			
324607	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			74130490*	160	Z	42			
325341	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			75016370*	165	Z	54			
325342	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			75016380*	170	Z	52			
325343	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			75016390*	155	Z	48			
325555	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			75021140*	170	Z	54			
326451	1	1/1/70	7/1/79	36	33	25	4	D	R GIFFIARD	NO ADDRESS	NO CITY	FL			75042520*	175	Z	57			
326454	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			75042560*	170	Z	52			
326455	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			75042570*	185	Z	53			
326456	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			75042580*	175	Z	53			
326457	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			75042590*	185	Z	60			

\* Shaded cells with astericks refer to the SWFWMD permits located within this attachment.

SWFWMD WELL INVENTORY

WCP No.	Well No.	Issued	Completed	Section	Township	Range	Diameter	Well Use Code	Owner's Name	Owner's Address	Owner's City	Owner's State	Owner's Zip	Well Location	Reference No.	Well Depth	Casing Mat'l	Case Depth	Latitude	Longitude	Pump (gpm)
326458	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			75042600*	185	Z	55			
326459	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			75042620*	180	Z	57			
326460	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			750426509*	132	Z	63			
326489	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			75043380*	145	Z	57			
326490	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			75043390*	160	Z	60			
326491	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			75043400*	175	Z	55			
326594	1	1/1/70	7/1/79	36	33	25	4	D	R GIFFIARD	NO ADDRESS	NO CITY	FL			75045830*	175	Z	56			
326595	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			75045840*	180	Z	53			
326596	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			75045860*	185	Z	68			
328565	1	1/1/70	7/1/79	36	33	25	4	D	W SMITH	NO ADDRESS	NO CITY	FL			75089260*	205	Z	50			
329744	1	1/1/70	7/1/79	36	33	25	4	D	R GILLIARD	NO ADDRESS	NO CITY	FL			76013130	175	Z	57			
335994	1	1/1/70	7/1/79	36	33	25	4	A	DOUGIAS D	NO ADDRESS	NO CITY	FL			77149070	240	Z	60			
361828	1	2/6/81	4/20/81	36	33	25	4	D	ROSENBERGER, SAM	DANSBY RD	WAUCHULA	FL	33873			208	Z	52			
361829	1	2/6/81	4/28/81	36	33	25	4	D	ROSENBERGER, SAM	DANSBY RD	WAUCHULA	FL	33873			204	Z	53			
366380	1	6/11/81	7/12/81	36	33	25	4	D	HINES, HOWARD	RT 2 LOT 09	WAUCHULA	FL	33873			210	Z	52			
377003	1	9/17/82	11/2/82	36	33	25	4	D	PARKER, J. B.	RT 1, BOX 200	BOWLING GREEN	FL	33834			200	Z	63			
384054	1	7/18/83	10/4/83	35	33	25	4	O	HARDEE COUNTY REGIONAL SANITARY	AIRPORT RD	WAUCHULA	FL	33873			15	Z	12			
384055	1	7/19/83	10/1/83	35	33	25	4	O	HARDEE COUNTY REGIONAL SANITARY	AIRPORT RD	WAUCHULA	FL	33873			11	Z	8			
384056	1	7/18/83	10/11/83	35	33	25	4	O	HARDEE COUNTY REGIONAL SANITARY	AIRPORT RD	WAUCHULA	FL	33873			11	Z	8			
384468	1	8/5/83	10/20/83	35	33	25	4	I	HARDEE COUNTY REGIONAL SANITARY	AIRPORT RD	WAUCHULA	FL	33873			200	Z	54			
408523*	1	9/26/85	7/31/86	36	33	25	4	D	DRAKE, GEORGE W	BOX 1182	WAUCHULA	FL	33873			180	A	84			
414023	1	4/1/86	8/20/86	36	33	25	4	D	DRAKE, GEORGE	1342 HWY S 17	WAUCHULA	FL	33873			220	B	70			
418987	1	7/30/86	1/7/87	36	33	25	4	D	BURNETT, HENRY P	RT 2	WAUCHULA	FL	33873			235	A	107			
435610	1	7/27/87	8/3/87	35	33	25	2	O	HARDEE COUNTY REGIONAL SANITARY	AIRPORT RD	WAUCHULA	FL	33873			20	B	10			
435611	1	7/27/87	8/3/87	35	33	25	2	O	HARDEE COUNTY REGIONAL SANITARY	AIRPORT RD	WAUCHULA	FL	33873			18	B	8			
435612	1	7/27/87	8/4/87	35	33	25	2	O	HARDEE COUNTY REGIONAL SANITARY	AIRPORT RD	WAUCHULA	FL	33873			21	B	11			
435613	1	7/27/87	8/4/87	35	33	25	2	O	HARDEE COUNTY REGIONAL SANITARY	AIRPORT RD	WAUCHULA	FL	33873			21	B	11			
510327	1	2/7/91	4/10/91	35	33	25	4	B	HARDEE COUNTY REGIONAL SANITARY	AIRPORT RD	WAUCHULA	FL	33873			197	A	63			
545871	1	12/7/93	12/10/93	36	33	25	4	D	MANUEL HERRERA	126 CYPRESS ST.	WACHULA	FL	33873			203	A	84			
553344	1	6/2/94	5/8/95	36	33	25	5	D	LEO DAVIS	SUMMER RD	WAUCHULA	FL	33873			175	B	60			
554873	1	7/5/94	7/5/94	36	33	25	2	O	HARDEE COUNTY SOLID WASTE	685 AIRPORT RD	WAUCHULA	FL	33873			15	B	10			
554873	2	7/5/94	7/5/94	36	33	25	2	O	HARDEE COUNTY SOLID WASTE	685 AIRPORT RD	WAUCHULA	FL	33873			15	B	10			
554873	3	7/5/94	7/5/94	36	33	25	2	O	HARDEE COUNTY SOLID WASTE	685 AIRPORT RD	WAUCHULA	FL	33873			15	B	10			
554873	4	7/5/94	7/5/94	36	33	25	2	O	HARDEE COUNTY SOLID WASTE	685 AIRPORT RD	WAUCHULA	FL	33873			15	B	10			
579220	1	5/8/96	5/20/96	34	33	25	4	D	DENTON CASH	RT 2 BOX 21	WAUCHULA	FL	33863	HWY 664A		200	B	80			
579599	1	5/17/96	6/6/96	36	33	25	4	D	PHILLIP WAYNE FARRER	CR 664B	WAUCHULA	FL	33873	CR 664B		205	A	58			22
579861	1	5/23/96	5/30/96	34	33	25	4	D	DENTON CASH	RT 2 BOX 21	WAUCHULA	FL	33863	HERD BRIDGE ROAD		200	B	80			
586779	1	12/31/96	1/8/97	35	33	25	4	A	GENE FIELD	575 AIRPORT RD	WAUCHULA	FL	33873	515 AIRPORT RD		173	A	49			50
597100	1	9/10/97	10/1/97	36	33	25	4	D	SANDRA V. HUMPHRIES	7741 FARR RD	ONA	FL	33865	7741 FARR RD(SUMMER ROA		200	Z	115			
600529*	1	12/15/97	2/13/98	36	33	25	5	D	PAUL DUMONT &	POST OFFICE BOX 2581	WAUCHULA	FL	33873	565 BOYD COWART ROAD		200	B	60			
608876	1	8/5/98	10/8/98	36	33	25	2	A	SANDRA V. HUMPHRIES	7741 FARR ROAD	ONA	FL	33865	7741 FAIR RD		40	C	21			
614259	1	1/7/99	2/10/99	36	33	25	4	A	JAMES SLAYTON	6848 CIRCLE CREEK DRIVE	PINELLAS PARK	FL	33781	SUMMER RD.		277	B	70			
622889	1	7/12/99	7/12/99	36	33	25	4	D	BILL HODGE	754 SUMNER RD	WAUCHULA	FL	33890	754 SUMMER ROAD		220	C	84			
627535	1	11/4/99	11/4/99	35	33	25	5	Y	HARDEE COUNTY SOLID WASTE	685 AIRPORT RD	WAUCHULA	FL	33873	685 AIRPORT RD		10	Z	10			
631797	1	2/21/00	2/23/00	36	33	25	5	D	JOYCE LYERLY	1028 SUMNER RD	WAUCHULA	FL	33873	1028 SUMNER ROAD		157	Z	118			
637035	1	6/1/00	6/8/00	36	33	25	4	D	JACK KERNS	918 SUMMER RD	WAUCHULA	FL	33873	918 SUMMER ROAD		200	C	84			
639295	1	7/13/00	7/19/00	36	33	25	4	D	STEVE ZALEWSKI	CREWS RD	WAUCHULA	FL	33873	2404 GREENLEAF RD		260	C	84			
643154	1	10/12/00	12/22/00	36	33	25	4	D	BOBBY AND ESTER BRAGG	671 SUMNER RD	WAUCHULA	FL	33873	671 SUMNER RD		160	B	76			25
647646	1	1/29/01	1/31/01	36	33	25	4	D	GREGORY MORGAN	2598 GREGORY LN	WAUCHULA	FL	33823	2598 GREGORY LN		280	B	95			15
651055	1	4/6/01	4/17/01	36	33	25	4	D	MARY BARTLEY	1181 FINBAR WAY	WAUCHULA	FL	33873	1181 FINBAR WAY		145	B	110	273419	814554.03	
651056	1	4/6/01	4/19/01	36	33	25	4	D	CARLOS AVILES	510 CYPRESS ST	WAUCHULA	FL	33873	510 CYPRESS ST/BLK I		150	B	110	273342.1	814552.07	
651057	1	4/6/01	4/20/01	36	33	25	4	D	RONNIE BARTLEY	470 CYPRESS ST	WAUCHULA	FL	33873	470 CYPRESS ST		150	B	110	273339	814553	
656331	1	7/18/01	8/28/01	36	33	25	4	D	LARRY FIEGLE	555 SUMMER RD	WAUCHULA	FL	33873	555 SUMMER RD		170	B	118			
659635	1	10/8/01	10/23/01	36	33	25	4	D	CARL & MARYJANE SISSOMS	3998 E MAIN ST	WAUCHULA	FL	33873	498 AIRPORT RD		200	C	84	273343.1	814629.07	
670100	1	5/30/02	6/8/02	36	33	25	4	D	HAROLD LAMBERT	715 BOYD COWART RD	WAUCHULA	FL	33873	715 BOYD COWART RD		270	C	63			
673367	1	8/7/02	8/10/02	36	33	25	4	A	NICK MIRINDA	510 AIRPORT RD	WACHULA	FL	33873	510 AIRPORT RD		200	C	84			
680590*	1	2/7/03		36	33	25	12	A	CHARLES E & GAIL D BEST	PO BOX 203	WAUCHULA	FL	33873	NEAR SR 664B & SUMNER RD			A		273416.5	814544.08	
682600	1	3/26/03		36	33	25	4	Y	MARCELINO BALDERAS	565 CYPRESS ST	WACHULA	FL	33873	565 CYPRESS STREET			A				
682601	1	3/26/03		36	33	25	4	D	MARCELINO BALDERAS	565 CYPRESS ST	WACHULA	FL	33873	565 CYPRESS STREET			C				
311120	1	1/1/70	7/1/79	1	34	25	4	D	CANNON BLDG	NO ADDRESS	NO CITY	FL			72067190	51	Z	21			
311403	1	1/1/70	7/1/79	1	34	25	4	D	CANNON BLDG	NO ADDRESS	NO CITY	FL			72074580	198	Z	37			
311404	1	1/1/70	7/1/79	1	34	25	4	D	CANNON BLDG	NO ADDRESS	NO CITY	FL			72074590	171	Z	39			
312203	1	1/1/70	7/1/79	3	34	25	4	A	K MITCHELL	NO ADDRESS	NO CITY	FL			72094540	232	Z	63			
312962	1	1/1/70	7/1/79	1	34	25	4	D	J A PULLEN	NO ADDRESS	NO CITY	FL			72114200	159	Z	61			

\* Shaded cells with astericks refer to the SWFWMD permits located within this attachment.

SWFWMD WELL INVENTORY

WCP No.	Well No.	Issued	Completed	Section	Township	Range	Diameter	Well Use Code	Owner's Name	Owner's Address	Owner's City	Owner's State	Owner's Zip	Well Location	Reference No.	Well Depth	Casing Mat'l	Case Depth	Latitude	Longitude	Pump (gpm)
318473	1	1/1/70	7/1/79	3	34	25	4	A	J BLACKWELD	NO ADDRESS	NO CITY	FL			73131150	33	Z	14			
319995	1	1/1/70	7/1/79	1	34	25	4	D	J JUSTISS	NO ADDRESS	NO CITY	FL			74020120	205	Z	60			
323193	1	1/1/70	7/1/79	1	34	25	4	D	HELENA CHEMICAL COMPANY	2486 E MAIN ST	WAUCHULA	FL	33873		74098720	150	Z	42			
324457	1	1/1/70	7/1/79	1	34	25	4	D	D STATON	NO ADDRESS	NO CITY	FL			74127550	165	Z	42			
329899	1	1/1/70	7/1/79	1	34	25	4	D	J L KNIGHT	NO ADDRESS	NO CITY	FL			76016350	135	Z	56			
332296	1	1/1/70	7/1/79	1	34	25	4	A	B MATNEY	NO ADDRESS	NO CITY	FL			76069090	202	Z	61			
333062	1	1/1/70	7/1/79	1	34	25	6	A	SHACKLEFORD	NO ADDRESS	NO CITY	FL			76085770	444	Z	59			
333164	1	1/1/70	7/1/79	3	34	25	4	A	M GILLIARD	NO ADDRESS	NO CITY	FL			77088070	202	Z	60			
338813	1	1/1/70	7/1/79	1	34	25	4	D	G WHEELER	NO ADDRESS	NO CITY	FL			78048140	157	Z	45			
339327	1	1/1/70	7/1/79	1	34	25	4	D	WAITE,G	NO ADDRESS	NO CITY	FL			78057570	196	Z	46			
340767	1	1/1/70	1/6/79	3	34	25	4	D	VICTOR KIDDER	OLD AVON PARK RD(NEW YORK	WAUCHULA	FL	33873		79000870	137	Z	42			
341290	1	1/1/70	7/1/79	2	34	25	4	D	TUCKER,J F	NO ADDRESS	NO CITY	FL			79007110	240	Z	51			
352508	1	3/25/80	8/15/80	2	34	25	4	D	J W CREWS JR	INGLIS WAY	WAUCHULA	FL	33873			204	Z	80			
366542	1	6/19/81	7/9/81	1	34	25	4	D	HAYES, DOUG	HWY 64-A EAST	WAUCHULA	FL	33873			180	Z	63			
370224	1	11/12/81	12/19/81	2	34	25	4	B	MOOSE LODGE	PO BOX 191 HWY 64 A	WAUCHULA	FL	33873			205	Z	78			
371352	1	1/6/82	4/2/82	2	34	25	4	D	SHACKLEFORD, TERRY C.	46 SHACKLEFORD RD	WAUCHULA	FL	33873			255	Z	88			
380023	1	2/24/83	11/30/83	3	34	25	4	A	DEASE, R. J.	US 17 & 35	ZOLFO SPRINGS	FL	33890			370	Z	55			
382360	1	5/24/83	8/3/83	3	34	25	2	D	KOZDEMBA, STANLEY	RT 2, BOX 422	WAUCHULA	FL	33873			187	Z	65			
389056	1	2/8/84	5/26/84	1	34	25	4	B	CHURCH OF LATTER DAY SAINTS	4823 N ROYAL ATLANTA DR	TUCKER	GA	30084			159	Z	57			
397334	1	10/16/84	2/28/85	1	34	25	4	D	DEASE, R J	302 DIANA AVE	WAUCHULA	FL	33873			156	Z	56			
398282	1	11/19/84	1/4/85	1	34	25	4	A	GRACE, KENNETH	214 51ST AVE	WAUCHULA	FL	33873			235	Z	70			
398670	1	12/3/84	1/14/85	3	34	25	4	A	MONIES, IVALEAH	307 EAST MAIN STREET	WAUCHULA	FL	33873			250	Z	84			
401320	1	3/4/85	8/16/85	1	34	25	4	A	CHURCH, L D S	S R 636	WAUCHULA	FL	33873			230	C	105			
403521	1	4/26/85	6/26/85	2	34	25	4	D	BASS, ROGER	RT 1 PINE PARK DRIVE	WAUCHULA	FL	33873			220	Z	74			
408520	1	9/26/85	1/6/86	1	34	25	4	D	TERRY SHACKLEFORD	ROUTE 3, BOX 46	WAUCHULA	FL	33873			220	Z	76			
418477	1	7/23/86	8/20/86	1	34	25	6	A	KEITH CONLEY	RT 2 BOX 171-C	WAUCHULA	FL	33873			895	A	336	273310	814540.3	
425156	1	12/11/86	12/15/86	3	34	25	2	O	CIRCLE K CORP	5650 BRECKENRIDGE PKWY #300	TAMPA	FL	33610			15	B	5			
425157	1	12/11/86	12/15/86	3	34	25	2	O	CIRCLE K CORP	5650 BRECKENRIDGE PKWY #300	TAMPA	FL	33610			15	B	5			
425158	1	12/11/86	12/15/86	3	34	25	2	O	CIRCLE K CORP	5650 BRECKENRIDGE PKWY #300	TAMPA	FL	33610			15	B	5			
425159	1	12/11/86	12/15/86	3	34	25	2	O	CIRCLE K CORP	5650 BRECKENRIDGE PKWY #300	TAMPA	FL	33610			15	B	5			
425164	1	12/11/86	12/16/86	3	34	25	2	O	CIRCLE K CORP	5650 BRECKENRIDGE PKWY #300	TAMPA	FL	33610			12	B	2			
425165	1	12/11/86	12/16/86	3	34	25	2	O	CIRCLE K CORP	5650 BRECKENRIDGE PKWY #300	TAMPA	FL	33610			12	B	2			
425166	1	12/11/86	12/16/86	3	34	25	2	O	CIRCLE K CORP	5650 BRECKENRIDGE PKWY #300	TAMPA	FL	33610			12	B	2			
425167	1	12/11/86	12/16/86	3	34	25	2	O	CIRCLE K CORP	5650 BRECKENRIDGE PKWY #300	TAMPA	FL	33610			12	B	2			
432983	1	6/2/87	6/8/87	3	34	25	4	A	WAUCHULA POST OFFICE	EAST MAIN STREET	WAUCHULA	FL	33873			360	A	105			
460396	1	6/17/88	6/6/89	2	34	25	4	D	BAGWELL, THOMAS & LOIS	97 LAKE DAMON DRIVE	AVON PARK	FL	33826			225	A	105			
463803	1	7/13/88	6/6/89	2	34	25	6	A	CANTU, STEPHEN	P O BOX 1795	WAUCHULA	FL	33873			225	A	126			
474122	1	1/11/89	2/22/89	3	34	25	2	O	HENDERSON'S EXXON	201 N. 6TH AVENUE	WAUCHULA	FL	33873			15	B	15			
474124	1	1/11/89	2/22/89	3	34	25	2	O	HENDERSON'S EXXON	201 N. 6TH AVENUE	WAUCHULA	FL	33873			15	B	15			
474125	1	1/11/89	2/22/89	3	34	25	2	Y	HENDERSON'S EXXON	201 N. 6TH AVENUE	WAUCHULA	FL	33873			15	B	15			
474126	1	1/11/89	2/22/89	3	34	25	2	O	HENDERSON'S EXXON	201 N. 6TH AVENUE	WAUCHULA	FL	33873			15	B	15			
476026	1	2/21/89	3/20/89	1	34	25	4	A	JACK D SOLES	PO BOX 1264-210 N 3RD AVE	WAUCHULA	FL	33873			250	A	51			
479509	1	5/1/89	11/3/89	2	34	25	4	D	B.G. METHODIST CHURCH	310 N. GRAPE STREET	WAUCHULA	FL	33873			235	B	54			
479510	1	5/1/89	10/1/89	2	34	25	4	A	WEBB, ETHEL	RT.3, SHACKLEFORD ROAD	WAUCHULA	FL	33873			200	B	63			
482556	1	6/26/89	6/28/89	3	34	25	2	O	SLAUGHTER MOTOR SALES	HWY 64A & HWY 17	WAUCHULA	FL	33873			10	B	10			
483314	1	7/12/89	7/27/89	1	34	25	4	D	CLIFFORD BRINSON	PO BOX 178	HAMPTON	FL	32044			211	A	98			
485167	1	8/22/89	8/27/89	3	34	25	4	A	GORDON, LEON J. & RUTH H.	P.O. BOX 204	WAUCHULA	FL	33873			55	A	41			
487382	1	10/10/89	12/2/89	1	34	25	4	D	WATSON, JUDITH	RT.2 BOX 179C.	WAUCHULA	FL	33873			273	B	77			
488023	1	10/20/89	2/8/90	1	34	25	5	A	MONEY, LEE DANIEL	P.O. BOX 332	ZOLFO SPRINGS	FL	33880			335	B	100			
488979	1	11/9/89	2/8/90	1	34	25	4	D	MONEY, LEE DANIEL	P.O. BOX 332	ZOLFO SPRINGS	FL	33890			255	B	78			
489200	1	11/14/89	1/30/90	3	34	25	10	H	CITY OF WAUCHULA	PO BOX 818	WAUCHULA	FL	33873-0818			400	B	400	273253	814807.3	
511969	1	3/22/91	4/2/91	1	34	25	4	A	HELENA CHEMICAL CORPORATION	2405 NORTH 71ST STREET	TAMPA	FL	33607			270	A	67			
513034	1	4/29/91	5/5/91	3	34	25	4	D	W MORAN	211 SOUTH 2ND AVE	WAUCHULA	FL	33873			198	B	75			
515084	1	7/10/91	7/18/91	3	34	25	2	O	QUALITY PETROLEUM CORP	PO BOX 3889-1625 GEORGE JENK	LAKELAND	FL	33802-3889			14	B	2			
515084	2	7/10/91	7/18/91	3	34	25	2	O	QUALITY PETROLEUM CORP	PO BOX 3889-1625 GEORGE JENK	LAKELAND	FL	33802-3889			14	B	2			
515084	3	7/10/91	7/18/91	3	34	25	2	O	QUALITY PETROLEUM CORP	PO BOX 3889-1625 GEORGE JENK	LAKELAND	FL	33802-3889			14	B	2			
515084	4	7/10/91	7/18/91	3	34	25	2	O	QUALITY PETROLEUM CORP	PO BOX 3889-1625 GEORGE JENK	LAKELAND	FL	33802-3889			14	B	2			
522191	1	2/25/92	3/6/92	2	34	25	5	D	BAGWELL, THOMAS & LOIS	97 LAKE DAMON DRIVE	AVON PARK	FL	33826			183	B	120			

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SWFWMD WELL INVENTORY

WCP No.	Well No.	Issued	Completed	Section	Township	Range	Diameter	Well Use Code	Owner's Name	Owner's Address	Owner's City	Owner's State	Owner's Zip	Well Location	Reference No.	Well Depth	Casing Mat'l	Case Depth	Latitude	Longitude	Pump (gpm)
522193	1	2/25/92	3/4/92	2	34	25	4	Y	BAGWELL, THOMAS & LOIS	97 LAKE DAMON DRIVE	AVON PARK	FL	33826			220	A	80			
528865	1	8/20/92	11/2/92	3	34	25	4	D	SCOTT SAUNDERS	PRIVATE DRIVE OFF HERB BRID	WAUCHULA	FL	33873			226	A	89			
540189	1	6/30/93	7/12/93	3	34	25	4	D	CHARLES JONES	120 N. FIRST AVE.	WAUCHULA	FL	33873			197	A	80			
543416	1	9/27/93	11/10/93	1	34	25	5	D	LOUIS E STEPHENS	P O BOX 813	WAUCHULA	FL	33873			200	B	80			
545501	1	11/24/93	12/1/93	3	34	25	4	U	CIRCLE K CORP	5650 BRECKENRIDGE PKWY #30	TAMPA	FL	33610			25	B	3			
545501	2	11/24/93	12/1/93	3	34	25	4	U	CIRCLE K CORP	5650 BRECKENRIDGE PKWY #30	TAMPA	FL	33610			25	B	3			
545502	1	11/24/93	12/1/93	3	34	25	4	U	CIRCLE K CORP	5650 BRECKENRIDGE PKWY #30	TAMPA	FL	33610			25	B	3			
545502	2	11/24/93	12/1/93	3	34	25	4	U	CIRCLE K CORP	5650 BRECKENRIDGE PKWY #30	TAMPA	FL	33610			25	B	3			
545502	3	11/24/93	12/1/93	3	34	25	4	U	CIRCLE K CORP	5650 BRECKENRIDGE PKWY #30	TAMPA	FL	33610			25	B	3			
545502	4	11/24/93	12/1/93	3	34	25	4	U	CIRCLE K CORP	5650 BRECKENRIDGE PKWY #30	TAMPA	FL	33610			25	B	3			
545502	5	11/24/93	12/1/93	3	34	25	4	U	CIRCLE K CORP	5650 BRECKENRIDGE PKWY #30	TAMPA	FL	33610			25	B	3			
545502	6	11/24/93	12/1/93	3	34	25	4	U	CIRCLE K CORP	5650 BRECKENRIDGE PKWY #30	TAMPA	FL	33610			25	B	3			
545502	7	11/24/93	12/1/93	3	34	25	4	U	CIRCLE K CORP	5650 BRECKENRIDGE PKWY #30	TAMPA	FL	33610			25	B	3			
545502	8	11/24/93	12/1/93	3	34	25	4	U	CIRCLE K CORP	5650 BRECKENRIDGE PKWY #30	TAMPA	FL	33610			25	B	3			
550161	1	3/29/94	3/30/94	3	34	25	4	O	SHAHA #4 INC	423 901 HIGHWAY 17 NORTH	WAUCHULA	FL	33873			12	B	2			
550161	2	3/29/94	3/30/94	3	34	25	4	O	SHAHA #4 INC	423 901 HIGHWAY 17 NORTH	WAUCHULA	FL	33873			12	B	2			
561212	1	12/9/94	12/9/94	3	34	25	2	O	CITY OF WAUCHULA	726 GREEN ST	WAUCHULA	FL	33873	SR 652 NE		12	B	2			
561212	2	12/9/94	12/9/94	3	34	25	2	O	CITY OF WAUCHULA	726 GREEN ST	WAUCHULA	FL	33873	SR 652 NE		12	B	2			
561212	3	12/9/94	12/9/94	3	34	25	2	O	CITY OF WAUCHULA	726 GREEN ST	WAUCHULA	FL	33873	SR 652 NE		12	B	2			
561212	4	12/9/94	12/9/94	3	34	25	2	O	CITY OF WAUCHULA	726 GREEN ST	WAUCHULA	FL	33873	SR 652 NE		12	B	2			
567069	1	5/8/95	5/12/95	2	34	25	4	D	EDWARD WAYNE LAMBERT	P.O. BOX 1274	ZOLFO SPRINGS	FL	33890	NORTH END OF HOWZE ROA		260	C	84			
587223	1	1/15/97	1/20/97	3	34	25	4	A	MONIES, IVALEAH	307 EAST MAIN STREET	WAUCHULA	FL	33873	CORNER OF 64A & 3RD AVEN		260	A	89			
592399	1	5/9/97	5/12/97	3	34	25	2	Y	CIRCLE K CORP	5650 BRECKENRIDGE PKWY #30	TAMPA	FL	33610	1102 E MAIN ST, WAUCHULA		15	B	2			
592399	2	5/9/97	5/12/97	3	34	25	2	Y	CIRCLE K CORP	5650 BRECKENRIDGE PKWY #30	TAMPA	FL	33610	1102 E MAIN ST, WAUCHULA		15	B	2			
592399	3	5/9/97	5/12/97	3	34	25	2	Y	CIRCLE K CORP	5650 BRECKENRIDGE PKWY #30	TAMPA	FL	33610	1102 E MAIN ST, WAUCHULA		15	B	2			
592399	4	5/9/97	5/12/97	3	34	25	2	Y	CIRCLE K CORP	5650 BRECKENRIDGE PKWY #30	TAMPA	FL	33610	1102 E MAIN ST, WAUCHULA		15	B	2			
630517	1	1/20/00	1/30/00	3	34	25	2	A	JOY FISHER	101 5TH RD AVE	WAUCHULA	FL	33873	EAST MAIN ST CORNER OF 3		56	B	22			
631050	1	2/3/00	2/3/00	1	34	25	2	O	HARDEE COUNTY REGIONAL SANATARY	AIRPORT RD	WAUCHULA	FL	33873	LANDFILL @ AIRPORT ROAD		12	B	2			
631050	2	2/3/00	2/3/00	1	34	25	2	O	HARDEE COUNTY REGIONAL SANATARY	AIRPORT RD	WAUCHULA	FL	33873	LANDFILL @ AIRPORT ROAD		12	B	2			
631050	3	2/3/00	2/3/00	1	34	25	2	O	HARDEE COUNTY REGIONAL SANATARY	AIRPORT RD	WAUCHULA	FL	33873	LANDFILL @ AIRPORT ROAD		12	B	2			
631050	4	2/3/00	2/3/00	1	34	25	2	O	HARDEE COUNTY REGIONAL SANATARY	AIRPORT RD	WAUCHULA	FL	33873	LANDFILL @ AIRPORT ROAD		12	B	2			
631395	1	2/11/00	2/15/00	3	34	25	2	O	HELENA CHEMICAL COMPANY	2486 E MAIN ST	WAUCHULA	FL	33873	2486 E MAIN ST	WBP	15	B	5			
631395	2	2/11/00	2/15/00	3	34	25	2	O	HELENA CHEMICAL COMPANY	2486 E MAIN ST	WAUCHULA	FL	33873	2486 E MAIN ST	WBP	15	B	5			
631395	3	2/11/00	2/15/00	3	34	25	2	O	HELENA CHEMICAL COMPANY	2486 E MAIN ST	WAUCHULA	FL	33873	2486 E MAIN ST	WBP	15	B	5			
631395	4	2/11/00	2/15/00	3	34	25	2	O	HELENA CHEMICAL COMPANY	2486 E MAIN ST	WAUCHULA	FL	33873	2486 E MAIN ST	WBP	15	B	5			
635012	1	4/26/00	5/12/00	1	34	25	4	A	WESLEY TATUM	2451 EDGE DR	WAUCHULA	FL	33873	2451 EDGE DR		235	B	58			
638439	1	6/22/00	7/6/00	3	34	25	2	Y	CITY OF WAUCHULA	155 GRIFFIN RD	WAUCHULA	FL	33873	SR 652 NE		10	B	10			
638439	2	6/22/00	7/6/00	3	34	25	2	Y	CITY OF WAUCHULA	155 GRIFFIN RD	WAUCHULA	FL	33873	SR 652 NE		10	B	10			
638439	3	6/22/00	7/6/00	3	34	25	2	Y	CITY OF WAUCHULA	155 GRIFFIN RD	WAUCHULA	FL	33873	SR 652 NE		10	B	10			
638439	4	6/22/00	7/6/00	3	34	25	2	Y	CITY OF WAUCHULA	155 GRIFFIN RD	WAUCHULA	FL	33873	SR 652 NE		10	B	10			
639810	1	7/24/00	9/9/00	2	34	25	4	A	MARK LAMBERT	PO BOX 1513	WAUCHULA	FL	33873-1513	SHAKELFORD ROAD		405	A	84			75
651743	1	4/23/01	4/25/01	3	34	25	2	O	CIRCLE K CORP	5650 BRECKENRIDGE PKWY #30	TAMPA	FL	33610	1102 E MAIN ST		15	B	3			
651743	2	4/23/01	4/25/01	3	34	25	2	O	CIRCLE K CORP	5650 BRECKENRIDGE PKWY #30	TAMPA	FL	33610	1102 E MAIN ST		15	B	3			
655165	1	6/21/01	6/22/01	1	34	25	4	D	ANDREW RIGNEW	311 PARK DR	WAUCHULA	FL	33873	AIRPORT ROAD		220	C	84			
666677	1	3/26/02	3/27/02	1	34	25	4	D	ROGER CONLEY	653 HANCHEY RD	WAUCHULA	FL	33873	2825 EAST MAIN STREET		260	C	92			
669997	1	5/29/02	6/16/02	1	34	25	4	D	EXIE BARNETT	127 MALEY RD	WAUCHULA	FL	33890	127 MANLEY RD		212	A	83			25
672422	1	7/17/02	7/18/02	1	34	25	4	D	ANTONIO LEON	PO BOX 2102	WACHULA	FL	33873	E MAIN/NORTH ON HWY 664		200	C	84			
677743	1	11/18/02	11/25/02	1	34	25	4	D	CHRIS & MARYLS EDLEY	2422 EDGE DR	WACHULA	FL	33873	2422 EDGE DRIVE		210	C	51.4			
678486	1	12/9/02		1	34	25	4	D	DARWIN & MARY JANE MCLEOD	PO BOX 813	WACHULA	FL	33873	454 BOYD COWART ROAD			C				

\* Shaded cells with astericks refer to the SWFWMD permits located within this attachment.

## SOUTHWEST FLORIDA WATER MANAGEMENT

## STRICT RDBS CODE TABLE DISCRIPTIONS

## WELL USE CODES

<u>CODE</u>	<u>DESCRIPTION</u>
A	AGRICULTURE
AL	AQUIFER WATER LEVELS
AQ	AQUICULTURE
AS	AQUIF. AND STORAGE RECOV.
AU	AUGMENTATION
B	PUBLIC SUPPLY
C	DEWATERING
CN	PUBLIC SUPPLY CONV. (TOP 20)
CV	PUBLIC SUPPLY CONV./ RECLASS
D	DOMESTIC
DF	DISCHARGE FLOW
E	ESSENTIAL SERVICES (FIRE PRO.)
EF	EFFLUENT WASTEWATER
F	FOUND. TEST WELL (SOIL BOR.)
G	RECHARGE/ SATELITE
GR	GROUNDING ROD
GT	GEOHERMAL WELL
H	REPAIR OR DEEPEN
HA	REPAIR OR IRRIGATION
T	TESTWELL / PIEZOMETER
U	RECOVERY
V	INVENTORY WELL
W	AIR COND. SUPPLY - HEAT PUMP
WL	WETLAND WATER LEVEL
WQ	WATER QUALITY, GENERAL
Y	PLUGGED
YY	DISMANTLED
Z	SEALING WATER
ZZ	CONVERSION USE CODE ERROR

## WELL USE CODES (CONT'D)

HB	REPAIR PUBLIC SUPPLY
HD	REPAIR DOMESTIC
HY	BACK PLUGGING
I	INDUSTRIAL
J	INJECTION WELL
K	CONNECTION WELLS
L	LIVESTOCK
LL	LAKE WATER LEVEL
M	MINING
N	RETURN AIR/ HEAT
O	OBSERVATION OR MONITOR WELL
P	POWER
PC	PUBLIC SUPPLY CONV. (NO REC.)
Q	DRAINAGE WELL
R	RECREATIONAL
RC	RECHARGE
RF	RAINFALL
RP	REPUMP
RU	REUSE
SF	STREAMFLOW
SR	REPLACEMENT WELL (SARASOTA)
SW	SALINE WATER INTRUSION



APPLICATION FOR A PERMIT TO CONSTRUCT A WELL

To: Chief Hydrologist, SWFWMD(R)  
Post Office Box 457  
Brooksville, Florida 33512  
Phone: (904) 796-3511

Date 5-10-79

(TYPE OR USE BALLPOINT PEN AND PRESS HARD)

In compliance with the Rules and Regulations of the Southwest Florida Water Management District (Regulatory)

DOUGLAS RD F 87 604 584 WINTER FL  
DRILLING CONTRACTOR NUMBER ADDRESS

requests authorization to construct a well for Rennie Gilliam

ADDRESS (MAILING) STREET OR BOX NO. Zella ZIP CODE

Well will be 4 inches in diameter. Proposed yield to be 20 GPM

Well will be constructed with  cable tool  rotary  jetted  other (specify) \_\_\_\_\_

Well will be approximately 46.8 feet deep. Well will have about 4.2 feet of casing

black pipe  galvanized  other \_\_\_\_\_

Casing will be joined by  snapping  weld  bolt. Space between casing and hole will be packed with

natural materials  best cement grout  other \_\_\_\_\_

Well will be located at 25 33 35 Harbor Ct  
SECTION TOWNSHIP RANGE STREET ADDRESS CITY

Well will be used for  private supply  public water supply  irrigation  industrial

test well  other \_\_\_\_\_

If this permit is for repair, rehabilitation or alteration of a well constructed under a previous permit, give details

\_\_\_\_\_ and indicate work to be done \_\_\_\_\_

If for modification of a pumping facility which will change quantity pumped indicate old pump \_\_\_\_\_

\_\_\_\_\_ GPM new pump \_\_\_\_\_ HP \_\_\_\_\_

I agree to furnish a log within 30 days after drilling operations cease and to comply with all provisions of the Rules and Regulations of the SWFWMD(R) and with local health regulations relative to well construction.

Signature of Drilling Contractor Paul D. [Signature]

Access to proposed well site for inspection at any reasonable time is hereby granted to personnel of Southwest Florida Water Management District (Regulatory).

Signature of Owner or his Agent Rennie Gilliam

DO NOT WRITE BELOW THIS LINE -- FOR SWFWMD USE ONLY

PERMIT TO CONSTRUCT A WELL

Review of the above application and related hydrologic data has been made by a duly authorized official of the Southwest Florida Water Management District (Regulatory) and permission for construction of this well is granted in accordance with the Rules and Regulations of SWFWMD(R).

All drilling shall be performed by, or in the presence of, a certified driller and a copy of the well log will be submitted to this office within 30 days after drilling operations cease. In addition to these provisions, compliance with the special Requirements \_\_\_\_\_ as described on the reverse side of this form, shall be required.

This permit does not require approval of storage or other waste disposal facilities, or of special requirements for such facilities in the area to be supplied by the well.

Granted by: [Signature] Date 5-15-79

Title \_\_\_\_\_

THIS PERMIT NOT VALID UNLESS PROPERLY SIGNED AND SEALED BY AN AUTHORIZED OFFICIAL OF SWFWMD(R) AND SHALL BE MAINTAINED AT THE WELL SITE DURING ALL DRILLING OPERATIONS

PROMINENTLY DISPLAYED



# DRILLING COMPLETION REPORT AND WELL LOG

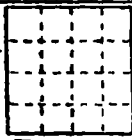
TO: Chief, Permits Department  
Post Office Box 457  
Brooksville, Florida 33572

Phone: (904) 796-3511

Form # 1  
Well started - date 5-16-75  
Well completed - date 5-20-75

Well owner: Name and Address: RONNIE GILLIARD WASHINGTON RD

Well location: County HANDLER  
26-32-26  
SECTION, TOWNSHIP, RANGE



Tests taken: by:  bacterial  chemical  none  
 County Health Department  
 other

Purpose of well:  
 domestic  public water supply  irrigation  stock  
 industrial  other \_\_\_\_\_

Pump \_\_\_\_\_ HP. Type \_\_\_\_\_  electric  diesel  
Yield \_\_\_\_\_ GPM.  Well not pumped.  Well flows above land surface  
Water level above/below land surface before pumping 30 feet. Water level lowered to \_\_\_\_\_ feet after \_\_\_\_\_ minutes pumping at \_\_\_\_\_ GPM.  
Method of drilling:  rotary  cable tool  jet  other \_\_\_\_\_  
Finish:  open hole  sand point  well screen placed at \_\_\_\_\_ feet and \_\_\_\_\_ feet. depth packer set \_\_\_\_\_ feet.

**Casing**  
(CHECK ONE)  
 galvanized  
 steel pipe  
 other \_\_\_\_\_  
(CHECK ONE)  
 standard casing  
 T&E well  
 well only  
 other \_\_\_\_\_  
**Casing**  
\_\_\_\_\_ feet  
\_\_\_\_\_ feet  
set at \_\_\_\_\_ feet below land surface

COLOR OF MATERIAL	CHARACTER OF MATERIAL <small>(NOTE EACH TYPE OF MATERIAL AND CAVITIES IF ANY)</small>	FORMATION	
		DEPTH	THICKNESS
<u>Yellow</u>	<u>SAND</u>	<u>0</u>	<u>10</u>
<u>"</u>	<u>CLAY</u>	<u>30</u>	<u>32</u>
<u>Gray</u>	<u>ROCK</u>	<u>30</u>	<u>44</u>
<u>"</u>	<u>HAWTHORNE</u>	<u>44</u>	<u>50</u>
<u>White</u>	<u>ROCK</u>	<u>50</u>	<u>53</u>
<u>Gray</u>	<u>HAWTHORNE</u>	<u>53</u>	<u>115</u>
<u>White</u>	<u>LIME</u>	<u>115</u>	<u>125</u>
<u>BROWN MATA</u>	<u>LIME</u>	<u>125</u>	<u>130</u>

USE CONTINUOUS SHEET FOR LOGS OF WELLS DEEPER THAN 200 FEET

Well Completion: A P Q ? Price A

APPLICANT NUMBER A PERMIT TO CONSTRUCT A WELL

To: Chief Hydrologist, SWFWMD(R)  
Post Office Box 457  
Brooksville, Florida 33512

Phone: (904) 796-3511

Date 5-20-70

(TYPE OR USE BALLPOINT PEN AND PRINT NAME)

In compliance with the Rules and Regulations of the Southwest Florida Water Management District (Regulatory)

Dorcas WA F 87 604 S 8th W  
OWNER CONTRACTOR NUMBER ADDRESS

requests authorization to construct a well for Ronnie Phillips  
NAME OF APPLICANT

ADDRESS 304  
CITY OR TOWN STATE ZIP

Well will be 4 inches in diameter. Proposed yield to be 30 GPM

Well will be constructed with  cable tool  rotary  jetted  other (specify) \_\_\_\_\_

Well will be approximately 170 feet deep. Well will have about 40 feet of casing

black pipe  galvanized  other \_\_\_\_\_

**SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (REGULATORY)  
DRILLER'S COMPLETION REPORT AND WELL LOG**

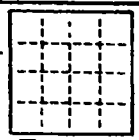
TO: Chief Hydrologist, SWFWMD(R)  
Post Office Box 457  
Brooksville, Florida 33512  
Phone: (904) 796-3511

Permit Number 72-1184-20  
Well started - date 8-13-71  
Well completed - date 9-22-71

Well owner: Name and Address H.C. Hagerty

Well location: County Hardee Tests taken:  bacterial  chemical  none  
by:  County Health Department  other

36 33 25  
SECTION, TOWNSHIP, RANGE



INDICATE WELL LOCATION IN THE SECTION

Purpose of well:  
 domestic  public water supply  irrigation  stock  
 industrial  other

Pump 1 HP. Type jet  electric  diesel  
Yield 10 GPM.  Well not pumped.  Well flows above land surface

Water level above below land surface before pumping 26 feet. Water level lowered to 26 feet after 180 minutes pumping at 1800 GPM.

Method of drilling:  rotary  cable tool  jet  other  
Finish:  open hole  sand point  well screen placed at 95 feet and      feet. depth packer set      feet

**CASING CONSTRUCTION**

(CHECK ONE)  
 galvanized  
 black iron  
 other

(CHECK ONE)  
 threaded, coupled  
 T&C, welded  
 weld only  
 other

Casing diam. ins 4"  
0 to 48 ft.  
     to      ft.  
     to      ft.  
seated at 48 ft. below land surface.

DEPTH BELOW LAND SURFACE - FEET	CHARACTER OF MATERIAL (NOTE EACH TYPE OF MATERIAL AND CAVITIES IF ANY)	FORMATION	
		CHANGE	FROM FT. TO FT.
10			
20			
30	<u>fine sand</u>		<u>0 48</u>
40			
50			
60			
70			
80			
90			
100			
110	<u>clay</u>		
120			
130			
140			
150	<u>water</u>		<u>48 150</u>
160			
170			
180	<u>Lime Rock</u>		
190	<u>water</u>		<u>150 198</u>
200			
210			
220			
230			
240			
250			
260			
270			
280			
290			
300			

CASING IN WELL

(USE CONTINUATION SHEET FOR LOG OF WELLS DEEPER THAN 300 FEET)

SWFWMD(R)  
SF 1711

Well Completed By: W.R. Jurney F240 W.R. Jurney  
DRILLER'S SIGNATURE AND NUMBER FIRM NAME

FLORIDA WATER MANAGEMENT DISTRICT (REGULATORY)  
APPLICATION FOR A PERMIT TO CONSTRUCT A WELL.

72-1184  
20

To: Chief Hydrologist, SWFWMD(R)  
Post Office Box 457 Phone: (904) 796-3511  
Brooksville, Florida 33512

Date 8-13-71

(TYPE OR USE BALLPOINT PEN AND PRESS HARD)

In compliance with the Rules and Regulations of the Southwest Florida Water Management District (Regulatory)

W.R. Turner W O F 2 4 0 Reg Wauchula  
DRILLING CONTRACTOR NUMBER ADDRESS

requests authorization to construct a well for H.C. Hagarty  
NAME OF WELL OWNER

RD 2 Box 92A Wauchula 33873  
ADDRESS (MAILING) STREET OR BOX NO. CITY ZIP CODE

Well will be 4 inches in diameter. Proposed yield to be 2.5 GPM.

Well will be constructed with  cable tool  rotary  jetted  other (specify) \_\_\_\_\_

Well will be approximately 100 feet deep. Well will have about 45 feet of casing

black pipe  galvanized  other \_\_\_\_\_

Casing will be joined by  coupling  weld  both. Space between casing and hole will be sealed with:

structural materials  neat cement grout  other \_\_\_\_\_

Well will be located at 36-33-25 Wauchula Hardee  
SECTION, TOWNSHIP, RANGE AND STREET ADDRESS CITY COUNTY 25

Well will be used for  private supply  public water supply  irrigation  industrial

test well  other \_\_\_\_\_

If this permit is for repair, modification or alteration of a well constructed under a previous permit give number

\_\_\_\_\_ and indicate work to be done \_\_\_\_\_

If for modification of a pumping facility which will change quantity pumped indicate old pump \_\_\_\_\_ HP

\_\_\_\_\_ GPM. new pump \_\_\_\_\_ HP \_\_\_\_\_ GPM.

I agree to furnish a log within 30 days after drilling operations cease and to comply with all provisions of the Rules and Regulations of the SWFWMD(R) and with local health regulations relative to well construction.

Signature of Drilling Contractor W.R. Turner

Access to proposed well site for inspection at any reasonable time is hereby granted personnel of Southwest Florida Water Management District (Regulatory).

Signature of Owner or his Agent H.C. Hagarty

DO NOT WRITE BELOW THIS LINE -- FOR SWFWMD(R) USE ONLY

PERMIT TO CONSTRUCT A WELL

Review of the above application and related hydrologic data has been made by a duly authorized official of the Southwest Florida Water Management District (Regulatory) and permission for construction of this well is granted in accordance with the Rules and Regulations of SWFWMD(R).

All drilling shall be performed by, or in the presence of, a certified driller and a copy of the well log will be submitted to this office within 30 days after drilling operations cease. In addition to these provisions, compliance with the special item number(s) \_\_\_\_\_, as described on the reverse side of this form, shall be required.

This permit does not imply approval of sewage or other waste disposal facilities, or of water supply and other facilities in the area to be supplied by the well.

Granted by: Herbert S. Doughty Date 8-16-71

Title: Chief Sps

THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED AND SEALED BY AN AUTHORIZED OFFICER OF SWFWMD(R) AND

**SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (REGULATORY)  
DRILLING COMPLETION REPORT AND WELL LOG**

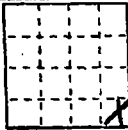
TO: Chief Hydrologist, SWFWMD(R)  
Post Office Box 457  
Brooksville, Florida 33512

Phone: (904) 796-3511

Permit Number 72-12153-6  
Well started - date 7-4-72  
Well completed - date 7-27-72

Well owner: Name and Address: CATALINA CONSTRUCTION, INC.  
(FOR: RONALD DRISKELL) P.O. BOX 2796, WINTER HAVEN, FL 33880

Well location: County HARDEE  
36-33-25  
SECTION, TOWNSHIP, RANGE



Tests taken:  bacterial  chemical  none  
by:  County Health Department  
 other

Purpose of well:  
 domestic  public water supply  irrigation  stock  
 industrial  other

Pump 3/4 HP. Type submersible  electric  diesel  
Yield 13 GPM.  Well not pumped.  Well flows above land surface  
Water level above/below land surface before pumping 42 feet. Writer:

level lowered to      feet after      minutes pumping at      GPM.

Method of drilling:  rotary  cable tool  jet  other  
Finish:  open hole  sand point  well screen placed at      feet.  
and      feet.  
depth packer set      feet.

**CASING CONSTRUCTION**

(CHECK ONE)  
 galvanized  
 black iron  
 other

(CHECK ONE)  
 threaded, coupled  
 T&C, welded  
 weld only  
 other

Casing diam. ins.  
4 to      ft.  
     to      ft.  
     to      ft.  
seated at 61 ft.  
below land surface.

COLOR OF MATERIAL	CHARACTER OF MATERIAL (NOTE EACH TYPE OF MATERIAL AND CAVITIES IF ANY)	FORMATION	
		CHANGE	FROM FT. TO FT.
Brown	Sand		0 12
White	Sand		12 21
White	Sandy clay		21 34
Grey	Clay		34 60
Black & white	Rock		60 66
Grey	Clay		66 74
Brown	Rock		74 76
Grey	Clay		76 92
Brown	Rock		92 96
White	Clay		96 128
Brown	Rock		128 132
White	Clay		132 140
Brown	Rock		140 145
White	Clay		145 150
Brown	Rock		150 168

(USE CONTINUATION SHEET FOR LOG OF WELLS DEEPER THAN 300 FEET)

Well Completed By: C. L. Dickie 0576 C. D. Connor & Sons  
DRILLER'S SIGNATURE AND NUMBER FIRM NAME

FLORIDA WATER MANAGEMENT DISTRICT (REGULATORY)  
APPLICATION FOR A PERMIT TO CONSTRUCT A WELL.

To: Chief Hydrologist, SWFWMD(R)  
Post Office Box 457  
Brooksville, Florida 33512  
Phone: (904) 796-3511

Date 6-29-72

(TYPE OR USE BALLPOINT PEN AND PRESS HARD)

In compliance with the Rules and Regulations of the Southwest Florida Water Management District (Regulatory)

C. D. CANNON & SONS, INC. F-31 130815 FORT MEADE, FL 33841  
DRILLING CONTRACTOR NUMBER ADDRESS

requests authorization to construct a well for CATALINA CONST. CO. FOR RONALD DRISKELL  
NAME OF WELL OWNER

P.O. BOX 2796 WINTER HAVEN, FL 33880  
ADDRESS (MAILING) STREET OR BOX NO. CITY ZIP CODE

Well will be 4 inches in diameter. Proposed yield to be 20 GPM.

Well will be constructed with  cable tool  rotary  jetted  other (specify) \_\_\_\_\_

Well will be approximately 150 feet deep. Well will have about 80 feet of casing

black pipe  galvanized  other \_\_\_\_\_

Casing will be joined by  coupling  weld  both. Space between casing and hole will be sealed with:

natural materials  neat cement grout  other \_\_\_\_\_

Well will be located at 36-33-25 HARDEE  
SECTION, TOWNSHIP, RANGE AND STREET ADDRESS CITY COUNTY

Well will be used for  private supply  public water supply  irrigation  industrial

test well  other \_\_\_\_\_

If this permit is for repair, modification or alteration of a well constructed under a previous permit give number

\_\_\_\_\_ and indicate work to be done \_\_\_\_\_

If for modification of a pumping facility which will change quantity pumped indicate old pump \_\_\_\_\_ HP

\_\_\_\_\_ GPM. new pump \_\_\_\_\_ HP \_\_\_\_\_ GPM.

I agree to furnish a log within 30 days after drilling operations cease and to comply with all provisions of the Rules and Regulations of the SWFWMD(R) and with local health regulations relative to well construction.

Signature of Drilling Contractor J. C. Cannon

Access to proposed well site for inspection at any reasonable time is hereby granted personnel of Southwest Florida Water Management District (Regulatory).

Signature of Owner or his Agent George T. Whaley

DO NOT WRITE BELOW THIS LINE -- FOR SWFWMD(R) USE ONLY

PERMIT TO CONSTRUCT A WELL

72-12152

Review of the above application and related hydrologic data has been made by a duly authorized official of the Southwest Florida Water Management District (Regulatory) and permission for construction of this well is granted in accordance with the Rules and Regulations of SWFWMD(R). 20

All drilling shall be performed by, or in the presence of, a certified driller and a copy of the well log will be submitted to this office within 30 days after drilling operations cease. In addition to these provisions, compliance with the special item number(s) \_\_\_\_\_, as described on the reverse side of this form, shall be required.

This permit does not imply approval of sewage or other waste disposal facilities, or of water supply and other facilities in the area to be supplied by the well.

Granted by: B. L. Baker Date 6-30-72

Title Chief

THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED AND SEALED BY AN AUTHORIZED OFFICER OF SWFWMD(R) AND W T R I N A D

PROMINENTLY DISPLAYED

**SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (REGULATORY)  
DRILLER'S COMPLETION REPORT AND WELL LOG**

TO: Chief, Permits Department  
Post Office Box 457  
Brooksville, Florida 33512

Phone: (904) 796-3511

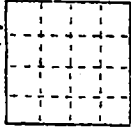
Permit Number 23-06328-20  
Well started - date 12/20/73  
Well completed - date 12/26/73

Well owner: Name and Address RONALD GILLIARD

Well location: County HARDEE

Tests taken:  bacterial  chemical  none  
by:  County Health Department  
 other

Sec. 26 T-33-R-25E  
SECTION, TOWNSHIP, RANGE



INDICATE WELL LOCATION IN THE SECTION

Purpose of well:

- domestic  public water supply  irrigation  stock  
 industrial  other

Pump \_\_\_\_\_ HP. Type \_\_\_\_\_  electric  diesel  
Yield \_\_\_\_\_ GPM.  Well not pumped.  Well flows above land surface

Water level above/below land surface before pumping 28 feet. Water

level lowered to \_\_\_\_\_ feet after \_\_\_\_\_ minutes pumping at \_\_\_\_\_ GPM.

Method of drilling:  rotary  cable tool  jet  other  
Finish:  open hole  sand point  well screen placed at \_\_\_\_\_ feet.  
and \_\_\_\_\_ feet.  
depth packer set \_\_\_\_\_ feet.

**CASING CONSTRUCTION**

(CHECK ONE)

- galvanized  
 black iron  
 other

(CHECK ONE)

- threaded, coupled  
 T&C, welded  
 weld only  
 other

Casing diam. ins.  
40 to 40 ft.  
\_\_\_\_\_ to \_\_\_\_\_ ft.  
\_\_\_\_\_ to \_\_\_\_\_ ft.  
seated at \_\_\_\_\_ ft.  
below land surface.

COLOR OF MATERIAL	CHARACTER OF MATERIAL (NOTE EACH TYPE OF MATERIAL AND CAVITIES IF ANY)	FORMATION	
		CHANGE FROM	TO
WHITE	ROCK	40'	41'
BLUE	CLAY + ROCK	41'	65'
	ROCK	65'	75'
BLUE	CLAY + ROCK	75'	84'
BLACK + GRAY	ROCK	84'	91'
BLUE	CLAY + ROCK	91'	95'
	HAWTHORNE	95'	101'
WHITE	ROCK	101'	102'
	HAWTHORNE	102'	107'
WHITE	ROCK	107'	108'
	HAWTHORNE	108'	135'
WHITE	ROCK	135'	136'
	HAWTHORNE	136'	139'
GRAY	ROCK	139'	144'
	HAWTHORNE	144'	150'
BROWN	LIME ROCK	150'	197'

(USE CONTINUATION SHEET FOR LOG OF WELLS DEEPER THAN 300 FEET)

Well Completed By: Ronald Souwick D-608 DOUGLAS W.D.  
DRILLER'S SIGNATURE AND NUMBER FIRM NAME

SWFWMD (R) FLORIDA WATER MANAGEMENT DISTRICT (REGULATORY)  
APPLICATION FOR A PERMIT TO CONSTRUCT A WELL

To: Chief Hydrologist, SWFWMD(R)  
Post Office Box 457 Phone: (904) 796-3511  
Brooksville, Florida 33512

Date Dec. 20 1972

(TYPE OR USE BALLPOINT PEN AND PRESS HARD)

In compliance with the Rules and Regulations of the Southwest Florida Water Management District (Regulatory)

Carl Douglas DRILLING CONTRACTOR  
31 ESB NUMBER  
S. 8th St. Wanchula ADDRESS

requests authorization to construct a well for Ronald Hilliard NAME OF WELL OWNER

ADDRESS (MAILING) STREET OR BOX NO. Wanchula, Fla CITY 33873 ZIP CODE

Well will be 4 inches in diameter. Proposed yield to be 60 GPM.

Well will be constructed with  cable tool  rotary  jetted  other (specify) \_\_\_\_\_

Well will be approximately 120 feet deep. Well will have about 60 feet of casing

black pipe  galvanized  other \_\_\_\_\_

Casing will be joined by  coupling  weld  both. Space between casing and hole will be sealed with:

natural materials  neat cement grout  other \_\_\_\_\_

Well will be located at 36 33 25 East SECTION, TOWNSHIP, RANGE AND STREET ADDRESS Hendee CITY COUNTY

Well will be used for  private supply  public water supply  irrigation  industrial

test well  other \_\_\_\_\_

If this permit is for repair, modification or alteration of a well constructed under a previous permit give number \_\_\_\_\_ and indicate work to be done \_\_\_\_\_

If for modification of a pumping facility which will change quantity pumped indicate old pump \_\_\_\_\_ HP \_\_\_\_\_ GPM. new pump \_\_\_\_\_ HP \_\_\_\_\_ GPM.

I agree to furnish a log within 30 days after drilling operations cease and to comply with all provisions of the Rules and Regulations of the SWFWMD(R) and with local health regulations relative to well construction.

Signature of Drilling Contractor Carl Douglas

Access to proposed well site for inspection at any reasonable time is hereby granted personnel of Southwest Florida Water Management District (Regulatory).

Signature of Owner or his Agent Ronald Hilliard

DO NOT WRITE BELOW THIS LINE -- FOR SWFWMD(R) USE ONLY

PERMIT TO CONSTRUCT A WELL

79-06328 20

Review of the above application and related hydrologic data has been made by a duly authorized official of the Southwest Florida Water Management District (Regulatory) and permission for construction of this well is granted in accordance with the Rules and Regulations of SWFWMD(R).

All drilling shall be performed by, or in the presence of, a certified driller and a copy of the well log will be submitted to this office within 30 days after drilling operations cease. In addition to these provisions, compliance with the special item number(s) \_\_\_\_\_, as described on the reverse side of this form, shall be required.

This permit does not imply approval of sewage or other waste disposal facilities, or of water supply and other facilities in the area to be supplied by the well.

Granted by: B. H. Baker Date 12-26-72

Title Tech

THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED AND SEALED BY AN AUTHORIZED OFFICER OF SWFWMD(R) AND

PROMINENTLY DISPLAYED



**SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (REGULATORY)  
DRILLER COMPLETION REPORT AND WELL LOG**

584-

TO: Chief, Permits Department  
Post Office Box 457  
Brooksville, Florida 33512

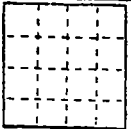
Phone: (904) 796-3511

Permit Number 73-05389-20  
Well started - date 12-26-72  
Well completed - date 1-20-73

Well owner: Name and Address Edward B. Brown Rt. 2 Brooksville Fla 33823

Well location: County Hardee

36 33 25  
SECTION, TOWNSHIP, RANGE



Tests taken by:  bacterial  chemical  none  
 County Health Department  
 other

Purpose of well:

- domestic  public water supply  irrigation  stock  
 industrial  other

Pump 7 1/2 HP. Type Sub  electric  diesel  
Yield 150 GPM.  Well not pumped.  Well flows above land surface

Water level above/below land surface before pumping 40 feet. Water

level lowered to \_\_\_\_\_ feet after \_\_\_\_\_ minutes pumping at \_\_\_\_\_ GPM.

Method of drilling:  rotary  cable tool  jet  other

Finish:  open hole  sand point  well screen placed at \_\_\_\_\_ feet.  
depth packer set 64 feet.

**CASING CONSTRUCTION**

(CHECK ONE)

- galvanized  
 black iron  
 other

(CHECK ONE)

- threaded, coupled  
 T&C, welded  
 weld only  
 other

Casing diam. ins.

\_\_\_\_\_ to \_\_\_\_\_ ft.  
\_\_\_\_\_ to \_\_\_\_\_ ft.  
6 to \_\_\_\_\_ ft.  
seated at 75 ft.  
below land surface.

COLOR OF MATERIAL	CHARACTER OF MATERIAL (NOTE EACH TYPE OF MATERIAL AND CAVITIES IF ANY)	FORMATION		
		CHANGE	FROM FT.	TO FT.
Sandy clay		7	0	26
Sandy red clay			26	40
Stiff clay			40	67
lime-rock			67	69
lime clay			69	73
lime-silt			73	78
white lime			78	112
lime-silt			112	116
lime-silt with water			116	134
white lime			134	148
lime-silt with water			148	162
lime-silt with water			162	180
lime-silt			180	260
lime-silt			260	366
lime-silt			366	343
lime-silt with water			343	370
lime-silt			370	391
lime-silt			391	400

(USE CONTINUATION SHEET FOR LOG OF WELLS DEEPER THAN 300 FEET)

SFWMD(R)  
SF1711

Well Completed By: E. M. Keenan, Jr. E. M. Keenan & Sons  
DRILLER'S SIGNATURE AND NUMBER FIRM NAME

**SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (REGULATORY)  
APPLICATION FOR A PERMIT TO CONSTRUCT A WELL**

To: Chief Hydrologist, SWFWMD(R)  
Post Office Box 457 Phone: (904) 796-3511  
Brooksville, Florida 33512

Date Nov 24 72

(TYPE OR USE BALLPOINT PEN AND PRESS HARD)

In compliance with the Rules and Regulations of the Southwest Florida Water Management District (Regulatory)

H.M. Keene & Sons F.H.O. Permit 1 Wausonville 33875  
DRILLING CONTRACTOR NUMBER ADDRESS

requests authorization to construct a well for Edward R. Brown  
NAME OF WELL OWNER

R#2 ADDRESS (MAILING) STREET OR BOX NO. Wausonville Fla. 33875  
CITY ZIP CODE

Well will be 6 inches in diameter. Proposed yield to be 150 GPM.

Well will be constructed with  cable tool  rotary  jetted  other (specify) \_\_\_\_\_

Well will be approximately 400 feet deep. Well will have about 80 feet of casing

black pipe  galvanized  other \_\_\_\_\_

Casing will be joined by  coupling  weld  both. Space between casing and hole will be sealed with:

natural materials  neat cement grout  other \_\_\_\_\_

Well will be located at 36 33 25 SECTION, TOWNSHIP, RANGE AND Wausonville CITY Hardee COUNTY

Well will be used for  private supply  public water supply  irrigation  industrial 25  
 test well  other \_\_\_\_\_

If this permit is for repair, modification or alteration of a well constructed under a previous permit give number \_\_\_\_\_ and indicate work to be done \_\_\_\_\_

If for modification of a pumping facility which will change quantity pumped indicate old pump \_\_\_\_\_ HP \_\_\_\_\_ GPM. new pump \_\_\_\_\_ HP \_\_\_\_\_ GPM.

I agree to furnish a log within 30 days after drilling operations cease and to comply with all provisions of the Rules and Regulations of the SWFWMD(R) and with local health regulations relative to well construction.

Signature of Drilling Contractor H.M. Keene

Access to proposed well site for inspection at any reasonable time is hereby granted personnel of Southwest Florida Water Management District (Regulatory).

Signature of Owner or his Agent George J. Blay

DO NOT WRITE BELOW THIS LINE -- FOR SWFWMD(R) USE ONLY SBH

**PERMIT TO CONSTRUCT A WELL**

73-05389 20

Review of the above application and related hydrologic data has been made by a duly authorized official of the Southwest Florida Water Management District (Regulatory) and permission for construction of this well is granted in accordance with the Rules and Regulations of SWFWMD(R).

All drilling shall be performed by, or in the presence of, a certified driller and a copy of the well log will be submitted to this office within 30 days after drilling operations cease. In addition to these provisions, compliance with the special item number(s) 2, as described on the reverse side of this form, shall be required.

This permit does not imply approval of sewage or other waste disposal facilities, or of water supply and other facilities in the area to be supplied by the well.

Granted by: Herold R. August Date 11-27-72

Title: \_\_\_\_\_

THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED AND SEALED BY AN AUTHORIZED OFFICER OF SWFWMD(R) AND

**PROMINENTLY DISPLAYED**



FLORIDA WATER MANAGEMENT DISTRICT (REGULATORY)  
APPLICATION FOR A PERMIT TO CONSTRUCT A WELL

To: Chief Hydrologist, SWFWMD(R)  
Post Office Box 457  
Brooksville, Florida 33512  
Phone: (904) 796-3511

Date 1-29-73

(TYPE OR USE BALLPOINT PEN AND PRESS HARD)

In compliance with the Rules and Regulations of the Southwest Florida Water Management District (Regulatory)

CARL DOUGLAS F 87 604 S. 8TH AVE. WAUCHA  
DRILLING CONTRACTOR NUMBER ADDRESS

requests authorization to construct a well for RONALD GILLIARD  
NAME OF WELL OWNER

ADDRESS (MAILING) STREET OR BOX NO. CITY ZIP CODE

Well will be 4 inches in diameter. Proposed yield to be 30 GPM.

Well will be constructed with  cable tool  rotary  jetted  other (specify) \_\_\_\_\_

Well will be approximately 200 feet deep. Well will have about 50 feet of casing

black pipe  galvanized  other \_\_\_\_\_

Casing will be joined by  coupling  weld  both. Space between casing and hole will be sealed with:

natural materials  neat cement grout  other \_\_\_\_\_

Well will be located at 36 33 25 SECTION, TOWNSHIP, RANGE AND HARDEE CITY COUNTY

Well will be used for  private supply  public water supply  irrigation  industrial  
 test well  other \_\_\_\_\_

If this permit is for repair, modification or alteration of a well constructed under a previous permit give number \_\_\_\_\_ and indicate work to be done \_\_\_\_\_

If for modification of a pumping facility which will change quantity pumped indicate old pump \_\_\_\_\_ HP  
\_\_\_\_\_ GPM. new pump \_\_\_\_\_ HP \_\_\_\_\_ GPM.

I agree to furnish a log within 30 days after drilling operations cease and to comply with all provisions of the Rules and Regulations of the SWFWMD(R) and with local health regulations relative to well construction.

Signature of Drilling Contractor Carl Douglas

Access to proposed well site for inspection at any reasonable time is hereby granted personnel of Southwest Florida Water Management District (Regulatory).

Signature of Owner or his Agent Ronald Gilliard

DO NOT WRITE BELOW THIS LINE -- FOR SWFWMD(R) USE ONLY

PERMIT TO CONSTRUCT A WELL

73-07602 20

Review of the above application and related hydrologic data has been made by a duly authorized official of the Southwest Florida Water Management District (Regulatory) and permission for construction of this well is granted in accordance with the Rules and Regulations of SWFWMD(R).

All drilling shall be performed by, or in the presence of, a certified driller and a copy of the well log will be submitted to this office within 30 days after drilling operations cease. In addition to these provisions, compliance with the special item number(s) \_\_\_\_\_, as described on the reverse side of this form, shall be required.

This permit does not imply approval of sewage or other waste disposal facilities, or of water supply and other facilities in the area to be supplied by the well.

Granted by: Richard P. Taylor Date 1-30-73

Title \_\_\_\_\_

THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED AND SEALED BY AN AUTHORIZED OFFICER OF SWFWMD(R) AND SHALL BE MAINTAINED AT THE WELL SITE DURING ALL DRILLING OPERATIONS.

PROMINENTLY DISPLAYED



FLORIDA WATER MANAGEMENT DISTRICT (REGULATORY)  
APPLICATION FOR A PERMIT TO CONSTRUCT A WELL

To: Chief Hydrologist, SWFWMD(R)  
Post Office Box 457  
Brooksville, Florida 33512  
Phone: (904) 796-3511

Date: 1-29-73

(TYPE OR USE BALLPOINT PEN AND PRESS HARD)

In compliance with the Rules and Regulations of the Southwest Florida Water Management District (Regulatory)

CARL DOUGLAS DRILLING CONTRACTOR F-87 NUMBER 604 S. 8TH AVE ADDRESS

requests authorization to construct a well for RONALD GILLIARD NAME OF WELL OWNER

ADDRESS (MAILING) STREET OR BOX NO. CITY ZIP CODE

Well will be 4 inches in diameter. Proposed yield to be 30 GPM.

Well will be constructed with [X] cable tool [ ] rotary [ ] jetted [ ] other (specify)

Well will be approximately 60 feet deep. Well will have about 60 feet of casing

[X] black pipe [ ] galvanized [ ] other

Casing will be joined by [X] coupling [ ] weld [ ] both. Space between casing and hole will be sealed with

[X] natural materials [ ] neat cement grout [ ] other

Well will be located at 36 33 25 SECTION, TOWNSHIP, RANGE AND STREET ADDRESS CITY HARDEE COUNTY

Well will be used for [X] private supply [ ] public water supply [ ] irrigation [ ] industrial

[ ] test well [ ] other

If this permit is for repair, modification or alteration of a well constructed under a previous permit give number and indicate work to be done

If for modification of a pumping facility which will change quantity pumped indicate old pump HP GPM new pump HP GPM

I agree to furnish a log within 30 days after drilling operations cease and to comply with all provisions of the Rules and Regulations of the SWFWMD(R) and with local health regulations relative to well construction.

Signature of Drilling Contractor Carl Douglas

Access to proposed well site for inspection at any reasonable time is hereby granted personnel of Southwest Florida Water Management District (Regulatory).

Signature of Owner or his Agent Ronald Gilliard

DO NOT WRITE BELOW THIS LINE -- FOR SWFWMD(R) USE ONLY

PERMIT TO CONSTRUCT A WELL 73-07603 20

Review of the above application and related hydrologic data has been made by a duly authorized official of the Southwest Florida Water Management District (Regulatory) and permission for construction of this well is granted in accordance with the Rules and Regulations of SWFWMD(R).

All drilling shall be performed by, or in the presence of, a certified driller and a copy of the well log will be submitted to this office within 30 days after drilling operations cease. In addition to these provisions, compliance with the special item number(s) as described on the reverse side of this form, shall be required

This permit does not imply approval of sewage or other waste disposal facilities, or of water supply and other facilities in the area to be supplied by the well.

Granted by: [Signature] Date: 1-30-73

Title:

THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED AND SEALED BY AN AUTHORIZED OFFICER OF SWFWMD(R) AND SHALL BE MAINTAINED AT THE WELL SITE DURING ALL DRILLING OPERATIONS

PROMINENTLY DISPLAYED

**STATE OF FLORIDA**  
**WATER WELL CONTRACTOR'S NOTIFICATION**  
**OF CONSTRUCTION OR REPAIR OF A WATER WELL**  
 DEPARTMENT OF NATURAL RESOURCES  
 DIVISION OF INTERIOR RESOURCES  
 505 Lucas Building, Tallahassee, Florida 32304  
 Telephone: (904) 486-6476

Form 747353-20

Owner's Well Identification

No. **5466**

1. OWNER: RONALD GILLIARD  
 Name  
WAUCHULA FLA  
 Address City State

2. LOCATION OF WELL: LAREDALE ROAD  
 Street Address/Road  
WAUCHULA HARDEE  
 City County  
 Subdivision 36 Lot No. 26  
 Section 33 Township 25

3. PURPOSE OF WELL:  
 Domestic  Irrigation  Public Supply  
 Industrial  Stock  Other

4. TYPE OF WORK:  
 New Well  Drilling  Other  
 Deepening  Reconditioning

5. QUALITY:  
 Clear  Colored  Salty  Silty  Other  
 CHECK TEST MADE  
 None  Bacteria  Test By:  County Health Dept.  State Health Dept.  U.S.G.S.  Other  
 Chemical  Chloride  FPM (Check  if test was for sodium chloride)  
 Temperature \_\_\_\_\_  
 Well Disinfected  Yes  No

6. EQUIPMENT:  
 Rotary  Cable Tool  Other  
 Jet  Reverse Rotary

7. GROUT:  None  Cement  Other  
 Describe and give number of bags (50#) From (ft) To (ft)

8. CASING AND LINER PIPE:  
 Diameter (Inches) 4" BLACK T&P Kind 0 From (ft) 0 To (ft) 80  
 (Check One)  Threaded & Coupled  Welded Only  
 T & C & Welded  Other

9. WATER LEVEL:  
 Water level after well completed 4.5 feet  
 Above  Below land surface  
 Well Flowing:  Yes  No Flow \_\_\_\_\_ gal/min

10. SCREENS:  
 Make Materials Diameter (In) Slot Size From (ft) To (ft) Location (ft) Below Surface

11. UPPER END OF WELL:  
 Pump Installed  Valve  Cap  Other

12. PUMPING TEST:  
 Date \_\_\_\_\_  
 Test Pump  Permanent Pump  
 Measure point is \_\_\_\_\_  
 which is \_\_\_\_\_ feet  above  below land surface  
 Static water level \_\_\_\_\_ feet  above  below measure point  
 Maximum Drawdown \_\_\_\_\_ feet below measure point  
 Discharge at maximum drawdown \_\_\_\_\_ gal/min  
 After \_\_\_\_\_ hours

13. PUMP INSTALLED:  
 Type \_\_\_\_\_ Make SPARS Model No. \_\_\_\_\_  
 Motor Power 3/4 HP Make ELSC H.P. 5  
 Capacity \_\_\_\_\_ Gal/min at \_\_\_\_\_ ft. of total dynamic head  
 No. of bowls or stages \_\_\_\_\_  
 Pump setting 5.5 feet

14. WELL LOG:

Well logs (ft)	Depth (feet)		Note each type of material, including casing, and size if any. Give quantities of logs less than 100 ft intervals and all changes.
	From	To	
	0	30	SAND BROWN
	30	49	CLAY GREEN
	49	52	ROCK, WHITE
	52	80	CLAY GRAY
	80	130	ROCK, WHITE
	130	158	LIME BROWN
			158' BOTTOM OF HOLE

15. CONTRACTOR'S CERTIFICATION:  
 This work was done under my supervision and this report is true to the best of my knowledge and belief. The work commenced on 5-25-74 and was completed on 6-30-74  
DOUGLAS WID 1065  
 Contractor  
Paul Douglas 804 S  
 F.R. No. 2  
WAUCHULA HARDEE FLA  
 City  
7734615 Paul Douglas  
 Phone Number

**SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (REGULATORY)**  
**APPLICATION FOR A PERMIT TO CONSTRUCT A WELL**

To Chief, Permits Department  
Post Office Box 457  
Brooksville, Florida 33512

Phone: (904) 796-3511

Date Jan 18 - 74

(FILL IN INK OR BALLPOINT PEN AND PRESS HARD)

In compliance with the Rules and Regulations of the Southwest Florida Water Management District (Regulatory)

DOUGLAS WD 1065 604 S W VAUGHN  
DRILLING CONTRACTOR NUMBER ADDRESS

requests authorization to construct a well for RONNIE GINNARD  
NAME OF WELL OWNER  
VAUGHN FLA  
ADDRESS (MAILING STREET OR BOX NO.) CITY 33203

Well will be 4 inches in diameter. Proposed yield to be 30 GPM

Well will be constructed with  cable tool  rotary  jetted  other (specify) \_\_\_\_\_

Well will be approximately 160 feet deep. Well will have about 20-50 feet of casing

black pipe  galvanized  other \_\_\_\_\_

Casing will be joined by  coupling  weld  both. Space between casing and hole will be sealed with:

natural materials  neat cement grout  other \_\_\_\_\_

Well will be located at X 36 33 525 E HARRIS  
SECTION TOWNSHIP RANGE AND STREET ADDRESS CITY

Well will be used for  private supply  public water supply  irrigation  industrial 35

test well  other New Home

If this permit is for repair, modification or alteration of a well constructed under a previous permit give number \_\_\_\_\_

\_\_\_\_\_ and indicate work to be done \_\_\_\_\_

If for modification of a pumping facility which will change quantity pumped indicate old pump \_\_\_\_\_ HP

\_\_\_\_\_ GPM. new pump \_\_\_\_\_ HP \_\_\_\_\_ GPM

I agree to furnish a log within 30 days after drilling operations cease and to comply with all provisions of the Rules and Regulations of the SWFWMD(R) and with local health regulations relative to well construction.

Signature of Drilling Contractor Carl Douglas

Access to proposed well site for inspection at any reasonable time is hereby granted personnel of Southwest Florida Water Management District (Regulatory).

Signature of Owner or his Agent Ronald Gilliard

**DO NOT WRITE BELOW THIS LINE -- FOR SWFWMD(R) USE ONLY**

**PERMIT TO CONSTRUCT A WELL** 74-7955-20

Review of the above application and related hydrologic data has been made by a duly authorized official of the Southwest Florida Water Management District (Regulatory) and permission for construction of this well is granted in accordance with the Rules and Regulations of SWFWMD(R).

All drilling shall be performed by, or in the presence of, a certified driller and a copy of the well log will be submitted to this office within 30 days after drilling operations cease. In addition to these provisions, compliance with the special item number(s) \_\_\_\_\_, as described on the reverse side of this form, shall be required

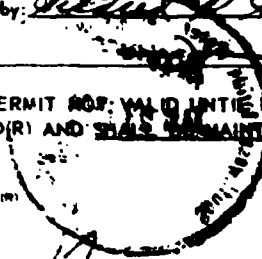
This permit does not imply approval of sewage or other waste disposal facilities, or of water supply and other facilities in the area to be supplied by the well.

Granted by: Richard J. Hager Date 1-21-74

Title \_\_\_\_\_

THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED AND SEALED BY AN AUTHORIZED OFFICER OF SWFWMD(R) AND SHALL BE MAINTAINED AT THE WELL SITE DURING ALL DRILLING OPERATIONS

**PROMINENTLY DISPLAYED**





STATE OF FLORIDA  
 WATER WELL CONTRACTOR'S NOTIFICATION  
 OF CONSTRUCTION OR REPAIR OF A WATER WELL  
 DEPARTMENT OF NATURAL RESOURCES  
 DIVISION OF INTERIOR RESOURCES  
 505 Larson Building, Tallahassee, Florida 32304  
 Telephone: (904) 488-8476

Permit No. 74-13042-20

Owner's Well Identification \_\_\_\_\_

No. 24523

State Well Number  
 For Department Use  
 ONLY

1. OWNER: RONALD GILLIARD  
 Name  
ZOLEC BLD. CONT. FLA  
 Address City State

2. LOCATION OF WELL: LAKE DALE  
 Street Address/Road  
HARDEE  
 City County  
 Subdivision Lot No.  
36 33 25  
 Section Township Range

3. PURPOSE OF WELL:  
 Domestic  Industrial  Irrigation Stock  Public Supply  Other

4. TYPE OF WORK:  
 New Well  Deepening  Plugging  Reconditioning  Other

5. QUALITY  
 Clear  Colored  Sulfur  Salty  Other  
 CHECK TEST MADE  
 None  Bacteria  Chemical  Chloride \_\_\_\_\_ PPM  
 (Check \_\_\_\_\_ if test was for sodium chloride)  
 Temperature \_\_\_\_\_  
 Well Disinfected  Yes  No

6. EQUIPMENT:  
 Rotary Jet  Cable Tool  Other  
 Reverse Rotary

7. GROUT:  
 None  Cement  Other  
 Describe and give number of bags (94lb.) From (ft) To (ft)

8. CASING AND LINER PIPE:  
 Diameter (inches) Kind From (ft) To (ft)  
4 6 50  
 (Check One)  Threaded & Coupled  Welded Only  
 T & C Welded  Other

9. WATER LEVEL:  
 Water level after well completed 50 feet  
 Above  below land surface  
 Well Flowing:  Yes  No Flow \_\_\_\_\_ gal/min

10. SCREENS:  
 Make Materials Diameter (in) Slot Size Location (ft) Below Surface  
 From (ft) To (ft)

11. UPPER END OF WELL:  
 Pump installed  Valve  Cap  Other

12. PUMPING TEST:  
 Date \_\_\_\_\_  
 Test Pump  Permanent Pump  
 Measure point is \_\_\_\_\_  
 which is \_\_\_\_\_ feet  above  below land surface  
 Static water level \_\_\_\_\_ feet  above  below measure point  
 Maximum Drawdown \_\_\_\_\_ feet below measure point  
 Discharge at maximum drawdown \_\_\_\_\_ gal/min  
 After \_\_\_\_\_ hours

13. PUMP INSTALLED:  
 Type SVR Make SEARS Model No. \_\_\_\_\_  
 Motor Power 1/2 H.P. 5  
 Capacity \_\_\_\_\_ Gal/min at \_\_\_\_\_ ft. of total dynamic head  
 No. of bowls or stages \_\_\_\_\_  
 Pump setting 84 feet

14. WELL LOG:

Well bore (in)	Depth (feet)		Note each type of material, producing zones, & cavities if any. Give description at not less than 30 foot intervals and at changes.
	From	To	
4	0	32	SAND YELLOW
	32	49	CLAY "
	49	54	ROCK. GRAY
	54	84	CLAY GRAY
	84	86	ROCK, WHITE
	86	130	CLAY GRAY WITH BLACK PEbbLES
	130	160	ROCK BROWN

BOTTOM OF HOLE 160'

15. CONTRACTOR'S CERTIFICATION:  
 This work was done under my jurisdiction and this report is true to the best of my knowledge and belief. The work commenced on 11-20-74 and was completed on 11-20-74

DOUGLAS W.D. 1065  
 Contractor License Number  
Carl Douglas 604586  
 Signature of Representative P.O. Box or Street  
WALCHULA HARDEE FLA  
 City County State  
7734615 Carl Douglas  
 Phone Number Driller  
 FORM: DNR/SW-1

**SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (REGULATORY)  
APPLICATION FOR A PERMIT TO CONSTRUCT A WELL**

to: Chief, Permits Department  
Post Office Box 457  
Brooksville, Florida 33512

Phone: (904) 796-3511

Date 6-20-74

PLEASE USE BALLPOINT PEN AND PRESS HARD!

in compliance with the Rules and Regulations of the Southwest Florida Water Management District (Regulatory)

DOUGLAS WD 1065 6045 8<sup>TH</sup> WAUCHULA FLA  
DRILLING CONTRACTOR NUMBER ADDRESS 33873

requests authorization to construct a well for RONALD GILLIARD  
NAME OF WELL OWNER

ADDRESS ZOLEO BLD CONT CITY ZIP CODE

Well will be 4 inches in diameter. Proposed yield to be 20 GPM.

Well will be constructed with  cable tool  rotary  jetted  other (specify) \_\_\_\_\_

Well will be approximately 160 feet deep. Well will have about 50 feet of casing

black pipe  galvanized  other \_\_\_\_\_

Casing will be joined by  coupling  weld  both. Space between casing and hole will be sealed with:

natural materials  neat cement grout  other \_\_\_\_\_

Well will be located at 36 33 25 HARDLEY  
SECTION, TOWNSHIP, RANGE AND STREET ADDRESS CITY COUNTY

Well will be used for:  private supply  public water supply  irrigation  industrial

test well other \_\_\_\_\_

If this permit is for repair, modification or alteration of a well constructed under a previous permit give number \_\_\_\_\_ and indicate work to be done \_\_\_\_\_

I agree to furnish a log within 30 days after drilling operations cease and to comply with all provisions of the Rules and Regulations of the SWFWMD(R) and with local health regulations relative to well construction.

Signature of Drilling Contractor Carl Douglas

I hereby consent to be regulated by Southwest Florida Water Management District and by Southwest Florida Water Management District (Regulatory) regarding consumptive use of water and allocation thereof, and if this permit is granted I agree to comply with the conditions set forth on the reverse side of this form. Access to proposed well site for inspection at any reasonable time is hereby granted personnel of SWFWMD and SWFWMD(R).

Signature of Owner or his authorized Agent Ronald Gilliard

DO NOT WRITE BELOW THIS LINE -- FOR SWFWMD(R) USE ONLY

**PERMIT TO CONSTRUCT A WELL** 6-20-74

Review of the above application and related hydrologic data has been made by a duly authorized official of the Southwest Florida Water Management District (Regulatory) and subject to conditions set forth on the reverse side of this form permission for construction of this well is granted in accordance with the Rules and Regulations of SWFWMD(R).

All drilling shall be performed by, or in the presence of, a certified driller and a copy of the well log will be submitted to this office within 30 days after drilling operations cease. In addition to these provisions, compliance with the special item number(s) \_\_\_\_\_, as described on the reverse side of this form, shall be required.

This permit does not imply approval of sewage or other waste disposal facilities, or of water supply and other facilities in the area to be supplied by the well.

Granted by: [Signature] Date 6-27-74

Title \_\_\_\_\_

**HIS PERMIT NOT VALID UNTIL PROPERLY SIGNED AND SEALED BY AN AUTHORIZED OFFICER OF SWFWMD(R) AND SHALL BE MAINTAINED AT THE WELL SITE DURING ALL DRILLING OPERATIONS.**

**PROMINENTLY DISPLAYED**

STATE OF FLORIDA  
 WATER WELL CONTRACTOR'S NOTIFICATION  
 OF CONSTRUCTION OR REPAIR OF A WATER WELL  
 DEPARTMENT OF NATURAL RESOURCES  
 DIVISION OF INTERIOR RESOURCES  
 505 Larson Building, Tallahassee, Florida 32304  
 Telephone: (904) 494-8476

Permit No. 74-13043-20

Owner's Well Identification

No. 5429

State Well Number  
 For Department Use  
 ONLY

OWNER: RONALD GILLIARD  
 Name  
2515 C BLD CONT FLA  
 Address City State

LOCATION OF WELL: LAKE DALE RD.  
 Street Address/Road  
HARDEE  
 City County

Subdivision 36 Lot No. 25  
 Section 33 Township 25  
 Range

PURPOSE OF WELL  
 Domestic  Industrial  Irrigation Stock  Public Supply Other

TYPE OF WORK  
 New Well  Deepening  Plugging  Reconditioning  Other

QUALITY  
 Clear  Colored  Sulfur  Salty  Other

CHECK TEST MADE  
 None  Bacteria  Chemical  
 Chloride \_\_\_\_\_ PPM  
 (Check if test was for sodium chloride)  
 Temperature 60  
 Well Disinfected  Yes  No

EQUIPMENT  
 Rotary Jet  Cable Tool  Other  
 Reverse Rotary

GROUT  
 None  Cement  Other  
 Describe and give number of bags (94lb.) From (ft) To (ft)

CASING AND LINER PIPE:  
 Diameter (inches) 4 Kind \_\_\_\_\_ From (ft) 0 To (ft) 52  
 Threaded & Coupled  Welded Only  
 T & C & Welded  Other

WATER LEVEL  
 Water level after well completed 52 feet  
 Above  Below land surface  
 Well Flowing: Yes  No  Flow \_\_\_\_\_ gal/min

SCREENS  
 Make Materials Diameter (in) Slot Size Location (ft) Below Surface From (ft) To (ft)

UPPER END OF WELL:  
 Pump Installed  Valve  Cap  Other

PUMPING TEST  
 Date \_\_\_\_\_ Test Pump  Permanent Pump

14. WELL LOG:

Well bore (in)	Depth (feet)		Note each type of material, producing zones, & cavities if any. Give description at not less than 30 foot intervals and at changes.
	From	To	
4	0	32	SAND YELLOW
	32	51	CLAY + ROCK, YELLOW
	51	54	ROCK, GRAY
	54	80	CLAY GRAY
	80	82	ROCK GRAY
	82	130	CLAY GRAY
	130	170	ROCK, BROWN

BOTTOM OF HOLE 170'

15. CONTRACTOR'S CERTIFICATION:  
 This work was done under my jurisdiction and this report is true to the best of my knowledge and belief. The work commenced on 10-1-74 and was completed on 11-10-74

Contractor DOUGLAS W.D. License Number 1065  
 Signature of Representative Carl Douglas 6045874 P.O. Box or Street  
WAUCHULA HARDEE FLA  
 City County State  
 Phone Number 7734615 Driller Carl Douglas

13. PUMP INSTALLED:  
 Type SVA Make SEARS Model No. \_\_\_\_\_  
 Motor Power ELFC Make V H.P. 1/2  
 Capacity \_\_\_\_\_ Gal/min at \_\_\_\_\_ ft. of total dynamic head  
 No. of bowls or stages \_\_\_\_\_  
 Pump setting 84 feet

FORM: DNR/BW-3

**SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (REGULATORY)  
APPLICATION FOR A PERMIT TO CONSTRUCT A WELL**

To: Chief, Permits Department  
Post Office Box 457  
Brooksville, Florida 33512

Phone: (904) 796-3511

Date 6-20-74

PLEASE USE BALLPOINT PEN AND PRESS HARD!

In compliance with the Rules and Regulations of the Southwest Florida Water Management District (Regulatory)

DOUGLAS WD 1065 604 S 8<sup>1/2</sup> WACHULA FLA.  
DRILLING CONTRACTOR NUMBER ADDRESS 33873

requests authorization to construct a well for RONALD GILLIARD  
NAME OF WELL OWNER

ZOLEO BLD CONT.  
ADDRESS MAILING STREET OR BOX NO. CITY ZIP CODE

Well will be 4 inches in diameter. Proposed yield to be 20 GPM.

Well will be constructed with  cable tool  rotary  jetted  other (specify) \_\_\_\_\_

Well will be approximately 160 feet deep. Well will have about 50 feet of casing

black pipe  galvanized  other \_\_\_\_\_

Casing will be joined by  coupling  weld  both. Space between casing and hole will be sealed with:

natural materials  neat cement grout  other \_\_\_\_\_

Well will be located at 36 33 25 HARDEE  
SECTION, TOWNSHIP, RANGE AND STREET ADDRESS CITY COUNTY

Well will be used for:  private supply  public water supply  irrigation  industrial

test well  other \_\_\_\_\_

If this permit is for repair, modification or alteration of a well constructed under a previous permit give number \_\_\_\_\_

and indicate work to be done \_\_\_\_\_

I agree to furnish a log within 30 days after drilling operations cease and to comply with all provisions of the Rules and Regulations of the SWFWMD(R) and with local health regulations relative to well construction.

Signature of Drilling Contractor Carl Douglas

I hereby consent to be regulated by Southwest Florida Water Management District and by Southwest Florida Water Management District (Regulatory) regarding consumptive use of water and allocation thereof, and if this permit is granted I agree to comply with the conditions set forth on the reverse side of this form. Access to proposed well site for inspection at any reasonable time is hereby granted personnel of SWFWMD and SWFWMD(R).

Signature of Owner or his authorized Agent Ronald Gilliard

**DO NOT WRITE BELOW THIS LINE -- FOR SWFWMD(R) USE ONLY**

**PERMIT TO CONSTRUCT A WELL**

Review of the above application and related hydrologic data has been made by a duly authorized official of the Southwest Florida Water Management District (Regulatory) and subject to conditions set forth on the reverse side of this form permission for construction of this well is granted in accordance with the Rules and Regulations of SWFWMD(R).

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This permit does not imply approval of sewage or other waste disposal facilities, or of water supply and other facilities in the area to be supplied by the well.

Granted by: Richard D. [Signature] Date 6-27-74

Title: \_\_\_\_\_

**THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED AND SEALED BY AN AUTHORIZED OFFICER OF SWFWMD(R) AND SHALL BE MAINTAINED AT THE WELL SITE DURING ALL DRILLING OPERATIONS,**

**PROMINENTLY DISPLAYED**

STATE OF FLORIDA  
 WATER WELL CONTRACTOR'S NOTIFICATION  
 OF CONSTRUCTION OR REPAIR OF A WATER WELL  
 DEPARTMENT OF NATURAL RESOURCES  
 DIVISION OF INTERIOR RESOURCES  
 505 Laxon Building, Tallahassee, Florida 32304  
 Telephone: (904) 488-8478

Permit No. 74-13045-20  
 Owner's Well Identification  
 No. 5430

State Well Number  
 For Department Use  
 ONLY

1. OWNER RONALD WILLIARD  
 Name  
ZEELEBLD COURT FLA  
 Address City State

2. LOCATION OF WELL LAKE DALE RD  
 Street Address/Road  
HARDEE  
 City County  
 Subdivision Lot No.  
3E 33 25  
 Section Township Range

3. PURPOSE OF WELL:  
 Domestic Industrial  Irrigation Stock  Public Supply Other

4. TYPE OF WORK:  
 New Well Deepening  Plugging  Reconditioning Other

5. QUALITY:  
 Clear  Colored  Sulfur  Salty  Other  
 CHECK TEST MADE  
 None Bacteria Chemical Chloride \_\_\_\_\_ PPM  
 (check if test was for sodium chloride)  
 Temperature 73  
 Well Disinfected  Yes  No  
 Test By: County Health Dept. State Health Dept. U.S.G.S. Other  
 Name Address

6. EQUIPMENT:  
 Rotary Jet  Cable Tool  Reverse Rotary Other

7. GROUT:  
 None  Cement  Other  
 Describe and give number of bags (94)lb. From (ft) To (ft)

8. CASING AND LINER PIPE:  
 Diameter (inches) Kind From (ft) To (ft)  
4 0 50  
 (Check One)  Threaded & Coupled  Welded Only  
 T & C Welded  Other

9. WATER LEVEL:  
 Water level after well completed 48 feet  
 Above  Below land surface  
 Well Flowing: Yes  No  Flow \_\_\_\_\_ gal/min

10. SCREENS:  
 Make Materials Diameter (in) Slot Size Location (ft) Below Surface From (ft) To (ft)

11. UPPER END OF WELL:  
 Pump Installed  Valve  Cap  Other

12. PUMPING TEST:  
 Date \_\_\_\_\_ Test Pump  Permanent Pump   
 Measure point is \_\_\_\_\_

which is \_\_\_\_\_ feet above/below land surface  
 Static water level \_\_\_\_\_ feet above/below measure point  
 Maximum Drawdown \_\_\_\_\_ feet below measure point  
 Discharge at maximum drawdown \_\_\_\_\_ gal/min  
 After \_\_\_\_\_ hours

13. PUMP INSTALLED:  
 Type SUB Make SEARS Model No. \_\_\_\_\_  
 Motor Power 1/2 HP  
 Capacity \_\_\_\_\_ Gal/min at \_\_\_\_\_ ft. of total dynamic head  
 No. of bowls or stages \_\_\_\_\_  
 Pump setting 24 feet

14. WELL LOG:

Well bore (in)	Depth (feet)		Note each type of material, producing zones, & cavities if any. Give description at not less than 20 foot intervals and at changes.
	From	To	
4	0	40	SAND YELLOW
	40	49	CLAY GRAY
	49	51	ROCK GRAY
	51	82	CLAY GRAY
	82	84	ROCK WHITE
	84	120	CLAY GRAY
	120	135	ROCK GRAY
	135	175	ROCK BROWN

BOTTOM OF HOLE 175'

15. CONTRACTOR'S CERTIFICATION:  
 This work was done under my jurisdiction and this report is true to the best of my knowledge and belief. The work commenced on 10-20-74 and was completed on 11-1-74

DOUGLAS WD 1065  
 Contractor License Number  
Carl Douglas 6045815  
 Signature of Representative P.O. Box or Street  
WAUCHULA HARDEE FLA  
 City County State  
7734615 Carl Douglas  
 Phone Number Driller

**SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (REGULATORY)  
APPLICATION FOR A PERMIT TO CONSTRUCT A WELL**

Chief, Permits Department  
Post Office Box 457  
Brooksville, Florida 33512

Phone: (904) 796-3511

Date 6-20-74

PLEASE USE BALLPOINT PEN AND PRESS HARD!

in compliance with the Rules and Regulations of the Southwest Florida Water Management District (Regulatory)

DOUGLAS WD 1065 6045 8<sup>th</sup> WAUCHULA FLA  
DRILLING CONTRACTOR NUMBER ADDRESS 33873

requests authorization to construct a well for RONALD GILLIARD  
NAME OF WELL OWNER

ZOLEO BLD. CONT.  
MAILING STREET OR BOX NO. CITY ZIP CODE

Well will be 4 inches in diameter. Proposed yield to be 20 GPM.

Well will be constructed with  cable tool  rotary  jetted  other (specify) \_\_\_\_\_

Well will be approximately 160 feet deep. Well will have about 50 feet of casing

black pipe  galvanized  other \_\_\_\_\_

Casing will be joined by  coupling  weld  both. Space between casing and hole will be sealed with:

natural materials  neat cement grout  other \_\_\_\_\_

Well will be located at 36 33 25 HARDEE  
SECTION, TOWNSHIP, RANGE AND STREET ADDRESS CITY COUNTY

Well will be used for:  private supply  public water supply  irrigation  industrial

test well other \_\_\_\_\_

If this permit is for repair, modification or alteration of a well constructed under a previous permit give number

\_\_\_\_\_ and indicate work to be done \_\_\_\_\_

I agree to furnish a log within 30 days after drilling operations cease and to comply with all provisions of the Rules and Regulations of the SWFWMD(R) and with local health regulations relative to well construction.

Signature of Drilling Contractor Carl Douglas

I hereby consent to be regulated by Southwest Florida Water Management District and by Southwest Florida Water Management District (Regulatory) regarding consumptive use of water and allocation thereof, and if this permit is granted I agree to comply with the conditions set forth on the reverse side of this form. Access to proposed well site for inspection at any reasonable time is hereby granted personnel of SWFWMD and SWFWMD(R).

Signature of Owner or his authorized Agent Ronald Gilliard

**DO NOT WRITE BELOW THIS LINE -- FOR SWFWMD(R) USE ONLY**

**PERMIT TO CONSTRUCT A WELL**

Review of the above application and related hydrologic data has been made by a duly authorized official of the Southwest Florida Water Management District (Regulatory) and subject to conditions set forth on the reverse side of this form permission for construction of this well is granted in accordance with the Rules and Regulations of SWFWMD(R).

All drilling shall be performed by, or in the presence of, a certified driller and a copy of the well log will be submitted to this office within 30 days after drilling operations cease. In addition to these provisions, compliance with the special item number(s) \_\_\_\_\_, as described on the reverse side of this form, shall be required.

This permit does not imply approval of sewage or other waste disposal facilities, or of water supply and other facilities in the area to be supplied by the well.

Granted by: [Signature] Date 6-27-74

Title \_\_\_\_\_

**THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED AND SEALED BY AN AUTHORIZED OFFICER OF SWFWMD(R) AND SHALL BE MAINTAINED AT THE WELL SITE DURING ALL DRILLING OPERATIONS.**

**PROMINENTLY DISPLAYED**

**STATE OF FLORIDA**  
**WATER WELL CONTRACTOR'S NOTIFICATION**  
**OF CONSTRUCTION OR REPAIR OF A WATER WELL**  
 DEPARTMENT OF NATURAL RESOURCES  
 DIVISION OF INTERIOR RESOURCES  
 505 Larson Building, Tallahassee, Florida 32304  
 Telephone: (904) 488-8478

Permit No. 74-13046-20

Owner's Well Identification

No. 24524

State Well Number  
For Department Use  
ONLY

1. OWNER: RONALD RILLIARD  
 Name  
245 EC RD CONT FLA  
 Address City State

2. LOCATION OF WELL: LAKE DALE RD  
 Street Address/Road  
HARDEE  
 City  
 County  
 Subdivision 33 Lot No. 25  
 Section Township Range

3. PURPOSE OF WELL:  
 Domestic  Irrigation  Public Supply  
 Industrial  Stock  Other

4. TYPE OF WORK  
 New Well  Flushing  Other  
 Deepening  Reconditioning

5. QUALITY:  
 Clear  Colored  Sulfur  Salty  Other

CHECK TEST MADE  
 None  County Health Dept.  
 Bacteria  State Health Dept.  
 Chemical  U.S.G.S.  
 Chloride \_\_\_\_\_ PPM (Check \_\_\_\_\_ if test was for sodium chloride)  
 Other \_\_\_\_\_ Name \_\_\_\_\_  
 Temperature \_\_\_\_\_ Address \_\_\_\_\_  
 Well Disinfected  Yes  No

6. EQUIPMENT:  
 Rotary  Cable Tool  Other  
 Jet  Reverse Rotary

7. GROUT:  
 None  Cement  Other  
 Describe and give number of bags (94lb.) From (ft) To (ft)

8. CASING AND LINER PIPE:  
 Diameter (inches) Kind From (ft) To (ft)  
4 0 51  
 (Check One)  Threaded & Coupled  Welded Only  
 T & C & Welded  Other

9. WATER LEVEL:  
 Water level after well completed 50 feet  
 Above  Below land surface   
 Well Flowing: Yes  No  Flow \_\_\_\_\_ gal/min

10. SCREENS:

Make	Material	Diameter (in)	Slot Size	Location (ft) Below Surface
				From (ft) To (ft)

11. UPPER END OF WELL:  
 Pump Installed  Valve  Cap  Other

12. PUMPING TEST:  
 Date \_\_\_\_\_  Test Pump  Permanent Pump

Measure point is \_\_\_\_\_  
 which is \_\_\_\_\_ feet  above  below land surface  
 Static water level \_\_\_\_\_ feet  above  below measure point  
 Maximum Drawdown \_\_\_\_\_ feet below measure point  
 Discharge at maximum drawdown \_\_\_\_\_ gal/min  
 After \_\_\_\_\_ hours

13. PUMP INSTALLED:  
 Type Sub Make SEARS Model No. \_\_\_\_\_  
 Motor Power \_\_\_\_\_ Make \_\_\_\_\_ H.P. 1/2  
 Capacity \_\_\_\_\_ Gal/min at \_\_\_\_\_ ft. of total dynamic head  
 No. of bowls or stages \_\_\_\_\_  
 Pump setting 84 feet

14. WELL LOG:

Well bore (in)	Depth (feet)		Note each type of material, producing zones, & variations if any. Give description at not less than 20 foot intervals and at changes.
	From	To	
4	0	32	SAND YELLOW
	32	50	CLAY & SAND GRAY
	50	52	ROCK. GRAY
	52	80	CLAY GRAY
	80	86	ROCK. GRAY
	86	130	CLAY GRAY
	130	155	ROCK. BROWN
			 BOTTOM OF HOLE 155'

15. CONTRACTOR'S CERTIFICATION:  
 This work was done under my jurisdiction and this report is true to the best of my knowledge and belief. The work commenced on 10-30-74 and was completed on 11-10-74

DOUGLAS WD 1065  
 Contractor License Number  
Carl Douglas 604 5876  
 Signature of Representative P.O. Box or Street  
WAUCHULA HARDEE FLA  
 City County State  
7734615 Carl Douglas  
 Phone Number Driller  
 FORM: DNR/SW-2

**SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (REGULATORY)  
APPLICATION FOR A PERMIT TO CONSTRUCT A WELL**

To: Chief, Permits Department  
Post Office Box 457  
Brooksville, Florida 33512  
Phone: (904) 796-3511

Date 6-20-74

USE BALL POINT PEN AND PRESS HARD!

In compliance with the Rules and Regulations of the Southwest Florida Water Management District (Regulatory)

DOUGLAS WD 1065 6045 8th WAUCHULA FLA  
DRILLING CONTRACTOR NUMBER ADDRESS ZIP CODE  
33873

requests authorization to construct a well for RONALD GILLIANO  
NAME OF WELL OWNER

ZORLO BLD. CONT.  
MAILING STREET OR BOX NO. CITY ZIP CODE

Well will be 4 inches in diameter. Proposed yield to be 20 GPM.

Well will be constructed with  cable tool  rotary  jetted  other (specify) \_\_\_\_\_

Well will be approximately 160 feet deep. Well will have about 50 feet of casing

black pipe  galvanized  other \_\_\_\_\_

Casing will be joined by  coupling  weld  both. Space between casing and hole will be sealed with:

natural materials  neat cement grout  other \_\_\_\_\_

Well will be located at 36 33 25 HARDEE  
SECTION, TOWNSHIP, RANGE AND STREET ADDRESS CITY COUNTY

Well will be used for:  private supply  public water supply  irrigation  industrial

test well  other \_\_\_\_\_

If this permit is for repair, modification or alteration of a well constructed under a previous permit give number

\_\_\_\_\_ and indicate work to be done \_\_\_\_\_

I agree to furnish a log within 30 days after drilling operations cease and to comply with all provisions of the Rules and Regulations of the SWFWMD(R) and with local health regulations relative to well construction.

Signature of Drilling Contractor Carl Douglas

I hereby consent to be regulated by Southwest Florida Water Management District and by Southwest Florida Water Management District (Regulatory) regarding consumptive use of water and allocation thereof, and if this permit is granted I agree to comply with the conditions set forth on the reverse side of this form. Access to proposed well site for inspection at any reasonable time is hereby granted personnel of SWFWMD and SWFWMD(R).

Signature of Owner or his authorized Agent Ronald Gilliano

**DO NOT WRITE BELOW THIS LINE -- FOR SWFWMD(R) USE ONLY**

**PERMIT TO CONSTRUCT A WELL**

Review of the above application and related hydrologic data has been made by a duly authorized official of the Southwest Florida Water Management District (Regulatory) and subject to conditions set forth on the reverse side of this form permission for construction of this well is granted in accordance with the Rules and Regulations of SWFWMD(R).

All drilling shall be performed by, or in the presence of, a certified driller and a copy of the well log will be submitted to this office within 30 days after drilling operations cease. In addition to these provisions, compliance with the special item number(s) \_\_\_\_\_, as described on the reverse side of this form, shall be required.

This permit does not imply approval of sewage or other waste disposal facilities, or of water supply and other facilities in the area to be supplied by the well.

Granted by: Richard St. Angelo Date 6-27-74

Title: \_\_\_\_\_

**(THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED AND SEALED BY AN AUTHORIZED OFFICER OF SWFWMD(R) AND SHALL BE MAINTAINED AT THE WELL SITE DURING ALL DRILLING OPERATIONS.)**

**PROMINENTLY DISPLAYED**



STATE OF FLORIDA  
 WATER WELL CONTRACTOR'S NOTIFICATION  
 OF CONSTRUCTION OR REPAIR OF A WATER WELL  
 DEPARTMENT OF NATURAL RESOURCES  
 DIVISION OF INTERIOR RESOURCES  
 505 Larson Building, Tallahassee, Florida 32304  
 Telephone: (904) 488-8476

Permit No. 74-13047-20  
 Owner's Well Identification No. 5445

State Well Number  
 For Department Use  
 ONLY

1. OWNER RONALD GILLIARD  
 Name  
2016 BLD CONT FLA  
 Address City State

2. LOCATION OF WELL LAKE DALE RD.  
 Street Address/Road  
HARDEE  
 City County  
 Subdivision Lot No.  
3E 33 95  
 Section Township Range

3. PURPOSE OF WELL:  
 Domestic Industrial    Irrigation Stock    Public Supply Other

4. TYPE OF WORK  
 New Well Deepening    Plugging/Reconditioning    Other

5. QUALITY  
 Clear    Colored    Sulfur    Salty    Other  
 CHECK TEST MADE  
 None Bacteria    Test By: County Health Dept.  
 Chemical    State Health Dept.  
 Chloride PPM    U.S.G.S.  
 (Check if test was for sodium chloride)    Other Name  
 Temperature 60    Address  
 Well Disinfected  Yes    No

6. EQUIPMENT  
 Rotary Jet     Cable Tool    Other  
 Reverse Rotary

7. GROUT  
 None    Cement    Other  
 Describe and give number of bags (94lb.) From (ft) To (ft)

8. CASING AND LINER PIPE:  
 Diameter (inches) Kind From (ft) To (ft)  
4       0    50  
 (Check One)  Threaded & Coupled    Welded Only  
 T & C & Welded    Other

9. WATER LEVEL  
 Water level after well completed 50 feet  
 Above  below land surface  
 Well Flowing Yes  No    Flow \_\_\_\_\_ gal/min

10. SCREENS  
 Make Materials Diameter (in) Slot Size Location (ft) Below Surface  
 From (ft) To (ft)

11. UPPER END OF WELL:  
 Pump Installed    Valve    Cap    Other

12. PUMPING TEST  
 Date \_\_\_\_\_ Test Pump  Permanent Pump  
 Measure point is \_\_\_\_\_  
 which is \_\_\_\_\_ feet above/below land surface  
 Static water level \_\_\_\_\_ feet above/below measure point  
 Maximum Drawdown \_\_\_\_\_ feet below measure point  
 Discharge at maximum drawdown \_\_\_\_\_ gal/min  
 After \_\_\_\_\_ hours

13. PUMP INSTALLED:  
 Type SUB Make SEARS Model No. \_\_\_\_\_  
 Motor Power FLR Make \_\_\_\_\_ H.P. 5  
 Capacity \_\_\_\_\_ Gal/min at \_\_\_\_\_ ft. of total dynamic head  
 No. of bowls or stages \_\_\_\_\_  
 Pump setting 84 feet

14. WELL LOG:

Well bore (in)	Depth (feet)		Note each type of material, producing zones, & cavities if any. Give description at not less than 20 foot intervals and at changes.
	From	To	
4	0	32	SAND YELLOW
	32	34	SANDSTONE GRAY
	34	49	CLAY + SAND GRAY
	49	51	ROCK GRAY
	51	84	CLAY "
	84	86	ROCK WHITE
	86	128	CLAY GRAY
	128	160	ROCK BROWN
			BOTTOM OF HOLE 160'

15. CONTRACTOR'S CERTIFICATION:  
 This work was done under my jurisdiction and this report is true to the best of my knowledge and belief. The work commenced on 10-15-74 and was completed on 11-20-74

DOUGLAS WD 1065  
 Contractor License Number  
Carl Douglas 604 9815  
 Signature of Representative P.O. Box or Street  
WANCHULA HARDEE FLA  
 City County State  
7734615 Carl Douglas  
 Phone Number Driller  
 FORM: DNR/SW-8

**SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (REGULATORY)  
APPLICATION FOR A PERMIT TO CONSTRUCT A WELL**

Chief, Permits Department  
Post Office Box 457  
Brooksville, Florida 33512

Phone: (904) 796-3511

Date 6-20-74

USE BALLPOINT PEN AND PRESS HARD!

in compliance with the Rules and Regulations of the Southwest Florida Water Management District (Regulatory)

DOUGLAS WD 1065 6045 824 WADSWORTH FLA  
DRILLING CONTRACTOR NUMBER ADDRESS ZIP CODE  
33873

requests authorization to construct a well for RONALD GILLIARD  
NAME OF WELL OWNER

ADDRESS ZOLEO BLD. CONT. CITY ZIP CODE

well will be 4 inches in diameter. Proposed yield to be 20 GPM.

well will be constructed with  cable tool  rotary  jetted  other (specify) \_\_\_\_\_

well will be approximately 160 feet deep. Well will have about 50 feet of casing

black pipe  galvanized  other \_\_\_\_\_

Casing will be joined by  coupling  weld  both. Space between casing and hole will be sealed with:

natural materials  neat cement grout  other \_\_\_\_\_

well will be located at 36 33 25 HARDEE  
SECTION, TOWNSHIP, RANGE AND STREET ADDRESS CITY COUNTY

Well will be used for:  private supply  public water supply  irrigation  industrial

test well  other \_\_\_\_\_

If this permit is for repair, modification or alteration of a well constructed under a previous permit give number

\_\_\_\_\_ and indicate work to be done \_\_\_\_\_

I agree to furnish a log within 30 days after drilling operations cease and to comply with all provisions of the Rules and Regulations of the SWFWMD(R) and with local health regulations relative to well construction.

Signature of Drilling Contractor Carl Douglas

I hereby consent to be regulated by Southwest Florida Water Management District and by Southwest Florida Water Management District (Regulatory) regarding consumptive use of water and allocation thereof, and if this permit is granted I agree to comply with the conditions set forth on the reverse side of this form. Access to proposed well site for inspection at any reasonable time is hereby granted personnel of SWFWMD and SWFWMD(R).

Signature of Owner or his authorized Agent Ronald Gilliard

**DO NOT WRITE BELOW THIS LINE -- FOR SWFWMD(R) USE ONLY**

**PERMIT TO CONSTRUCT A WELL**

Review of the above application and related hydrologic data has been made by a duly authorized official of the Southwest Florida Water Management District (Regulatory) and subject to conditions set forth on the reverse side of this form permission for construction of this well is granted in accordance with the Rules and Regulations of SWFWMD(R).

All drilling shall be performed by, or in the presence of, a certified driller and a copy of the well log will be submitted to this office within 30 days after drilling operations cease. In addition to these provisions, compliance with the special item number(s) \_\_\_\_\_, as described on the reverse side of this form, shall be required.

This permit does not imply approval of sewage or other waste disposal facilities, or of water supply and other facilities in the area to be supplied by the well.

Granted by: [Signature] Date 6-27-74

Title \_\_\_\_\_

**(THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED AND SEALED BY AN AUTHORIZED OFFICER OF SWFWMD(R) AND SHALL BE MAINTAINED AT THE WELL SITE DURING ALL DRILLING OPERATIONS,**

**PROMINENTLY DISPLAYED**

STATE OF FLORIDA  
 WATER WELL CONTRACTOR'S NOTIFICATION  
 OF CONSTRUCTION OR REPAIR OF A WATER WELL  
 DEPARTMENT OF NATURAL RESOURCES  
 DIVISION OF INTERIOR RESOURCES  
 505 Larson Building, Tallahassee, Florida 32304  
 Telephone: (904) 498-8476

Permit No. 14-13048-20

Owner's Well Identification

No. **5426**

State Well Number  
 For Department Use  
 ONLY

OWNER Fernie Hilliard  
 Name  
WAUCHULA FLA  
 Address City State

LOCATION OF WELL LAKE DALE ROAD  
 Street Address/Road  
WAUCHULA HARDEE  
 City County

Subdivision Lot No.  
36 26  
 Section Township Range

PURPOSE OF WELL  
 Domestic  Irrigation  Public Supply  
 Industrial  Stock  Other

TYPE OF WORK  
 New Well  Flushing  Other  
 Deepening  Reconditioning

QUALITY  
 Clear  Colored  Sulfur  Salty  Other  
 CHECK TEST MADE  
 None  Test By:  
 Bacteria  County Health Dept.  
 Chemical  State Health Dept.  
 Chloride \_\_\_\_\_ PPM  U.S.G.S.  
 (check \_\_\_\_\_ if test was for  Other \_\_\_\_\_  
 sodium chloride) Name \_\_\_\_\_  
 Temperature \_\_\_\_\_ Address \_\_\_\_\_  
 Well Disinfected  Yes  No

EQUIPMENT:  
 Rotary  Cable Tool  Other  
 Jet  Reverse Rotary

GROUT  None  Cement  Other  
 Describe and give number of bags (94lb.) From (ft) To (ft)

CASING AND LINER PIPE:  
 Diameter (inches) Kind From (ft) To (ft)  
4 BLACK IR 0 42'  
 (Check One)  Threaded & Coupled  Welded Only  
 T & C & Welded  Other

WATER LEVEL:  
 Water level after well completed 50 feet  
 Above  below land surface  
 Well Flowing: Yes  No Flow \_\_\_\_\_ gal/min

SCREENS:  
 Make Material Diameter (in) Slot Size Location (ft) Below Surface  
 From (ft) To (ft)

UPPER END OF WELL:  
 Pump Installed  Valve  Cap  Other

PUMPING TEST  
 Date \_\_\_\_\_ Test Pump  Permanent Pump   
 Measure point is \_\_\_\_\_  
 which is \_\_\_\_\_ feet  above  below land surface  
 Static water level \_\_\_\_\_ feet  above  below measure point  
 Maximum drawdown \_\_\_\_\_ feet below measure point  
 Discharge at maximum drawdown \_\_\_\_\_ gal/min  
 After \_\_\_\_\_ hours

PUMP INSTALLED:  
 Type \_\_\_\_\_ Make \_\_\_\_\_ Model No. \_\_\_\_\_  
 Motor Power \_\_\_\_\_ Make \_\_\_\_\_ H.P. \_\_\_\_\_  
 Capacity \_\_\_\_\_ Gallons at \_\_\_\_\_ ft. of total dynamic head  
 No. of bowls or stages \_\_\_\_\_  
 Pump setting \_\_\_\_\_ feet

14. WELL LOG:

Well bore (in)	Depth (feet)		Note each type of material, producing zones, & cavities if any. (Give description at not less than 30 foot intervals and at changes.)
	From	To	
4	42	45	White clay w/ black rock
	45	51	Gray clay w/ black rock
	51	56	Gray rock
	56	60	Gray clay w/ black speck
	60	66	White rock w/ black speck
	66	92	White clay w/ black speck
	92	101	White rock w/ black speck
	101	115	Gray clay w/ black speck
	115	125	White rock w/ black speck
	125	165	Brown lime w/ black speck

165' BOTTOM OF HOLE

15. CONTRACTOR'S CERTIFICATION:  
 This work was done under my jurisdiction and this report is true to the best of my knowledge and belief. The work commenced on 8-30-74 and was completed on 9-20-74

DOUGLAS WD. 1065  
 Contractor License Number  
Carl Douglas 6045876  
 Signature of Representative P.O. Box or Street  
WAUCHULA HARDEE FLA  
 City County State  
7734615 Carl Douglas  
 Phone Number Driller

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (REGULATORY)

APPLICATION FOR A PERMIT TO CONSTRUCT A WELL

To: Chief, Permits Department
Post Office Box 457
Brooksville, Florida 33512

Phone: (904) 796-3511

Date 6-20-74

TYPE IN THESE SPACES WITH BALL-POINT PEN AND PRESS HARD!

In compliance with the Rules and Regulations of the Southwest Florida Water Management District (Regulatory)

DOUGLAS WD DRILLING CONTRACTOR 1065 NUMBER 6045 8th Wausonika Fla ADDRESS 33823

requests authorization to construct a well for RONALD GILLIARD NAME OF WELL OWNER

ADDRESS 2040 MAILING STREET OR BOX NO. BLDG. CONT. CITY ZIP CODE

Well will be 4 inches in diameter. Proposed yield to be 20 GPM.

Well will be constructed with cable tool rotary jetted other (specify)

Well will be approximately 160 feet deep. Well will have about 50 feet of casing

black pipe galvanized other

Casing will be joined by coupling weld both. Space between casing and hole will be sealed with:

natural materials neat cement grout other

Well will be located at 36 33 25 SECTION, TOWNSHIP, RANGE AND STREET ADDRESS HARDEE CITY COUNTY

Well will be used for: private supply public water supply irrigation industrial

test well other

If this permit is for repair, modification or alteration of a well constructed under a previous permit give number and indicate work to be done

I agree to furnish a log within 30 days after drilling operations cease and to comply with all provisions of the Rules and Regulations of the SWFWMD(R) and with local health regulations relative to well construction.

Signature of Drilling Contractor Carl Douglas

I hereby consent to be regulated by Southwest Florida Water Management District and by Southwest Florida Water Management District (Regulatory) regarding consumptive use of water and allocation thereof, and if this permit is granted I agree to comply with the conditions set forth on the reverse side of this form.

Signature of Owner or his authorized Agent Ronald Gilliard

DO NOT WRITE BELOW THIS LINE -- FOR SWFWMD(R) USE ONLY

PERMIT TO CONSTRUCT A WELL 6-27-74

Review of the above application and related hydrologic data has been made by a duly authorized official of the Southwest Florida Water Management District (Regulatory) and subject to conditions set forth on the reverse side of this form permission for construction of this well is granted in accordance with the Rules and Regulations of SWFWMD(R).

All drilling shall be performed by, or in the presence of, a certified driller and a copy of the well log will be submitted to this office within 30 days after drilling operations cease.

This permit does not imply approval of sewage or other waste disposal facilities, or of water supply and other facilities in the area to be supplied by the well.

Granted by: [Signature] Date 6-27-74

Title: [Signature]

THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED AND SEALED BY AN AUTHORIZED OFFICER OF SWFWMD(R) AND SHALL BE MAINTAINED AT THE WELL SITE DURING ALL DRILLING OPERATIONS.

PROMINENTLY DISPLAYED

STATE OF FLORIDA  
 WATER WELL CONTRACTOR'S NOTIFICATION  
 OF CONSTRUCTION OR REPAIR OF A WATER WELL  
 DEPARTMENT OF NATURAL RESOURCES  
 DIVISION OF INTERIOR RESOURCES  
 505 Larson Building, Tallahassee, Florida 32304  
 Telephone: (904) 488-8476

Permit No. 74-13049 20

Owner's Well Identification

No. 5424

State Well Number  
 For Department Use  
 ONLY

1. OWNER Ronnie Hilliard  
 Name Wauchula FLA  
 Address Wauchula City Wauchula State FLA

2. LOCATION OF WELL LAKE DALE RD  
 Street Address/Road LAKE DALE RD  
 City WAUCHULA County HARDEE

3. PURPOSE OF WELL  
 Domestic  Irrigation  Public Supply  
 Industrial  Stock  Other

4. TYPE OF WORK  
 New Well  Plugging  Other  
 Deepening  Reconditioning

5. QUALITY  
 Clear  Colored  Sulfur  Salty  Other

CHECK TEST MADE  
 None  Test By:  County Health Dept.  
 Bacteria  State Health Dept.  
 Chemical  U.S.G.S.  
 Chloride \_\_\_\_\_ PPM (check if test was for medium chloride)  
 Other \_\_\_\_\_ Name \_\_\_\_\_  
 Temperature \_\_\_\_\_ Address \_\_\_\_\_

Well Disinfected  Yes  No

6. EQUIPMENT  
 Rotary  Cable Tool  Other  
 Jet  Reverse Rotary

7. GROUT  
 None  Cement  Other  
 Describe and give number of bags (94lb.) From (ft) To (ft)

8. CASING AND LINER PIPE:  
 Diameter (inches) 4" Kind BLACK T&C From (ft) 0 To (ft) 42  
 (Check One)  Threaded & Coupled  Welded Only  
 T & C & Welded  Other

9. WATER LEVEL  
 Water level after well completed 40 feet  
 Above  Below land surface   
 Well Flowing: Yes  No  Flow \_\_\_\_\_ gal/min

10. SCREENS  

Make	Materials	Diameter (in)	Slot Size	Location (ft) Below Surface	
				From (ft)	To (ft)

11. UPPER END OF WELL:  
 Pump Installed  Valve  Cap  Other

12. PUMPING TEST:  
 Date \_\_\_\_\_ Test Pump  Permanent Pump   
 Measure point is \_\_\_\_\_  
 which is \_\_\_\_\_ feet \_\_\_\_\_ above/below land surface  
 Static water level \_\_\_\_\_ feet  above  below measure point  
 Maximum Drawdown \_\_\_\_\_ feet below measure point  
 Discharge at maximum drawdown \_\_\_\_\_ gal/min  
 After \_\_\_\_\_ hours

13. PUMP INSTALLED:  
 Type \_\_\_\_\_ Make \_\_\_\_\_ Model No. \_\_\_\_\_  
 Motor Power \_\_\_\_\_ Make \_\_\_\_\_ H.P. \_\_\_\_\_  
 Capacity \_\_\_\_\_ Gal/min at \_\_\_\_\_ ft. of total dynamic head  
 No. of bowls or stages \_\_\_\_\_  
 Pump setting \_\_\_\_\_ feet

14. WELL LOG:

Well bore (in)	Depth (feet)		Note each type of material, producing zones, & cavities if any. Give description at not less than 30 foot intervals and at changes.
	From	To	
4	42'	48'	Yellow Clay and Rock
	48'	50'	Gray Clay and Rock
	50'	54'	Gray Rock w/ black speck
	54'	62'	Gray Clay w/ black specks
	62'	64'	White Rock w/ black Brown speck
	64'	91'	White Clay w/ black speck
	91'	95'	White Rock w/ brown & black speck
	95'	101'	White Clay w/ black speck
	101'	102'	White Rock w/ brown & black speck
	102'	125'	Gray Clay w/ black speck
	125'	138'	White Rock w/ brown & black speck
138'	145'	Brown Limestone Rock	
145'	151'	White Limestone Rock	
151'	160'	Brown Limestone Rock	

160' BOTTOM OF HOLE

15. CONTRACTOR'S CERTIFICATION:  
 This work was done under my jurisdiction and this report is true to the best of my knowledge and belief. The work commenced on 8-20-74 and was completed on 9-20-74

DOUGLAS WD. 1066  
 Contractor Carl Douglas License Number 604586  
 Signature of Representative \_\_\_\_\_ P.O. Box or Street \_\_\_\_\_  
WAUCHULA HARDEE FLA  
 City \_\_\_\_\_ County \_\_\_\_\_ State \_\_\_\_\_  
7734615 Carl Douglas  
 Phone Number \_\_\_\_\_ Date \_\_\_\_\_

FORM: DNR/BW-6

**SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (REGULATORY)  
APPLICATION FOR A PERMIT TO CONSTRUCT A WELL**

To: Chief, Permits Department  
Post Office Box 457  
Brooksville, Florida 33512

Phone: (904) 796-3511

Date 6-20-74

PLEASE USE BALLPOINT PEN AND PRESS HARD!

In compliance with the Rules and Regulations of the Southwest Florida Water Management District (Regulatory)

DOUGLAS WD 1066 6045<sup>8th</sup> WAOCHOLA FLA  
DRILLING CONTRACTOR NUMBER ADDRESS ZIP CODE 33873

requests authorization to construct a well for RONALD GILLIARD  
NAME OF WELL OWNER

ADDRESS ZOLTEC BLD CONT CITY ZIP CODE

Well will be 4 inches in diameter. Proposed yield to be 20 GPM.

Well will be constructed with  cable tool  rotary  jetted  other (specify) \_\_\_\_\_

Well will be approximately 160 feet deep. Well will have about 50 feet of casing

black pipe  galvanized  other \_\_\_\_\_

Casing will be joined by  coupling  weld  both. Space between casing and hole will be sealed with:

natural materials  neat cement grout  other \_\_\_\_\_

Well will be located at 36 33 25 HARDEE  
SECTION, TOWNSHIP, RANGE AND STREET ADDRESS CITY COUNTY

Well will be used for:  private supply  public water supply  irrigation  industrial

test well  other \_\_\_\_\_

If this permit is for repair, modification or alteration of a well constructed under a previous permit give number

\_\_\_\_\_ and indicate work to be done \_\_\_\_\_

I agree to furnish a log within 30 days after drilling operations cease and to comply with all provisions of the Rules and Regulations of the SWFWMD(R) and with local health regulations relative to well construction.

Signature of Drilling Contractor Carl Douglas

I hereby consent to be regulated by Southwest Florida Water Management District and by Southwest Florida Water Management District (Regulatory) regarding consumptive use of water and allocation thereof, and if this permit is granted I agree to comply with the conditions set forth on the reverse side of this form. Access to proposed well site for inspection at any reasonable time is hereby granted personnel of SWFWMD and SWFWMD(R).

Signature of Owner or his authorized Agent Ronald Gilliard

**DO NOT WRITE BELOW THIS LINE -- FOR SWFWMD(R) USE ONLY**

**PERMIT TO CONSTRUCT A WELL**

Review of the above application and related hydrologic data has been made by a duly authorized official of the Southwest Florida Water Management District (Regulatory) and subject to conditions set forth on the reverse side of this form permission for construction of this well is granted in accordance with the Rules and Regulations of SWFWMD(R).

All drilling shall be performed by, or in the presence of, a certified driller and a copy of the well log will be submitted to this office within 30 days after drilling operations cease. In addition to these provisions, compliance with the special item number(s) \_\_\_\_\_, as described on the reverse side of this form, shall be required.

This permit does not imply approval of sewage or other waste disposal facilities, or of water supply and other facilities in the area to be supplied by the well.

Granted by: Richard P. Thigpen Date 6-27-74

Title \_\_\_\_\_

**THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED AND SEALED BY AN AUTHORIZED OFFICER OF SWFWMD(R) AND SHALL BE MAINTAINED AT THE WELL SITE DURING ALL DRILLING OPERATIONS.**

**PROMINENTLY DISPLAYED**

**STATE OF FLORIDA**  
**WATER WELL CONTRACTOR'S NOTIFICATION**  
**OF CONSTRUCTION OR REPAIR OF A WATER WELL**  
 DEPARTMENT OF NATURAL RESOURCES  
 DIVISION OF INTERIOR RESOURCES  
 500 Larson Building, Tallahassee, Florida 32304  
 Telephone: (904) 488-8475

Permit No. 75-1637-20

Owner's Well Identification

No. **14968**

For Department Use ONLY

1. OWNER: Ronald Gillman  
2016 Springs, Fla  
 Address City State

2. LOCATION OF WELL:  
 Street Address/Road HARDEE  
 City Lake Dale County 78  
 Subsection 36 Lot No. 335  
 Section 25E Township 25E Range

3. PURPOSE OF WELL:  
 Domestic  Industrial  Irrigation  Stock  Public Supply  Other

4. TYPE OF WORK:  
 New Well  Deepening  Flushing  Reconditioning  Other

5. QUALITY:  
 Clear  Colored  Salty  Other  
 CHECK TEST MADE  
 None  Barometric  Chemical  Other  
 (Check  if test was for sodium chloride)  
 Temperature \_\_\_\_\_  
 Well Disinfected  Yes  No  
 Test By: John McLaughlin  
 County Health Dept.   
 State Health Dept.   
 U.S.P.H.S.   
 Other  John McLaughlin  
 Name 2016 Springs, Fla  
 Address

6. EQUIPMENT:  
 Rotary  Jet  Cable Tool  Reverse Rotary  Other

7. GROUT:  
 None  Cement  Other  
 Describe and give number of bags (25lb.) From (ft) To (ft)

8. CASING AND LINDER PIPE:  
 Diameter (inches) Size From (ft) To (ft)  
4" Blacksteel 0 165'  
 Check One  Threaded & Coupled  Welded Only  
 V & C & Welded  Other

9. WATER LEVEL:  
 Water level after well completed 20' feet  
 Above  Below land surface  
 Well Flowing:  Yes  No Flow \_\_\_\_\_ gal/min

10. SCREENS:  
 Main Material Diameter (in) Slot Size From (ft) To (ft) Location (ft) Below Surface  
None

11. UPPER END OF WELL:  
 Pump Installed  Valve  Cap  Other

12. PUMPING TEST:  
 Date \_\_\_\_\_  Test Pump  Permanent Pump  
 Measure point to Top of Ground  
 which is  at  above  below land surface  
 Static water level 32' feet  above  below measure point  
 Maximum Drawdown \_\_\_\_\_ feet below measure point  
 Discharge at maximum drawdown 20' gpm  
 After \_\_\_\_\_ hours

13. PUMP INSTALLED:  
 Type Submersible Model No. AP402-7  
 Motor Power 1/2 H.P. 1/2  
 Capacity 20' gal/min at \_\_\_\_\_ of total dynamic head  
 No. of bowls or stages \_\_\_\_\_  
 Pump casing \_\_\_\_\_

14. WELL LOG:

Well hole (in)	Depth (feet)		Note each type of material, producing zones, & describe if any. Give description at not less than 50 foot intervals and at changes.
	From	To	
4	0	9	Sand
	9	40	Sands Sandy Clay
	40	54	Green Clay
	54	165	limo + heavy clay

T.D - 165'

15. CONTRACTOR'S CERTIFICATION:  
 This work was done under my jurisdiction and this report is to the best of my knowledge and belief. The work commenced on April 14, 1978 and was completed on April 14, 1978  
Edwin Field Well Drilling License Number 10572  
John W. McLaughlin F.O. Box # 150  
2016 Springs, Hardee Fla  
735-1181 John W. McLaughlin

APPLICATION FOR A PERMIT TO CONSTRUCT A WELL.

To: Chief, Permits Department  
Post Office Box 457  
Brooksville, Florida 33512

Phone: (904) 796-3511

Date Sept. 6, 1974

(TYPE OR USE BALLPOINT PEN AND PRESS HARD)

In compliance with the Rules and Regulations of the Southwest Florida Water Management District (Regulatory)

EDEAFIELD WELL DRILLING DRILLING CONTRACTOR NUMBER 1052 ADDRESS 2018 Springs

requests authorization to construct a well for RONALD BILLIARD NAME OF WELL OWNER

ADDRESS FLM STREET 2018 Springs CITY 33890 ZIP CODE

Well will be 4 inches in diameter. Proposed yield to be 50 GPM.

Well will be constructed with  cable tool  rotary  jetted  other (specify) \_\_\_\_\_

Well will be approximately 200 feet deep. Well will have about 84 feet of casing

black pipe  galvanized  other \_\_\_\_\_

Casing will be joined by  coupling  weld  bath. Space between casing and hole will be sealed with:

natural materials  neat cement grout  other \_\_\_\_\_

Well will be located at SECTION 36 TOWNSHIP 33S RANGE AND 25E STREET ADDRESS CITY HARLEE COUNTY

Well will be used for  private supply  public water supply  irrigation  industrial

test well  other FOR 1 HOUSE

If this permit is for repair, modification or alteration of a well constructed under a previous permit give number \_\_\_\_\_

\_\_\_\_\_ and indicate work to be done \_\_\_\_\_

If for modification of a pumping facility which will change quantity pumped indicate old pump \_\_\_\_\_ HP

\_\_\_\_\_ GPM. new pump \_\_\_\_\_ HP \_\_\_\_\_ GPM.

I agree to furnish a log within 30 days after drilling operations cease and to comply with all provisions of the Rules and Regulations of the SWFWMD(R) and with local health regulations relative to well construction.

Signature of Drilling Contractor [Signature]

Access to proposed well site for inspection at any reasonable time is hereby granted personnel of Southwest Florida Water Management District (Regulatory).

Signature of Owner or his Agent [Signature]

DO NOT WRITE BELOW THIS LINE -- FOR SWFWMD(R) USE ONLY

PERMIT TO CONSTRUCT A WELL 75-1637-20

Review of the above application and related hydrologic data has been made by a duly authorized official of the Southwest Florida Water Management District (Regulatory) and permission for construction of this well is granted in accordance with the Rules and Regulations of SWFWMD(R).

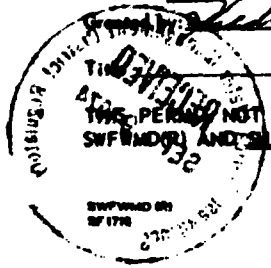
All drilling shall be performed by, or in the presence of, a certified driller and a copy of the well log will be submitted to this office within 30 days after drilling operations cease. In addition to these provisions, compliance with the special item number(s) \_\_\_\_\_, as described on the reverse side of this form, shall be required

This permit does not imply approval of sewage or other waste disposal facilities, or of water supply and other facilities in the area to be supplied by the well.

[Signature] Date 9-9-74

THIS PERMIT IS NOT VALID UNTIL PROPERLY SIGNED AND SEALED BY AN AUTHORIZED OFFICER OF SWFWMD(R) AND SHALL BE MAINTAINED AT THE WELL SITE DURING ALL DRILLING OPERATIONS.

PROMINENTLY DISPLAYED





**STATE OF FLORIDA**  
**WATER WELL CONTRACTOR'S NOTIFICATION**  
**OF CONSTRUCTION OR REPAIR OF A WATER WELL**  
 DEPARTMENT OF NATURAL RESOURCES  
 DIVISION OF INTERIOR RESOURCES  
 606 Larsen Building, Tallahassee, Florida 32304  
 Telephone: (904) 488-8475

Permit No. 75-1638-20

Owner's Well Identification

No. **14969**

For Department Use ONLY

1. OWNER: Ronald Gilliland  
Elst. 2016 Springs, Fla  
 Address City State

14. WELL LOG:

Well No. (in)	Depth (feet)	
	From	To
4	0	10
	10	36
	36	57
	57	170

Note each type of material, producing zones, & describe if any. Give description at not less than 20 foot intervals and at changes.

Sand  
 Sandy Green clay & Sand  
 Heavy Green clay & lime  
 Harder heavy clay

T.D. 170'



2. LOCATION OF WELL:  
 Street Address/Box  
1450 EE  
 City State  
Take Dale  
 Subdivision Lot No.  
36 738 21E  
 Section Township Range

3. PURPOSE OF WELL:  
 Domestic  Irrigation  Public Supply  
 Industrial  Stock  Other

4. TYPE OF WORK:  
 New Well  Flushing  Other  
 Deepening  Reconditioning

5. QUALITY:  
 Clear  Colored  Salty  Other  
 CHECK TEST MADE  
 None  Bacteria  Chemical  
 Chloride  U.S.S.  Other  
 (Check  if test was for nitrate chloride)  
 Test By: Eden Field Well Drilling  
 Name 2016 Springs, Fla  
 Well Disinfected  Yes  No

6. EQUIPMENT:  
 Rotary  Cable Tool  Other  
 Jet  Reverse Rotary

7. GROUT:  
 Describe and give number of bags (25#) From (ft) To (ft)  
None

8. CASING AND LINER PIPE:  
 Diameter (inches) Steel From (ft) To (ft)  
4" Black Steel 0 52  
 Threaded & Coupled  Welded Only  
 T & C & Welded  Other

9. WATER LEVEL:  
 Water level after well completed 37 feet  
 Above  Below land surface  
 Well Flowing:  Yes  No Flow \_\_\_\_\_ gal/min

10. SCREENS:  
 Make Material Diameter (in) Slot Size From (ft) To (ft)  
None

11. UPPER END OF WELL:  
 Pump Installed  Valve  Cap  Other

12. PUMPING TEST:  
 Date \_\_\_\_\_  
 Test Pump  Permanent Pump  
 Measure point to Separate Pipe  
 which is 1/2 feet  above  below land surface  
 Static water level 37 feet  above  below measure point  
 Maximum Drawdown \_\_\_\_\_ feet below measure point  
 Discharge of maximum \_\_\_\_\_ gpm  
 After \_\_\_\_\_ hours

13. PUMP INSTALLED:  
 Type Submersible Model No. AP-246-207  
 Motor Power 1/2 H.P.  
 Capacity 7.2 Gals/min at 20 ft. of total dynamic head  
 No. of bowls or stages \_\_\_\_\_  
 Pump setting 6.3 feet

15. CONTRACTOR'S CERTIFICATION:

This work was done under my jurisdiction and this report is true to the best of my knowledge and belief. The work commenced on Sept 16 and was completed on Sept 16, 1974

Eden Field Well Drilling 1052  
 Contractor License Number  
Sharon W. Whitefield 150  
 Signature of Representative P.O. Box or Street  
2016 Springs, Fla City State  
735-1181 Phone Number

APPLICATION FOR A PERMIT TO CONST. (CT A WELL)

To: Chief, Permits Department  
Post Office Box 457  
Brooksville, Florida 33512

Phone: (904) 796-3511

Date Sept 6, 1974

(TYPE OR USE BALLPOINT PEN AND PRESS HARD)

In compliance with the Rules and Regulations of the Southwest Florida Water Management District (Regulatory)

Edenfield Well Drilling 1052 Zolfo Springs  
DRILLING CONTRACTOR NUMBER ADDRESS

requests authorization to construct a well for Ronald E. Elliott  
NAME OF WELL OWNER

ADDRESS 514 STREET Zolfo Springs 33850  
CITY ZIP CODE

Well will be 4 inches in diameter. Proposed yield to be 50 GPM.

Well will be constructed with  cable tool  rotary  jetted  other (specify) \_\_\_\_\_

Well will be approximately 200 feet deep. Well will have about 84 feet of casing

black pipe  galvanized  other \_\_\_\_\_

Casing will be joined by  coupling  weld  both. Space between casing and hole will be sealed with:

natural materials  neat cement grout  other \_\_\_\_\_

Well will be located at 36 338 25E HARDEE  
SECTION, TOWNSHIP RANGE AND STREET ADDRESS CITY COUNTY

Well will be used for  private supply  public water supply  irrigation  industrial

test well  other FOR 1 HORSE

If this permit is for repair, modification or alteration of a well constructed under a previous permit give number \_\_\_\_\_

and indicate work to be done \_\_\_\_\_

If for modification of a pumping facility which will change quantity pumped indicate old pump \_\_\_\_\_ HP

\_\_\_\_\_ GPM. new pump \_\_\_\_\_ HP \_\_\_\_\_ GPM.

I agree to furnish a log within 30 days after drilling operations cease and to comply with all provisions of the Rules and Regulations of the SWFWMD(R) and with local health regulations relative to well construction.

Signature of Drilling Contractor [Signature]

Access to proposed well site for inspection at any reasonable time is hereby granted personnel of Southwest Florida Water Management District (Regulatory).

Signature of Owner or his Agent [Signature]

DO NOT WRITE BELOW THIS LINE -- FOR SWFWMD(R) USE ONLY

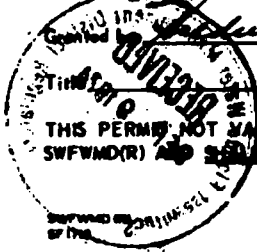
PERMIT TO CONSTRUCT A WELL 75-1638-20

Review of the above application and related hydrologic data has been made by a duly authorized official of the Southwest Florida Water Management District (Regulatory) and permission for construction of this well is granted in accordance with the Rules and Regulations of SWFWMD(R).

All drilling shall be performed by, or in the presence of, a certified driller and a copy of the well log will be submitted to this office within 30 days after drilling operations cease. In addition to these provisions, compliance with the special item number(s) \_\_\_\_\_, as described on the reverse side of this form, shall be required

This permit does not imply approval of sewage or other waste disposal facilities, or of water supply and other facilities to be supplied by the well.

Inspected by [Signature] Date 9-9-74



THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED AND SEALED BY AN AUTHORIZED OFFICER OF SWFWMD(R) AND SHALL BE MAINTAINED AT THE WELL SITE DURING ALL DRILLING OPERATIONS.

PROMINENTLY DISPLAYED

**STATE OF FLORIDA**  
**WATER WELL CONTRACTOR'S NOTIFICATION**  
**OF CONSTRUCTION OR REPAIR OF A WATER WELL**  
 DEPARTMENT OF NATURAL RESOURCES  
 DIVISION OF INTERIOR RESOURCES  
 805 Laxon Building, Tallahassee, Florida 32304  
 Telephone: (904) 488-8476

Permit No. 25-1639-20

Owner's Well Identification

No. **14970**

FOR OFFICIAL USE ONLY

1. OWNER: Ronald Gillman  
FLA. ST. 2018 Springs, FL  
 Address City State

2. LOCATION OF WELL:  
 Street Address Road  
Hardee  
 City County  
Lake Dale FL  
 Section Township Range  
36 73S 15E

3. PURPOSE OF WELL:  
 Domestic  Irrigation  Public Supply  
 Industrial  Stock  Other

4. TYPE OF WORK:  
 New Well  Flushing  Other  
 Deepening  Reconditioning

5. QUALITY:  
 Clear  Colored  Salty  Other  
 CHECK TEST MADE  
 None  County Health Dept.  
 Bacteriological  State Health Dept.  
 Chemical  U.S.S. Edward E. ...  
 Other: U.S.S. ...  
 (Check  if test was for radium (Florida))  
 Temperature \_\_\_\_\_  
 Well Disinfected  Yes  No

6. EQUIPMENT:  
 Rotary  Cable Tool  Other  
 Jet  Reverse Rotary

7. GROUT:  
 None  Cement  Other  
 Describe and give number of bags (50lb.) From (ft) To (ft)

8. CASING AND LINER PIPE:  
 Diameter (inches) Kind From (ft) To (ft)  
4 1/2" Black steel 0 49'-10"  
 Check Coust  Threaded & Coupled  Welded Only  
 T & C & Welded  Other

9. WATER LEVEL:  
 Water level after well completed 31 feet  
 Above  Below land surface  
 Well Flowing:  Yes  No Flow \_\_\_\_\_ gal/min

10. SCREENS:  
 Make Material Diameter (in) Slot Size From (ft) To (ft)  
None

11. UPPER END OF WELL:  
 Pump Installed  Valve  Cap  Other

12. PUMPING TEST:  
 Date \_\_\_\_\_  
 Test Pump  Permanent Pump  
 Measure point is top of pipe  
 which is 4 1/2 feet  above  below land surface  
 Static water level 31 feet  above  below measure point  
 Maximum drawdown \_\_\_\_\_ feet below measure point  
 Discharge at maximum drawdown \_\_\_\_\_ gal/min  
 After \_\_\_\_\_ hours

13. PUMP INSTALLED:  
 Type Submersible Serial/Model No. MP-400-5  
 Motor Power 1/2 Horsepower H.P. 1/2  
 Capacity 25 Gal/min at \_\_\_\_\_ ft. of total dynamic head  
 No. of levels or stages \_\_\_\_\_  
 Pump casing \_\_\_\_\_ feet

14. WELL LOG:

Well Base (ft)	Depth (feet)		Note each type of material, producing zones, & casing if any. Give description of not less than 10 foot intervals and at changes.
	From	To	
4	0	8'	Sand
	8'	16	Mud
	16	47'	Sandy Green Clay
	47	140	Line of heavy Green Clay
	140	155	Line of heavy Clay

T.D. - 155'

15. CONTRACTOR'S CERTIFICATION:  
 This work was done under my jurisdiction and this report is true to the best of my knowledge and belief. The work commenced on Sept 20 and was completed on Sept 26, 1974

Edgar Rich Well Drilling 10521  
 Contractor License Number  
Thomas W. ... 150  
 Signature of Representing P.O. Box or Street  
2018 Springs, Hardee FL  
735-101 Thomas W. ...

APPLICATION FOR A PERMIT TO CONSTRUCT A WELL.

To: Chief, Permits Department  
Post Office Box 457  
Brooksville, Florida 33512

Phone: (904) 796-3511

Date Sept 6, 1974

(TYPE OR USE BALLPOINT PEN AND PRESS HARD)

In compliance with the Rules and Regulations of the Southwest Florida Water Management District (Regulatory)

Eden Field Well Drilling 1052 20th Springs Fl-  
DRILLING CONTRACTOR NUMBER ADDRESS

requests authorization to construct a well for Ronald Hilliard  
NAME OF WELL OWNER

ADDRESS (MAILING) Elm Street 20th Springs, Fla 33880  
STREET OR BOX NO. ZIP CODE

Well will be 4 inches in diameter. Proposed yield to be 50 GPM.

Well will be constructed with  double tool  rotary  jetted  other (specify) \_\_\_\_\_

Well will be approximately 200 feet deep. Well will have about 84 feet of casing

black pipe  galvanized  other \_\_\_\_\_

Casing will be joined by  coupling  weld  both. Space between casing and hole will be sealed with:

natural materials  neat cement grout  other \_\_\_\_\_

Well will be located at 36 33S 25E Three  
SECTION TOWNSHIP RANGE AND STREET ADDRESS CITY COUNTY

Well will be used for  private supply  public water supply  irrigation  industrial

test well  other FOR 1 WELL (HOUSE)

If this permit is for repair, modification or alteration of a well constructed under a previous permit give number \_\_\_\_\_

and indicate work to be done \_\_\_\_\_

If for modification of a pumping facility which will change quantity pumped indicate old pump \_\_\_\_\_ HP

\_\_\_\_\_ GPM. new pump \_\_\_\_\_ HP \_\_\_\_\_ GPM.

I agree to furnish a log within 30 days after drilling operations cease and to comply with all provisions of the Rules and Regulations of the SWFWMD(R) and with local health regulations relative to well construction.

Signature of Drilling Contractor Thomas W. [Signature]

Access to proposed well site for inspection at any reasonable time is hereby granted personnel of Southwest Florida Water Management District (Regulatory).

Signature of Owner or his Agent Ronald Hilliard

DO NOT WRITE BELOW THIS LINE -- FOR SWFWMD(R) USE ONLY

PERMIT TO CONSTRUCT A WELL

Review of the above application and related hydrologic data has been made by a duly authorized official of the Southwest Florida Water Management District (Regulatory) and permission for construction of this well is granted in accordance with the Rules and Regulations of SWFWMD(R). 751637-20

All drilling shall be performed by, or in the presence of, a certified driller and a copy of the well log will be submitted to this office within 30 days after drilling operations cease. In addition to these provisions, compliance with the special item number(s) \_\_\_\_\_, as described on the reverse side of this form, shall be required

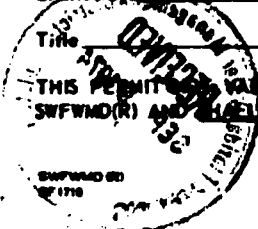
This permit does not imply approval of sewage or other waste disposal facilities, or of water supply and other facilities in the area to be supplied by the well.

Granted by [Signature] Date 9-9-74

Title \_\_\_\_\_

THIS PERMIT IS VALID UNTIL PROPERLY SIGNED AND SEALED BY AN AUTHORIZED OFFICER OF SWFWMD(R) AND MUST BE MAINTAINED AT THE WELL SITE DURING ALL DRILLING OPERATIONS.

PROMINENTLY DISPLAYED



STATE OF FLORIDA  
 WATER WELL CONTRACTOR'S NOTIFICATION  
 OF CONSTRUCTION OR REPAIR OF A WATER WELL  
 DEPARTMENT OF NATURAL RESOURCES  
 DIVISION OF INTERIOR RESOURCES  
 506 Larson Building, Tallahassee, Florida 32304  
 Telephone: (904) 488-8478

Permit No. 2114  
~~75-2007-20~~  
 Owner's Well Identification  
 No. **14972**

For Department Use  
 ONLY

OWNER: Ronald Gilliland  
EL East Zolfo Springs, Fla.  
 Address City State

LOCATION OF WELL:  
 Street Address/Road WARRER  
 City Lakeland County 93  
 Subdivision Lot No.  
36 335 74E  
 Section Township Range

PURPOSE OF WELL:  
 Domestic  Irrigation  Public Supply  
 Industrial  Stock  Other

TYPE OF WORK:  
 New Well  Pumping  Other  
 Deepening  Reconditioning

QUALITY:  
 Clear  Colored  Salty  Other  
 CHECK TEST MADE  
 None  Bacteria  Chemical  
 U.S.S.  Other James Edw. Felt  
 (Check  if test was for radon chloride)  
 Temperature \_\_\_\_\_  
 Well Disinfected  Yes  No

EQUIPMENT:  
 Rotary  Jet  Cable Tool  Other

GROUT:  
 None  Cement  Other  
 Describe and give number of bags (50-lb.) From (ft) To (ft)

CASING AND LINER PIPE:  
 Diameter (inches) Kind From (ft) To (ft)  
4" Black Steel 0 54'  
 Threaded & Coupled  Welded Only  
 T & C & Welded  Other

WATER LEVEL:  
 Water level after well completed 30 feet  
 Above  Below land surface  
 Well Flowing:  Yes  No Flow \_\_\_\_\_ gal/min

SCREENS:  
 Make Materials Diameter (in) Set Size From (ft) To (ft)  
None

UPPER END OF WELL:  
 Pump Installed  Valve  Cap  Other

PUMPING TEST:  
 Date \_\_\_\_\_  Test Pump  Permanent Pump  
 Measure point in Top of Pipe  
 which is 1/2 feet  above  below land surface  
 Static water level 30 feet  above  below measure point  
 Maximum drawdown \_\_\_\_\_ feet below measure point  
 Discharge at Maximum 13.0 gal/min  
 After \_\_\_\_\_ hours

PUMP INSTALLED:  
 Type Submersible Make Sears Model No. AP-402-7  
 Motor Power Electric Make Sears H.P. 1/2  
 Capacity 25 Gal/min at \_\_\_\_\_ ft. of total dynamic head  
 No. of bowls or stages \_\_\_\_\_  
 Pump setting 63 feet

14. WELL LOG:

Well bore (in)	Depth (feet)		Note each type of material, producing zones, & variation if any. Give description at not less than 30 foot intervals and at changes.
	From	To	
4	0	8	Sand
	8	26	Mud
	26	38	Sandy green clay
	38	54'	Sandy green clay, shaly
	54	170	HARD hard limy clay

T.P.-170'

15. CONTRACTOR'S CERTIFICATION:  
 This work was done under my jurisdiction and this report is true to the best of my knowledge and belief. The work commenced on Oct 7, 1974 and was completed on Oct 7, 1974

Eder Field Warr Drilling License Number 1052  
 Signature of Representative James W. Warr P.O. Box No. 150  
Zolfo Springs Hardee Fla.  
 City State County  
735-1191 James W. Warr  
 Phone Number Signature

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (REGULATORY)

APPLICATION FOR A PERMIT TO CONSTRUCT A WELL

To: Chief, Permits Department  
Post Office Box 457  
Brooksville, Florida 33512

Phone: (904) 796-3511

Date Sept. 27, 1974

TYPE ON USE BALL POINT PEN AND PRESS HARD!  
In compliance with the Rules and Regulations of the Southwest Florida Water Management District (Regulatory)

Eden Field Well Drilling #1052 2016 Springs, Fla. 32140  
DRILLING CONTRACTOR NUMBER ADDRESS

requests authorization to construct a well for Ronald Gilliard  
NAME OF WELL OWNER

ADDRESS (MAILING) Ela St. 2016 Springs, Fla. 32140  
STREET OR BOX NO. CITY ZIP CODE

Well will be 4 inches in diameter. Proposed yield to be 40 GPM.

Well will be constructed with  cable tool  rotary  jetted  other (specify) \_\_\_\_\_

Well will be approximately 180 feet deep. Well will have about 55 feet of casing

black pipe  galvanized  other \_\_\_\_\_

Casing will be joined by  coupling  weld  both. Space between casing and hole will be sealed with:

natural materials  neat cement grout  other \_\_\_\_\_

Well will be located at 36 335 2SE SECTION TOWNSHIP RANGE AND \_\_\_\_\_ STREET ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_ COUNTY

Well will be used for  private supply  public water supply  irrigation  industrial

test well  other wells for 1 house #83-#84-#85-#86-#87

If this permit is for repair, modification or alteration of a well constructed under a previous permit give number \_\_\_\_\_

and indicate work to be done \_\_\_\_\_

If for modification of a pumping facility which will change quantity pumped indicate old pump \_\_\_\_\_ HP

\_\_\_\_\_ GPM. new pump \_\_\_\_\_ HP \_\_\_\_\_ GPM.

I agree to furnish a log within 30 days after drilling operations cease and to comply with all provisions of the Rules and Regulations of the SWFWMD(R) and with local health regulations relative to well construction.

Signature of Drilling Contractor \_\_\_\_\_

Access to proposed well site for inspection at any reasonable time is hereby granted personnel of Southwest Florida Water Management District (Regulatory).

Signature of Owner or his Agent Ronald Gilliard

DO NOT WRITE BELOW THIS LINE -- FOR SWFWMD(R) USE ONLY

PERMIT TO CONSTRUCT A WELL 75-2114-20

Review of the above application and related hydrologic data has been made by a duly authorized official of the Southwest Florida Water Management District (Regulatory) and permission for construction of this well is granted in accordance with the Rules and Regulations of SWFWMD(R).

All drilling shall be performed by, or in the presence of, a certified driller and a copy of the well log will be submitted to this office within 30 days after drilling operations cease. In addition to these provisions, compliance with the special item number(s) \_\_\_\_\_, as described on the reverse side of this form, shall be required

This permit does not imply approval of sewage or other waste disposal facilities, or of water supply and other facilities in the area to be supplied by the well.

Granted by: \_\_\_\_\_ Date 9-30-74

Title \_\_\_\_\_

THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED AND SEALED BY AN AUTHORIZED OFFICER OF SWFWMD(R) AND SHALL BE MAINTAINED AT THE WELL SITE DURING ALL DRILLING OPERATIONS.

PROMINENTLY DISPLAYED

**STATE OF FLORIDA**  
**WATER WELL CONTRACTOR'S NOTIFICATION**  
**OF CONSTRUCTION OR REPAIR OF A WATER WELL**  
 DEPARTMENT OF NATURAL RESOURCES  
 DIVISION OF INTERIOR RESOURCES  
 806 Leman Building, Tallahassee, Florida 32304  
 Telephone: (904) 488-8476

#052  
 Per 75-4068-20  
 Owner's Well Identification  
**No 14980**

For Department Use ONLY

1. OWNER: Ronald Gilliam  
East Zolfo Springs, Fla. 33870  
 Address City State

2. LOCATION OF WELL:  
 Street Address Hardee  
 City Lake Lake County 03  
 Subsection 36 Section 335 Range 25E

3. PURPOSE OF WELL:  
 Domestic  Irrigation  Public Supply  
 Industrial  Stock  Other

4. TYPE OF WORK:  
 New Well  Flushing  Other  
 Deepening  Reconditioning

5. QUALITY:  
 Clear  Colored  Silty  Other

CHECK TEST MADE

None  Bacteria  Chemical  
 Chloride  pH  
 (Check  if test was for nitrate chloride)  
 Temperature \_\_\_\_\_  
 Well Disinfected  Yes  No

Test By: Thomas E. DeWitt  
Zolfo Springs, Fla  
 Address

6. EQUIPMENT:  
 Rotary  Cable Tool  Other  
 Jet  Reverse Rotary

7. GROUT:  
 None  Cement  Other  
 Describe and give number of bags (2-50lb.) From (ft) To (ft)

8. CASING AND LINER PIPE:  
 Diameter (outside) 4" Size Black Steel From (ft) To (ft) 0 57

(Check One)  Threaded & Coupled  Welded Only  
 T & C & Welded  Other

9. WATER LEVEL:  
 Water level after well completed 33 feet  
 Above  Below land surface  
 Well Flowing:  Yes  No Flow \_\_\_\_\_ gal/min

10. SCREENS:  
 Location (ft) Below Surface

Make	Material	Diameter (in)	Net Area	From (ft)	To (ft)
<u>None</u>					

11. UPPER END OF WELL:  
 Pump installed  Valve  Cap  Other

12. PUMPING TEST:  
 Date Feb 5, 1976  Test Pump  Permanent Pump  
 Measure point is Top of Pipe  
 which is 1 foot  above  below land surface  
 Static water level 33 feet  above  below measure point  
 Maximum Drawdown \_\_\_\_\_ feet below measure point  
 Discharge at maximum drawdown \_\_\_\_\_ gal/min  
 After \_\_\_\_\_ hours

13. PUMP INSTALLED:  
 Type Sears Make Sears Model No. 2866  
 Motor Power 1/2 Horsepower 1/2 H.P.  
 Capacity 70 Gallons at 30 ft. of total dynamic head  
 No. of bowls or stages \_\_\_\_\_  
 Pump casing 84 feet

14. WELL LOG:

Well No. (ft)	Depth (feet)		Notes each type of material, producing zones, & casing if any. Give description at not less than 20 foot intervals and at changes.
	From	To	
4	0	9	Sand
	9	28	Marl
	28	56'	Sandy Green Clay & Sand
	56	125	Hard line shaly clay

T.D-125'

15. CONTRACTOR'S CERTIFICATION:  
 This work was done under my jurisdiction and this report is true to the best of my knowledge and belief. The work commenced on Feb 2, 1976 and was completed on Feb 6, 1976

Edenfic H Well Drilling License Number 1052  
 Contractor  
Thomas E. DeWitt License Number 150  
 Signature of Representative P.O. Box or Street  
Zolfo Springs, Hardee Fla 33870  
 City County State  
735-1181 Phillip Edenfic  
 Phone Number Office

**SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (REGULATORY)**  
**APPLICATION FOR A PERMIT TO CONSTRUCT A WELL**  
**~~UNDER A SPECIAL CERTIFICATE OF REGISTRATION~~**

TO: CHIEF HYDROLOGIST  
 SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (REGULATORY)  
 Post Office Box 457  
 Brooksville, Florida 33512

DATE 1/20/75

(PLEASE TYPE OR PRINT IN BALLPOINT PEN)

In compliance with the Rules and Regulations Sections 1.01 through 1.08, inclusive, Southwest Florida Water Management District (Regulatory) adopted pursuant to Section 373.171, Florida Statutes, the undersigned

PATTERSON NEW MILK (Firm or Driller) 0406 (Reg. No.) of 2805 S. GOLDENWALD RD. (Address) ORLANDO, FLA. 32807 (City) 112 (County)

applies for a permit and approval of the Southwest Florida Water Management District (Regulatory) for the construction of a well(s) under a special certificate of registration in

Section 24 Township 20 Range 18 DeKalb (County)  
491 (Street or Rural Route) Black Hawk (City)

1. The purpose of the well(s) is IRRIGATION FOR PASTURE

2. 6" well(s) will be CABLE TOOL (Type: jetted, cable tool, rotary or other designate)

to the approximate depth of 150 feet and will be 6" inches in diameter;

there will be 500 feet of casing, constructed of BLACK IRON material and will have WELL SEAL

ON TOP & DRIVE SPACE ON BOTTOM (Proposed type of casing seal) Proposed yield 175 GPM

3. Will the space between the casing and the hole be sealed?  Yes  No

If so, at what points? TOP TO BOTTOM

4. Will any abandoned hole be sealed?  Yes  No How? CEMENTED

The required accompanying paper is enclosed herewith; plat or sketch showing location of proposed well(s) relative to existing buildings or other physical features, especially the locations of all known sources of contamination in the vicinity.

I agree that: 75 4352-12

A log (SWFWMD(R) SF-1640-2), showing the various strata or formations pierced by the well will be forwarded within thirty (30) days after completion or cessation of drilling operation. Compliance with all provisions of the Rules and Regulations of the Southwest Florida Water Management District (Regulatory) cited above will be accomplished.

Access to proposed well sites for inspection at any reasonable time is hereby granted personnel of Southwest Florida Water Management District (Regulatory).

(Signature of Owner)

Edwin O'Neill  
 (Printed Name of Well Owner)

(Signature of Well Drilling Contractor)

Russell F. Patterson  
 (Printed Name & Title)

(Address)

Approved by [Signature]  
 (Authorized representative of SWFWMD(R))

2805 S. GOLDENWALD RD.  
 (Address) (ORLANDO FLA 32807)

(Title) [Signature] (Date) 1/20/75



**STATE OF FLORIDA**  
**WATER WELL CONTRACTOR'S NOTIFICATION**  
**OF CONSTRUCTION OR REPAIR OF A WATER WELL**  
**DEPARTMENT OF NATURAL RESOURCES**  
**DIVISION OF INTERIOR RESOURCES**  
 505 Larson Building, Tallahassee, Florida 32304  
 Telephone: (904) 498-6676

4256  
 Permit No. 95-7044-20  
 Owner's Well Identification  
**No 14974**

State Well Number  
 For Department Use  
 ONLY

1. OWNER: Ronald Collins  
 Name  
Elvish 2016 Springs Fla  
 Address City State

2. LOCATION OF WELL:  
 Street Address/Road  
Hardee  
 County  
Lake Dale Lot No. 83  
 Section 36 Township 73S Range 25E

3. PURPOSE OF WELL:  
 Domestic  Irrigation  Public Supply  
 Industrial  Stock  Other

4. TYPE OF WORK:  
 New Well  Plugging  Other  
 Deepening  Reconditioning

5. QUALITY:  
 Clear  Colored  Siltier  Salty  Other  
 CHECK TEST MADE  
 None  County Health Dept.  
 Bacteria  State Health Dept.  
 Chemical  U.S.G.S.  
 Checked by PPH  Other Thomas Edrington  
 (Check  if test was for within standards)  
 Temperature \_\_\_\_\_  
 Well Disinfected  Yes  No

6. EQUIPMENT:  
 Rotary  Cable Tool  Other  
 Jet  Reverse Rotary

7. GROUT:  
 None  Cement  Other  
 Diameter and give number of bags (40lb.) From (ft) To (ft)

8. CASING AND LINER PIPE:  
 Diameter (inches) Kind From (ft) To (ft)  
4 Blacksteel 0 52  
 Check One  Threaded & Coupled  Welded Only  
 J & C & Welded  Other

9. WATER LEVEL:  
 Water level after well completed 31 feet  
 Above  Below land surface  
 Well Flowing:  Yes  No Flow \_\_\_\_\_ gal/min

10. SCREENS:  
 Make Material Diameter (in) Net Size From (ft) To (ft)  
None

11. UPPER END OF WELL:  
 Plug Installed  Valve  Cap  Other

12. PUMPING TEST:  
 Date Dec-10-1974  Test Pump  Permanent Pump  
 Measure point in Tap of pipe  
 which is 1 foot  above  below land surface  
 Static water level 31 feet  above  below measure point  
 Maximum Drawdown \_\_\_\_\_ feet below measure point  
 Discharge at maximum drawdown 20 gal/min  
 After \_\_\_\_\_ hours

13. PUMP INSTALLED:  
 Type Submersible Make Scars Model No. 2866  
 Motor Power Electric Make Scars H.P. 1/2  
 Capacity 20 gallons at 31 ft. of total dynamic head  
 No. of levels or stages \_\_\_\_\_  
 Pump setting 24 feet

14. WELL LOG:

Well Level (in)	Depth (feet)		Notes each type of material, producing zones, & cor- tion if any. Give description at not less than 50 foot intervals and at changes.
	From	To	
4	0	8	Sand
	8	27	MARL
	27	51	Sand-Sandy Green Clay
	51	53	Hardpan
	53	170	Lime Lining Clay

T.D. 170'

15. CONTRACTOR'S CERTIFICATION:  
 This work was done under my jurisdiction and this report is true to the  
 best of my knowledge and belief. The work commenced on Dec-5-74  
 and was completed on Dec-10-1974

Edwin Fieldwell 1052  
 Contractor License Number  
Thomas W. Edrington 150  
 Signature of Representative P.O. Box or Street  
2016 Springs Hardee Fla  
 City County State  
785-1181 Thomas W. Edrington  
 Phone Number Name

**STATE OF FLORIDA**  
**WATER WELL CONTRACTOR'S NOTIFICATION**  
**OF CONSTRUCTION OR REPAIR OF A WATER WELL**  
**DEPARTMENT OF NATURAL RESOURCES**  
**DIVISION OF INTERIOR RESOURCES**  
 505 Larsen Building, Tallahassee, Florida 32304  
 Telephone: (904) 488-6476

Permit No. 4257  
75-2844-20  
 Owner's Well Identification  
**No 14976**

State Well Number  
For Department Use  
ONLY

1. OWNER: Ronald Gillman  
Elmer  
Elmer 206 Springs Fla-  
 Address City State

2. LOCATION OF WELL:  
 Street Address/Road \_\_\_\_\_  
 \_\_\_\_\_  
 City Hardee  
 County \_\_\_\_\_  
Lake Dale  
 Subdivision \_\_\_\_\_  
36 335 25E-  
 Section Township Range

3. PURPOSE OF WELL:  
 Domestic  Irrigation  Public Supply  
 Industrial  Stock  Other \_\_\_\_\_

4. TYPE OF WORK:  
 New Well  Drilling  Other \_\_\_\_\_  
 Deepening  Reconditioning

5. QUALITY:  
 Clear  Colored  Sulphur  Salty  Other \_\_\_\_\_  
 CHECK TEST MADE  
 None  Bacteriological  Chemical  
 Chloride  FFS  
 (Check  if test was for nitrate chloride)  
 Temperature \_\_\_\_\_  
 Well Disinfected  Yes  No

6. EQUIPMENT:  
 Rotary  Cable Tool  Other \_\_\_\_\_  
 Lat  Reverse Rotary

7. GROUT:  
 None  Cement  Other \_\_\_\_\_  
 Describe and give number of bags (240lb.) From (ft) To (ft)

8. CASING AND LINER PIPE:  
 Diameter (inches) Kind From (ft) To (ft)  
4 Blacksteel 0 53  
 Check One  Threaded & Coupled  Welded Only  
 T & C & Welded  Other \_\_\_\_\_

9. WATER LEVEL:  
 Water level after well completed 34 feet  
 Above  Below land surface  
 Well Flowing:  Yes  No Flow \_\_\_\_\_ gal/min

10. SCREENS:  
 Make Material Diameter (in) Slot Size From (ft) To (ft)  
 Location (ft) Below Surface  
NONE

11. UPPER END OF WELL:  
 Pump Installed  Valve  Cap  Other \_\_\_\_\_

12. PUMPING TEST:  
 Date Dec 18 1974  Test Pump  Permittance Pump  
 Measure point is top of pipe  
 which is 1 foot  above  below land surface  
 Static water level 34 feet  above  below measure point  
 Maximum Drawdown \_\_\_\_\_ feet below measure point  
 Discharge at maximum drawdown \_\_\_\_\_ gal/min  
 Allow \_\_\_\_\_ hours

13. PUMP INSTALLED:  
 Type Submer Make Servo Model No. 2866  
 Motor Power Elmer Make Servo H.P. 1/2  
 Capacity 20 gal/min at 32 ft. of total dynamic head  
 No. of bowls or stages \_\_\_\_\_  
 Pump setting 8' feet

14. WELL LOG:

Well Level (ft)	Depth (feet)		Note each type of material, producing zones, & section if any. Give description at not less than 20 foot intervals and at changes.
	From	To	
4	0	6	Sand -
	6	20	Mud
	20	52	Sandy Gravelly Sand
	52	55	Mudstone -
	55	185	Linear heavy clay

TD 185'

15. CONTRACTOR'S CERTIFICATION:  
 This work was done under my jurisdiction and this report is true to the best of my knowledge and belief. The work commenced on Dec 18 and was completed on Dec 19 1974

Edenfield Well Drilling 1052  
 Contractor License Number  
Thomas Walden 150  
 Signature of Representative P.O. Box or Street  
206 Springs Hardee FL 33890  
 City County State  
735-181 Phillip Edenfield  
 Phone Number Address

**STATE OF FLORIDA**  
**WATER WELL CONTRACTOR'S NOTIFICATION**  
**OF CONSTRUCTION OR REPAIR OF A WATER WELL**  
 DEPARTMENT OF NATURAL RESOURCES  
 DIVISION OF INTERIOR RESOURCES  
 505 LAYNE BUILDING, TALLAHASSEE, FLORIDA 32304  
 Telephone: (904) 488-8475

4358  
 Permit No. 75-1844-20  
 Owner's Well Identification  
**No. 14975**

State Well Number  
 For Department Use  
 ONLY

1. OWNER: Ronald Gilliam  
Elst. 216 Springs Fla.  
 Address City State

2. LOCATION OF WELL:  
 Street Address/Road HERDIE -  
 City Lake Dale County FL  
 Subsection 36 Lot No. 335  
 Section 2SE Township 25E Range 25E

3. PURPOSE OF WELL:  
 Domestic  Industrial  Irrigation  Stock  Public Supply  Other

4. TYPE OF WORK:  
 New Well  Repairing  Flushing  Reconditioning  Other

5. QUALITY:  
 Clear  Colored  Oily  Salty  Other  
**CHECK TEST MADE**  
 None  Static  Chemical  Other  
 Checked by Phillip Edenfield  
 (Check  if test was for  other) 216 Springs Fla.  
 Temperature \_\_\_\_\_  
 Well Disinfected  Yes  No

6. EQUIPMENT:  
 Rotary  Cable Tool  Other  
 Jet  Reverse Rotary

7. GROUT:  
 None  Cement  Other  
 Describe and give number of bags (2-45 lb.) From (ft) To (ft)

8. CASING AND LINER PIPE:  
 Diameter (inches) 4 Material Black Steel From (ft) 0 To (ft) 53'  
 Check Coust  Threaded & Coupled  Welded Only  
 T & C & Welded  Other

9. WATER LEVEL:  
 Water level after well completed 33 feet  
 Above  Below land surface  
 Well Flowing:  Yes  No Flow \_\_\_\_\_ gals/min

10. SCREENS:  
 Make Material Diameter (in) Slot Size From (ft) To (ft)  
None

11. UPPER END OF WELL:  
 Pump Installed  Valve  Cap  Other

12. PUMPING TEST:  
 Date Dec-13-1974  Test Pump  Permanent Pump  
 Measure point is top of pipe  
 which is 4 feet  above  below land surface  
 Static water level 33 feet  above  below measure point  
 Maximum Drawdown \_\_\_\_\_ feet below measure point  
 Discharge at maximum drawdown \_\_\_\_\_ gals/min  
 After \_\_\_\_\_ hours

13. PUMP INSTALLED:  
 Type Submersible Make Sears Model No. 2866  
 Motor Power 1/2 Horsepower SEARS H.P. 1/2  
 Capacity 20 Gals/min at 30 ft. of total dynamic head  
 No. of bowls or stages \_\_\_\_\_  
 Pump setting 84 feet

14. WELL LOG:

Well Depth (ft)	Depth (feet)		Notes each type of material, producing zones, & water flow if any. Give description at not less than 20 foot intervals and at changes.
	From	To	
0	7		Sand -
7	20		MM
20	55'		Sandy Sandy Gravel clay -
55'	57'		Hard lime -
57'	175		Limey clay -

T. P. 175'

15. CONTRACTOR'S CERTIFICATION:  
 This work was done under my jurisdiction and this report is true to the  
 best of my knowledge and belief. The work commenced on Dec-10  
 and was completed on Dec-13, 1974

Edwin Smith Well Drilling License Number 10521  
 Contractor Phillip Edenfield License Number 150  
 Signature of Contractor P.O. Box or Street  
216 Springs, Herdise Fla. 32850  
 City County State  
935118 Phillip Edenfield  
 Phone Number Date

**STATE OF FLORIDA**  
**WATER WELL CONTRACTOR'S NOTIFICATION**  
**OF CONSTRUCTION OR REPAIR OF A WATER WELL**  
 DEPARTMENT OF NATURAL RESOURCES  
 DIVISION OF INTERIOR RESOURCES  
 505 Larson Building, Tallahassee, Florida 32304  
 Telephone: (904) 638-6476

Permit 4257  
75-28774-20  
 Owner's Well Identification  
**No 14978**

For Department Use ONLY

1. OWNER: Ronald Gilliland  
Elash Zolfo Springs Fl.  
 Address City State

2. LOCATION OF WELL:  
 Street Address/Road HORRUB  
 City Lake Dale County 87  
 Subdivision 36 Lot No. 335  
 Section Township Range 25E

3. PURPOSE OF WELL:  
 Domestic  Irrigation  Public Supply  
 Industrial  Stock  Other

4. TYPE OF WORK:  
 New Well  Flushing  Other  
 Deepening  Reconditioning

5. QUALITY:  
 Clear  Colored  Salty  Other  
 CHECK TEST MADE  
 None  Borehole  Chemical  
 Chloride  FPH  
 (Check  if test was for sulfates also)  
 Temperature \_\_\_\_\_  
 Well Disinfected  Yes  No  
 Test By:  
 County Health Dept.  
 State Health Dept.  
 U.S.S.  
 Other Pharm Edw Field  
Zolfo Springs, Fl.  
 Address

6. EQUIPMENT:  
 Rotary  Cable Tool  Other  
 Jet  Reverse Rotary

7. GROUT:  
 None  Cement  Other  
 Describe and give number of bags (50-lb.) From (ft) To (ft)

8. CASING AND LEVER PIPE:  
 Diameter (outside) Size From (ft) To (ft)  
4 Black Steel 0 60  
 Check Out  Threaded & Coupled  Welded Only  
 S & C & Welded  Other

9. WATER LEVEL:  
 Water level after well completed 35 feet  
 Above  Below land surface  
 Well flowing:  Yes  No Flow \_\_\_\_\_ gal/min

10. SCREENS:  
 Make Material Diameter (in) Slot Size Location (ft) Below Surface From (ft) To (ft)  
None

11. UPPER END OF WELL:  
 Pump Installed  Valve  Cap  Other

12. PUMPING TEST:  
 Date Dec 3, 1978  Test Pump  Permanent Pump  
 Measure point in Taps Pipe  
 which is 1 feet  above  below land surface  
 Static water level 35 feet  above  below measure point  
 Maximum drawdown \_\_\_\_\_ feet below measure point  
 Discharge at maximum drawdown \_\_\_\_\_ gal/min  
 After \_\_\_\_\_ hours

13. PUMP INSTALLED:  
 Type Subsea Make Sears Model No. 2866  
 Motor Power Electric Make Sears HP 1/2  
 Capacity 20 Gals/min at 30 ft. of total dynamic head  
 No. of bowls or stages \_\_\_\_\_  
 Pump setting 84 feet

14. WELL LOG:

Well No. (ft)	Depth (feet)		Note each type of material, producing zones, & variations if any. Give description at not less than 30 foot intervals and at changes.
	From	To	
4	0	9	Sand -
	9	26	Marl
	26	59	Sandy clay. Sand -
	59	63	Hard lime
	63	185	Lime & Limy Clay -

T.D. 185'

15. CONTRACTOR'S CERTIFICATION:  
 This work was done under my jurisdiction and this report is true to the best of my knowledge and belief. The work commenced on Dec 27-1978 and was completed on Dec 3, 1978

Edw Field Well Drilling License Number 1052  
 Contractor  
Pharm Edw Field License Number 150  
 Signature of Representative P.O. Box address  
Zolfo Springs HORRUB Fl. 33890  
 City County State  
735-1181 Phillip Edw Field  
 Phone Number Address

**STATE OF FLORIDA**  
**WATER WELL CONTRACTOR'S NOTIFICATION**  
**OF CONSTRUCTION OR REPAIR OF A WATER WELL**  
 DEPARTMENT OF NATURAL RESOURCES  
 DIVISION OF INTERIOR RESOURCES  
 505 Larson Building, Tallahassee, Florida 32304  
 Telephone: (904) 488-6478

4260  
 Form No. 75-2004-70  
 Owner's Well Identification  
**No 14977**

State Well Number  
 For Department Use  
 ONLY

**1. OWNER:** Reynold Gilliam  
Edward 216 Springs Fl  
 Address City State

**2. LOCATION OF WELL:**  
 Street Address and HARDEE  
 City Lake Dale County DB  
 Subdivision 36 Lot No. 335  
 Section 36 Township 25E Range

**3. PURPOSE OF WELL:**  
 Domestic  Irrigation  Public Supply  
 Industrial  Stock  Other

**4. TYPE OF WORK:**  
 New Well  Flushing  Other  
 Deepening  Reconditioning

**5. QUALITY:**  
 Clear  Colored  Oily  Silty  Other

**CHECK TEST MADE**

None  Barometric  Chemical  
 Chloride  FPH  
 (Check  if test was for  
 certain chloride)  
 Temperature \_\_\_\_\_  
 Well Disinfected  Yes  No

**6. EQUIPMENT:**  
 Rotary  Cable Tool  Other  
 Jet  Reverse Rotary

**7. GROUT:**  None  Cement  Other  
 Describe and give number of bags (200lb.) From (ft) To (ft)

**8. CASING AND LIDER PIPE:**  
 Diameter (outside) 4" Kind Black Steel From (ft) 0 To (ft) 52.6"  
 Check Case  Threaded & Coupled  Welded Only  
 T & C & Welded  Other

**9. WATER LEVEL:**  
 Water level after well completed 33 feet  
 Above  Below land surface  
 Well Flowing:  Yes  No Flow \_\_\_\_\_ gpm/day

**10. SCREENS:**  
 Make Material Diameter (in) Slot Size From (ft) To (ft)  
None

**11. UPPER END OF WELL:**  
 Pump Installed  Valve  Cap  Other

**12. PUMPING TEST:**  
 Date Dec-23-1974  Test Pump  Permanent Pump  
 Measure point in top of pipe  
 which is 1 feet  above  below land surface  
 Static water level 33 feet  above  below measure point  
 Maximum drawdown \_\_\_\_\_ feet below measure point  
 Discharge at maximum drawdown \_\_\_\_\_ gpm/day  
 After \_\_\_\_\_ hours

**13. PUMP INSTALLED:**  
 Type Submersible Make Sears Model No. 2866  
 Motor Power Electric Make Sears H.P. 1/2  
 Capacity 20 Gals/min at 30 ft. of total dynamic head  
 No. of hours or days \_\_\_\_\_  
 Pump setting 34 feet

**14. WELL LOG:**

Well Name (ft)	Depth (feet)		Notes each type of material, producing casing, & describe if any. Give description of not less than 10 foot intervals and at changes.
	From	To	
4	0	7	Sand -
	7	27	MARL
	27	54	Sandy clay + Sand -
	54	57'	Hard lime
	57'	185	Lime & heavy clay -

TD-185'

**15. CONTRACTOR'S CERTIFICATION:**  
 This work was done under my installation and this report is true to the best of my knowledge and belief. The work commenced on Dec-19 and was completed on Dec-23, 1974

Edward Field Well Drilling 10521  
 Contractor License Number  
Philip E. Duffin 150  
 Registered Professional F.O. Seal or Stamp  
216 Springs HARDEE FL -  
 City County State  
735-1001 Philip E. Duffin  
 Phone Number Driller

FORM: ENR/80-4

**STATE OF FLORIDA**  
**WATER WELL CONTRACTOR'S NOTIFICATION**  
**OF CONSTRUCTION OR REPAIR OF A WATER WELL**  
 DEPARTMENT OF NATURAL RESOURCES  
 DIVISION OF INTERIOR RESOURCES  
 406 Larson Building, Tallahassee, Florida 32304  
 Telephone: (904) 498-8476

Permit No. 75-4267-20

Owner's Well Identification  
**No. 14981**

State Well Number  
 For Department Use  
 ONLY

1. OWNER: Ronald Gillman  
ELast Zolfo Springs Fla 33840  
 Address City State

2. LOCATION OF WELL:  
 Street Address and HOA#EE-  
Take Dale County 97  
 Section 36 Township 33S Range 25E

3. PURPOSE OF WELL:  
 Domestic  Irrigation  Public Supply  
 Industrial  Stock  Other

4. TYPE OF WORK:  
 New Well  Pumping  Other  
 Deepening  Reconditioning

5. QUALITY:  
 Clear  Oily  Silty  Other  
 CHECK TEST MADE  
 None  Borehole  Chemical  
 Chloride  Fluoride  
 Check  if test was for radium chloride  
 Temperature \_\_\_\_\_  
 Well Disinfected  Yes  No  
 Test By: Phillip Edenborn  
 County Health Dept.  State Health Dept.  
 U.S.G.S.  Other  
Zolfo Springs Fla.  
 Address

6. EQUIPMENT:  
 Rotary  Cable Tool  Other  
 Jet  Reverse Rotary

7. GROUT:  
 None  Cement  Other  
 Describe and give number of bags (50lb.) From (ft) To (ft)

8. CASING AND LIDER PIPE:  
 Diameter (outside) 4" Block Steel From (ft) 0 To (ft) 57'  
 Plain  Threaded & Coupled  Welded Only  
 T & C & Welded  Other

9. WATER LEVEL:  
 Water level after well completed 36 feet  
 Above  Below land surface  
 Well Flowing:  Yes  No Flow \_\_\_\_\_ gpm/day

10. SCREENS:  
 Location (ft) Below Surface  
 Make Material Diameter (in) Net (in) From (ft) To (ft)

<u>None</u>					
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11. UPPER END OF WELL:  
 Pump Installed  Valve  Cap  Other

12. PUMPING TEST:  
 Date Feb 10, 1975  Test Pump  Permanent Pump  
 Measure point to Top of pipe  
 which is 1 feet  above  below land surface  
 Static water level 36 feet  above  below measure point  
 Maximum drawdown \_\_\_\_\_ feet below measure point  
 Discharge at maximum drawdown \_\_\_\_\_ gpm/day  
 After \_\_\_\_\_ hours

13. PUMP INSTALLED:  
 Type Sears Make Sears Model No. 2866  
 Motor Power Electric Sears H.P. 1/2  
 Capacity 20 Gals/min at 100% of total dynamic head  
 No. of beats or strokes \_\_\_\_\_  
 Pump setting 84 feet

14. WELL LOG:

Well Depth (ft)	Depth (ft)		Notes
	From	To	
4	0	7	Sand -
	7'	27	Mud -
	27	58'	Sandy Gravelly sand
	58'	180	Hard limey clay -

T.D.-180'

15. CONTRACTOR'S CERTIFICATION:  
 This work was done under my jurisdiction and this report is true to the best of my knowledge and belief. The work commenced on Feb 5, 1975 and was completed on Feb 10, 1975.

Edenborn Well Drilling 1052  
 Contractor License Number  
Phillip Edenborn 150  
 Signature of Registered Professional Engineer P.O. Box or Street  
Zolfo Springs, Hardee Fla. 33840  
 City County State  
735-1181 Phillip Edenborn  
 Phone Number Name

**STATE OF FLORIDA**  
**WATER WELL CONTRACTOR'S NOTIFICATION**  
**OF CONSTRUCTION OR REPAIR OF A WATER WELL**  
 DEPARTMENT OF NATURAL RESOURCES  
 DIVISION OF INTERIOR RESOURCES  
 505 Loren Building, Tallahassee, Florida 32304  
 Telephone: (904) 488-6476

No. 75-4265-20

Owner's Well Identification

No. **14983**

State Well Identifier  
For Department Use ONLY

**1. OWNER:** Ronald Gilliam  
Elbert 2nd Springs Fl.  
 Address City State

**2. LOCATION OF WELL:**  
 Street Address Road Hardee  
 City Lake Dale County Hardee  
 Subdivision 36 Lot No. 160  
 Section 335 Township 25E

**3. PURPOSE OF WELL:**  
 Domestic  Irrigation  Public Supply  
 Industrial  Stock  Other

**4. TYPE OF WORK:**  
 New Well  Flushing  Other  
 Deepening  Reconditioning

**5. QUALITY:**  
 Other  Cased  Slaty  Sully  Other

**CHECK TEST MADE**

None  Static  Pumping  Other  
 Chemical  Test By: Thomas Edenfield  
 Chloride  FPM (Check  if test was for uranium chloride)  U.S.G.A.  Other  
 Temperature \_\_\_\_\_  
 Well Disinfected  Yes  No

**6. EQUIPMENT:**  
 Rotary  Cable Tool  Other  
 Jet  Reverse Rotary

**7. GROUT:**  Stone  Cement  Other  
 Describe and give number of bags (2-25#) From (ft) To (ft)

**8. CASING AND LINER PIPE:**  
 Diameter (inches) 4" Kind Black Steel From (ft) To (ft) 0 63  
 Check One  Threaded & Coupled  Welded Only  
 C & C & Welded  Other

**9. WATER LEVEL:**  
 Water level after well completed 35' feet  
 Above  Below land surface  
 Well Flowing:  Yes  No Flow \_\_\_\_\_ gal/min

**10. SCREENS:** Location (ft) Below Surface  
 Make Material Diameter (in) Net Area From (ft) To (ft)


**11. UPPER END OF WELL:**  
 Plug Installed  Valve  Cap  Other

**12. PUMPING TEST:**  
 Date Feb 21, 1975  Test Pump  Permanent Pump  
 Measure point is Top of pipe  
 which is 1 feet  above  below land surface  
 Static water level 35 feet  above  below measure point  
 Maximum drawdown \_\_\_\_\_ feet below measure point  
 Discharge at maximum drawdown \_\_\_\_\_ gal/min  
 Other \_\_\_\_\_ hours

**13. PUMP INSTALLED:**  
 Type Sears Make Sears Model No. 2866  
 Motor Power Elect Make Sears H.P. 1/2  
 Capacity 20 Gallons at 30 ft. of total dynamic head  
 No. of bowls or stages \_\_\_\_\_  
 Pump setting 84' feet

**14. WELL LOG:**

Well Depth (ft)	Depth (feet)		Notes each type of material, producing zones, & casing if any. Give description at not less than 30 foot intervals and at changes.
	From	To	
4	0	8	Sand-
	8	26	MOX1
	26	62	Sandy Green clay & Sand-
	62'	130	Hard lime & Limy clay-
	130'	132'	Cavity -

T.D - 132'

**15. CONTRACTOR'S CERTIFICATION:**  
 This work was done under my supervision and this report is true to the best of my knowledge and belief. The work commenced on Feb 21, 1975 and was completed on Feb 21, 1975

Edenfield Well Drilling License Number 1052  
 Contractor Thomas Edenfield License Number 150  
 Signature of Representative Phillip Edenfield F.O. No. or Stamp  
2nd Springs Hardee Fl. F.O. No. 33890  
 City 735-1181 Driller Phillip Edenfield

**STATE OF FLORIDA**  
**WATER WELL CONTRACTOR'S NOTIFICATION**  
**OF CONSTRUCTION OR REPAIR OF A WATER WELL**  
 DEPARTMENT OF NATURAL RESOURCES  
 DIVISION OF INTERIOR RESOURCES  
 505 Lannan Building, Tallahassee, Florida 32304  
 Telephone: (904) 488-6478

Permit No. 5-4338-20  
 Owner's Well Identification No. 5447

State Well Number  
For Department Use ONLY

1. OWNER: RONALD GILLIARD  
 Name FLA  
 Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_

2. LOCATION OF WELL: LAKE DALE RD  
 Street Address/Route  
LAKE DALE HARDPE  
 City County  
 Subdivision \_\_\_\_\_ Lot No. \_\_\_\_\_  
 Section 36 Township 33 Range 25

3. PURPOSE OF WELL:  
 Domestic  Irrigation  Public Supply  
 Industrial  Stock  Other \_\_\_\_\_

4. TYPE OF WORK:  
 New Well  Flaming  Other \_\_\_\_\_  
 Deepening  Reconditioning

5. QUALITY:  
 Clear  Colored  Sulfur  Salty  Other \_\_\_\_\_  
 CHECK TEST MADE  
 None  Bacteria  County Health Dept.  
 Chemical  State Health Dept.  
 Chloride  FPM  U.S.G.S.  
 (Check  if test was for sulfide chloride)  Other \_\_\_\_\_ Name \_\_\_\_\_  
 Temperature 76 °F Address \_\_\_\_\_  
 Well Disinfected  Yes  No

6. EQUIPMENT:  
 Rotary  Cable Tool  Other \_\_\_\_\_  
 Jet  Reverse Rotary

7. GROUT:  
 None  Cement  Other \_\_\_\_\_  
 Describe and give number of bags (50 lb.) From (ft) To (ft)

8. CASING AND LEVER PIPE:  
 Diameter (inches) Kind From (ft) To (ft)  
4" SCH 40 0 57  
BLACK IRON  
 (Check One)  Threaded & Coupled  Welded Only  
 T & C & Welded  Other \_\_\_\_\_

9. WATER LEVEL:  
 Water level after well completed 60 feet  
 Above  Below land surface  
 Well Flowing:  Yes  No Flow \_\_\_\_\_ gal/min

10. SCREENS:

Make	Material	Diameter (in)	Slot Size	From (ft)	To (ft)	Location (ft) Below Surface

11. UPPER END OF WELL:  
 Pump Installed  Valve  Cap  Other \_\_\_\_\_

12. PUMPING TEST:  
 Date \_\_\_\_\_  Test Pump  Permanent Pump  
 Measure point \_\_\_\_\_  
 which is \_\_\_\_\_ feet  above  below land surface  
 Static water level \_\_\_\_\_ feet  above  below measure point  
 Maximum Drawdown \_\_\_\_\_ feet below measure point  
 Discharge at maximum drawdown \_\_\_\_\_ gal/min  
 After \_\_\_\_\_ hours

13. PUMP INSTALLED:  
 Type \_\_\_\_\_ Make \_\_\_\_\_ Model No. \_\_\_\_\_  
 Motor Power \_\_\_\_\_ Make \_\_\_\_\_ H.P. \_\_\_\_\_  
 Capacity \_\_\_\_\_ Gallons or \_\_\_\_\_ ft. of total dynamic head  
 No. of hours or stages \_\_\_\_\_  
 Pump setting \_\_\_\_\_ feet

14. WELL LOG:

Well feet (in)	Depth (feet)		Note each type of material, producing zones, & cavities if any. Give description at not less than 20 foot intervals and at changes.
	From	To	
4	0	35	SAND YELLOW
	35	56	CLAY GREEN
	56	58	ROCK G TAY
	58	86	CLAY G TAY
	86	89	ROCK WHITE
	89	130	CLAY G TAY
	130	145	ROCK BROWN
			BOTTOM OF HOLE 145'

16. CONTRACTOR'S CERTIFICATION:  
 This work was done under my jurisdiction and this report is true to the best of my knowledge and belief. The work commenced on 2-1-74 and was completed on 2-10-74  
DOUGLAS WD. 1065  
 Contractor \_\_\_\_\_ Owner Number \_\_\_\_\_  
Carl Douglas 604 5816  
 Signature of Representative P.O. Box or Street  
WAUCHULA HARDPE FLA  
 City County State  
7734615 Carl Douglas  
 Phone Number Driller  
 FORM: DNR/SW-3



STATE OF FLORIDA  
 WATER WELL CONTRACTOR'S NOTIFICATION  
 OF CONSTRUCTION OR REPAIR OF A WATER WELL  
 DEPARTMENT OF NATURAL RESOURCES  
 DIVISION OF INTERIOR RESOURCES  
 105 Larson Building, Tallahassee, Florida 32304  
 Telephone: (904) 488-0476

Permit No. 6-4337-20  
 Owner's Well Identification  
 No. 5431

State Well Number  
 For Department Use  
 ONLY

1. OWNER: RONALD GILLIARD  
 Name  
 Address FLA  
 City State

2. LOCATION OF WELL LAKE DALE RD  
 Street Address  
LAKE DALE HARDEE  
 City County  
 Subdivision 36 Lot No. 25  
 Section Township Range

3. PURPOSE OF WELL:  
 Domestic  Irrigation  Public Supply  
 Industrial  Stock  Other

4. TYPE OF WORK:  
 New Well  Drilling  Other  
 Deepening  Reconditioning

5. QUALITY:  
 Clear  Colored  Sulfur  Salty  Other  
 CHECK TEST MADE  
 None  Bacteria  County Health Dept.  
 Chemical  State Health Dept.  
 Chloride  U.S.G.S.  
 Other  
 (Check  if test was for sodium chloride)  
 Temperature 70 Address  
 Well Disinfected  Yes  No

6. EQUIPMENT:  
 Rotary  Cable Tool  Other  
 Jet  Reverse Rotary

7. GROUT:  
 None  Cement  Other  
 Describe and give number of bags (94 lbs.) From (ft) To (ft)

8. CASING AND LINER PIPE:  
 Diameter (inches) 4 1/2 Kind IRON From (ft) 0 To (ft) 60  
 SCHED 40 BLACK IRON  Threaded & Coupled  Welded Only  
 T & C & Welded  Other

9. WATER LEVEL:  
 Water level after well completed 58 feet  
 Above  Below land surface  
 Well Flowing:  Yes  No Flow \_\_\_\_\_ gal/min

10. SCREENS:

Make	Material	Depth (ft)	Start (ft)	End (ft)	From (ft)	To (ft)

11. UPPER END OF WELL:  
 Pump Installed  Valve  Cap  Other

12. PUMPING TEST:  
 Date \_\_\_\_\_  Test Pump  Permanent Pump  
 Measure point to \_\_\_\_\_  
 which is \_\_\_\_\_ feet  above  below land surface  
 Static water level \_\_\_\_\_ feet  above  below measure point  
 Maximum Drawdown \_\_\_\_\_ feet below measure point  
 Discharge of maximum drawdown \_\_\_\_\_ gpm  
 After \_\_\_\_\_ hours

13. PUMP INSTALLED:  
 Type \_\_\_\_\_ Make \_\_\_\_\_ Model No. \_\_\_\_\_  
 Motor Power \_\_\_\_\_ H.P.  
 Capacity \_\_\_\_\_ Gal/min at \_\_\_\_\_ ft. of total dynamic head  
 No. of bowls or stages \_\_\_\_\_  
 Pump setting \_\_\_\_\_ feet

14. WELL LOG:

Well bore (in)	Depth (feet)		Note each type of material, producing zones, & cavities if any. Give description at not less than 20 foot intervals and at changes.
	From	To	
4	0	37	SAND YELLOW.
	37	57	CLAY GREEN
	57	59	ROCK GRAY
	59	85	CAY GRAY
	85	88	ROCK WHITE
	88	131	CLAY GRAY
	131	160	ROCK BROWN
16			BOTTOM OF HOLE 160'

15. CONTRACTOR'S CERTIFICATION:  
 This work was done under my jurisdiction and this report is true to the best of my knowledge and belief. The work commenced on 2-10-75 and was completed on 2-13-75  
DOUGLAS WD. 1065  
 Contractor License Number  
Carl Douglas 6049846  
 Signature of Representative P.O. Box or Street  
WAUGHOLA HARDEE FLA.  
 City County State  
7734615 Carl Douglas  
 Phone Number Diller  
 FORM: DNR/SW-3

**SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (REGULATORY)  
APPLICATION FOR A PERMIT TO CONSTRUCT A WELL**

Chief, Permits Department  
Post Office Box 457  
Brooksville, Florida 33512

Phone: (904) 796-3511

Date 1-22-75

TYPE OR USE BALL POINT PEN AND PRESS HARD!

In compliance with the Rules and Regulations of the Southwest Florida Water Management District (Regulatory)

DOUGLAS WD 1065 604 S 85th WAOCHOLA FLA  
DRILLING CONTRACTOR NUMBER ADDRESS 33872

requests authorization to construct a well for RONALD GILLIARD  
NAME OF WELL OWNER

ZOLEO BLD. CONT LAKE DALE 33573  
ADDRESS (MAILING) STREET OR BOX NO. CITY ZIP CODE

Well will be 4 inches in diameter. Proposed yield to be 20 GPM.

Well will be constructed with  cable tool  rotary  jetted  other (specify) \_\_\_\_\_

Well will be approximately 170 feet deep. Well will have about 55 feet of casing

black pipe  galvanized  other \_\_\_\_\_

Casing will be joined by  coupling  weld  both. Space between casing and hole will be sealed with:

natural materials  neat cement grout  other \_\_\_\_\_

Well will be located at 36 23 25 LAKE DALE HARDEE  
SECTION, TOWNSHIP, RANGE AND STREET ADDRESS CITY COUNTY

Well will be used for:  private supply  public water supply  irrigation  industrial

test well  other \_\_\_\_\_

If this permit is for repair, modification or alteration of a well constructed under a previous permit give number \_\_\_\_\_ and indicate work to be done \_\_\_\_\_

I agree to furnish a log within 30 days after drilling operations cease and to comply with all provisions of the Rules and Regulations of the SWFWMD(R) and with local health regulations relative to well construction.

Signature of Drilling Contractor Carl Douglas

I hereby consent to be regulated by Southwest Florida Water Management District and by Southwest Florida Water Management District (Regulatory) regarding consumptive use of water and allocation thereof, and if this permit is granted I agree to comply with the conditions set forth on the reverse side of this form. Access to proposed well site for inspection at any reasonable time is hereby granted personnel of SWFWMD and SWFWMD(R).

Signature of Owner or his authorized Agent Ronald Gilliard

**DO NOT WRITE BELOW THIS LINE -- FOR SWFWMD(R) USE ONLY**

**PERMIT TO CONSTRUCT A WELL**

Review of the above application and related hydrologic data has been made by a duly authorized official of the Southwest Florida Water Management District (Regulatory) and subject to conditions set forth on the reverse side of this form permission for construction of this well is granted in accordance with the Rules and Regulations of SWFWMD(R). 75-4334-20

All drilling shall be performed by, or in the presence of, a certified driller and a copy of the well log will be submitted to this office within 30 days after drilling operations cease. In addition to these provisions, compliance with the special item number(s) \_\_\_\_\_, as described on the reverse side of this form, shall be required.

This permit does not imply approval of sewage or other waste disposal facilities, or of water supply and other facilities in the area to be supplied by the well.

Granted by: Frederic D. Stogard Date 1-24-75

Title \_\_\_\_\_

**THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED AND SEALED BY AN AUTHORIZED OFFICER OF SWFWMD(R) AND SHALL BE MAINTAINED AT THE WELL SITE DURING ALL DRILLING OPERATIONS.**

**PROMINENTLY DISPLAYED**

**STATE OF FLORIDA**  
**WATER WELL CONTRACTOR'S NOTIFICATION**  
**OF CONSTRUCTION OR REPAIR OF A WATER WELL**  
**DEPARTMENT OF NATURAL RESOURCES**  
**DIVISION OF INTERIOR RESOURCES**  
 505 Larson Building, Tallahassee, Florida 32304  
 Telephone: (904) 488-8478

Permit No. **5-4340-20**  
 Owner's Well Identification No. **5468**

State Well Number  
For Department Use ONLY

1. OWNER: **RONALD GILLIARD**  
 Name **FLA**  
 Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_

2. LOCATION OF WELL: **LAKE DALE RD**  
 Street Address/Road  
**LAKE DALE** **HARDEE**  
 City County  
 Subdivision \_\_\_\_\_ Lot No. \_\_\_\_\_  
 Section **33** Township **25**

3. PURPOSE OF WELL:  
 Domestic (Industrial)  Irrigation Stock  Public Supply Other \_\_\_\_\_

4. TYPE OF WORK:  
 New Well  Flushing  Other \_\_\_\_\_  
 Deepening  Reconditioning

5. QUALITY:  
 Clear  Colored  Murky  Salty  Other \_\_\_\_\_  
 CHECK TEST MADE  
 None  Bacteria  County Health Dept.  
 Chemical  State Health Dept.  
 Chloride \_\_\_\_\_ ppm  U.S.G.S.  
 (Check \_\_\_\_\_ if test was for sodium chloride)  Other \_\_\_\_\_  
 Temperature \_\_\_\_\_ Name \_\_\_\_\_  
 Well Disinfected  Yes  No Address \_\_\_\_\_

6. EQUIPMENT:  
 Rotary  Cable Tool  Other \_\_\_\_\_  
 Jet  Reverse Rotary

7. GROUT:  
 None  Cement  Other \_\_\_\_\_  
 Describe and give number of bags (54lb.) From (ft) To (ft)

8. CASING AND LINER PIPE:  
 Diameter (inches) Kind From (ft) To (ft)  
**5.0" 4" BLACK IRON** **49 0** **55**  
 (Check One)  Threaded & Coupled  Welded Only  
 T & C & Welded  Other \_\_\_\_\_

9. WATER LEVEL:  
 Water level after well completed **57** feet  
 Above  Below land surface  
 Well Flowing:  Yes  No Flow \_\_\_\_\_ gal/min

10. SCREENS:  
 Location (ft) Below Surface  
 Make Material Diameter (in) Slot Size From (ft) To (ft)

11. UPPER END OF WELL:  
 Pump Installed  Valve  Cap  Other \_\_\_\_\_

12. PUMPING TEST:  
 Date \_\_\_\_\_  Test Pump  Permanent Pump  
 Measure point is \_\_\_\_\_  
 which is \_\_\_\_\_ (ft)  above  below land surface  
 Static water level \_\_\_\_\_ (ft)  above  below measure point  
 Maximum Drawdown \_\_\_\_\_ feet below measure point  
 Discharge at maximum drawdown \_\_\_\_\_ gal/min  
 After \_\_\_\_\_ hours

13. PUMP INSTALLED:  
 Type \_\_\_\_\_ Make \_\_\_\_\_ Model No. \_\_\_\_\_  
 Motor Power \_\_\_\_\_ Make \_\_\_\_\_ H.P. \_\_\_\_\_  
 Capacity \_\_\_\_\_ Gal/min \_\_\_\_\_ % of rated dynamic head  
 No. of bowls or stages \_\_\_\_\_  
 Pump setting \_\_\_\_\_ feet

14. WELL LOG:

Well bore (in)	Depth (feet)		Note each type of material, producing zones, & cavities if any. Give description at not less than 20 foot intervals and at changes.
	From	To	
4	0	37	SAND YELLOW
	37	54	CLAY GREEN
	54	58	ROCK GRAY
	58	90	CLAY GRAY
	90	92	ROCK WHITE
	92	121	CLAY GRAY
	121	134	ROCK GRAY
	134	175	ROCK BROWN
			BOTTOM OF HOLE 175'

15. CONTRACTOR'S CERTIFICATION:  
 This work was done under my jurisdiction and this report is true to the best of my knowledge and belief. The work commenced on **2-20-76** and was completed on **2-25-76**  
**DOUGLAS WD** **1065**  
 Contractor License Number  
 Signature of Representative **Carl Douglas** P.O. Box or Street  
**WAUCHULA HARDEE FLA.**  
 City County  
**7734615** **Carl Douglas**  
 Phone Number Name  
 FORM: DNR/SW-2

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (REGULATORY)

APPLICATION FOR A PERMIT TO CONSTRUCT A WELL

to: Chief, Permits Department  
Post Office Box 457  
Brooksville, Florida 33512

Phone: (904) 796-3511

Date 1-22-75

(TYPE OR USE BALLPOINT PEN AND PRESS HARD)

In compliance with the Rules and Regulations of the Southwest Florida Water Management District (Regulatory)

DOUGLAS W/D 1066 6045 83<sup>1/2</sup> WAOCHOLA FLA  
DRILLING CONTRACTOR NUMBER ADDRESS 33873

requests authorization to construct a well for RONALD GILLIARD  
NAME OF WELL OWNER

ZOLEO BLD CONT LAKE DALE 33873  
ADDRESS (MAILING) STREET OR BOX NO. CITY ZIP CODE

Well will be 4 inches in diameter. Proposed yield to be 170 GPM.

Well will be constructed with  cable tool  rotary  jetted  other (specify) \_\_\_\_\_

Well will be approximately 155 feet deep. Well will have about 60 feet of casing

black pipe  galvanized  other \_\_\_\_\_

Casing will be joined by  coupling  weld  both. Space between casing and hole will be sealed with:

natural materials  neat cement grout  other \_\_\_\_\_

Well will be located at 36 33 25 LAKE DALE HARDEE  
SECTION, TOWNSHIP, RANGE AND STREET ADDRESS CITY COUNTY

Well will be used for:  private supply  public water supply  irrigation  industrial

test well  other \_\_\_\_\_

If this permit is for repair, modification or alteration of a well constructed under a previous permit give number

\_\_\_\_\_ and indicate work to be done \_\_\_\_\_

I agree to furnish a log within 30 days after drilling operations cease and to comply with all provisions of the Rules and Regulations of the SWFWMD(R) and with local health regulations relative to well construction.

Signature of Drilling Contractor Carl Douglas

I hereby consent to be regulated by Southwest Florida Water Management District and by Southwest Florida Water Management District (Regulatory) regarding consumptive use of water and allocation thereof, and if this permit is granted I agree to comply with the conditions set forth on the reverse side of this form. Access to proposed well site for inspection at any reasonable time is hereby granted personnel of SWFWMD and SWFWMD(R).

Signature of Owner or his authorized Agent Ronald Gilliard

DO NOT WRITE BELOW THIS LINE -- FOR SWFWMD(R) USE ONLY

PERMIT TO CONSTRUCT A WELL

Review of the above application and related hydrologic data has been made by a duly authorized official of the Southwest Florida Water Management District (Regulatory) and subject to conditions set forth on the reverse side of this form permission for construction of this well is granted in accordance with the Rules and Regulations of SWFWMD(R). 75 4240-20

All drilling shall be performed by, or in the presence of, a certified driller and a copy of the well log will be submitted to this office within 30 days after drilling operations cease. In addition to these provisions, compliance with the special item number(s) \_\_\_\_\_, as described on the reverse side of this form, shall be required.

This permit does not imply approval of sewage or other waste disposal facilities, or of water supply and other facilities in the area to be supplied by the well.

Granted by: Fredrick J. [Signature] Date 1-24-75

Title \_\_\_\_\_

THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED AND SEALED BY AN AUTHORIZED OFFICER OF SWFWMD(R) AND SHALL BE MAINTAINED AT THE WELL SITE DURING ALL DRILLING OPERATIONS.

PROMINENTLY DISPLAYED

STATE OF FLORIDA  
 WATER WELL CONTRACTOR'S NOTIFICATION  
 OF CONSTRUCTION OR REPAIR OF A WATER WELL  
 DEPARTMENT OF NATURAL RESOURCES  
 DIVISION OF INTERIOR RESOURCES  
 505 Laramie Building, Tallahassee, Florida 32304  
 Telephone: (904) 188-8478

Permit No. 75-4584-20

Owner's Well Identification \_\_\_\_\_

No. **14991**

State Well Number  
 For Department Use  
 ONLY

1. OWNER: Ronald Gilliard  
 Name  
Elust. 24 Springs Fl  
 Address City State

2. LOCATION OF WELL:  
 Street Address/Road \_\_\_\_\_  
 City Hardee County  
Lake Dale Lot No. 104  
 Subdivision  
36-335 2CE  
 Section Township Range

3. PURPOSE OF WELL:  
 Domestic  Irrigation  Public Supply  
 Industrial  Stock  Other

4. TYPE OF WORK:  
 New Well  Plugging  Other  
 Deepening  Reconditioning

5. QUALITY:  
 Clear  Colored  Sulfur  Salty  Other  
 CHECK TEST MADE  
 None  Bacteria  Chemical  
 Chloride \_\_\_\_\_ ppm  
 (Check  if test was for sodium chloride)  
 Temperature \_\_\_\_\_  
 Well Disinfected  Yes  No  
 Test By:  
 County Health Dept.  
 State Health Dept.  
 U.S.G.S.  
 Other Philip Ederfeld  
 Name  
24 Springs, Fl  
 Address

6. EQUIPMENT:  
 Rotary  Cable Tool  Other  
 Jet  Reverse Rotary

7. GROUT:  None  Cement  Other  
 Describe and give number of bags (94 lb.) From (ft) To (ft)

8. CASING AND LINER PIPE:  
 Diameter (inches) Kind From (ft) To (ft)  
4" Black Steel 0 53  
 (Check One)  Threaded & Coupled  Welded Only  
 T & C & Welded  Other

9. WATER LEVEL:  
 Water level after well completed 36 feet  
 Above  Below land surface  
 Well Flowing:  Yes  No Flow \_\_\_\_\_ gal/min

10. SCREENS:  
 Location (ft) Below Surface  
 Make Materials Diameter (in) Slot Size From (ft) To (ft)

	<u>Acme</u>				
--	-------------	--	--	--	--

11. UPPER END OF WELL:  
 Pump Installed  Valve  Cap  Other

12. PUMPING TEST:  
 Date May 16, 1975  Test Pump  Permanent Pump  
 Measure point is top of pipe  
 which is 1 feet  above  below land surface  
 Static water level 36 feet  above  below measure point  
 Maximum Drawdown \_\_\_\_\_ feet below measure point  
 Discharge at maximum drawdown \_\_\_\_\_ gal/min  
 After \_\_\_\_\_ hours

13. PUMP INSTALLED:  
 Type Electric Make Sevco Model No. 2866  
 Motor Power 1/2 Horsepower H.P. 1/2  
 Capacity 26 Gal/min at 4 ft. of total dynamic head  
 No. of bowls or stages \_\_\_\_\_

14. WELL LOG:

Well bore (in)	Depth (feet)		Notes each type of material, producing zones, & cavities if any. Give description at not less than 20 foot intervals and at changes.
	From	To	
4	0	8	Sand
	8	29	MARL
	29	52	Sandy Clay + HARD Sand
	52	180	HARD liner limy clay

T.N. - 180'

15. CONTRACTOR'S CERTIFICATION:  
 This work was done under my jurisdiction and this report is true to the best of my knowledge and belief. The work commenced on May 15 and was completed on May 26, 1975

Edwin Field Well Drilling License Number 1052  
 Contractor  
Philip Ederfeld License Number 150  
 Signature of Representative P.O. Box or Street  
24 Springs Hardee Fl 33890  
 City County State  
735-118 Philip Ederfeld  
 Phone Number Driller

STATE OF FLORIDA  
 WATER WELL CONTRACTOR'S NOTIFICATION  
 OF CONSTRUCTION OR REPAIR OF A WATER WELL  
 DEPARTMENT OF NATURAL RESOURCES  
 DIVISION OF INTERIOR RESOURCES  
 505 Larson Building, Tallahassee, Florida 32304  
 Telephone: (904) 488-8476

Permit No. 25-4588  
 Owner's Well Identification  
 No. **14988**

ONLY

1. OWNER: Reynold Gilliard  
 Name  
East. 2060 Springs Fl.  
 Address City State

2. LOCATION OF WELL:  
 Street Address/Road  
HOARFE  
 City County  
Lake Dale - 101  
 Subdivision Lot No.  
36 735 25E  
 Section Township Range

3. PURPOSE OF WELL:  
 Domestic  Irrigation  Public Supply  
 Industrial  Stock  Other

4. TYPE OF WORK:  
 New Well  Plugins  Other  
 Deepening  Reconditioning

5. QUALITY:  
 Clear  Colored  Sulfur  Salty  Other

CHECK TEST MADE  
 Nitrate  Bacteria  Chemical  
 Chloride \_\_\_\_\_ PPM  
 (Check  if test was for sodium chloride)  
 Temperature \_\_\_\_\_  
 Well Disinfected  Yes  No

Test By:  
 County Health Dept.  
 State Health Dept.  
 U.S.G.S.  
 Other James E. Dewberry  
2060 Springs, Fl.  
 Name Address

6. EQUIPMENT:  
 Rotary  Cable Tool  Other  
 Jet  Reverse Rotary

7. GROUT:  
 None  Cement  Other  
 Describe and give number of bags (94)lb. From (ft) To (ft)

8. CASING AND LINER PIPE:  
 Diameter (inches) Kind From (ft) To (ft)  
4" Black steel 0 68'  
 (Check One)  Threaded & Coupled  Welded Only  
 T & C & Welded  Other

9. WATER LEVEL:  
 Water level after well completed 40 feet  
 Above  Below land surface  
 Well Flowing:  Yes  No Flow \_\_\_\_\_ gal/min

10. SCREENS:  
 Location (ft) Below Surface  
 Make Materials Diameter (in) Slot Size From (ft) To (ft)

11. UPPER END OF WELL:  
 Pump Installed  Valve  Cap  Other

12. PUMPING TEST  
 Date April 15, 1985 Test Pump  Permanent Pump  
 Measure point is top of pipe  
 which is 1 feet  Above  Below land surface  
 Static water level 40 feet  Above  Below measure point  
 Maximum Drawdown \_\_\_\_\_ feet below measure point  
 Discharge at maximum drawdown \_\_\_\_\_ gal/min  
 After \_\_\_\_\_ hours

13. PUMP INSTALLED:  
 Type Sealair Make Sealair Model No. 2866  
 Motor Power: 1/2 H.P. Make Sealair  
 Capacity 20 Gal/min at 4' ft. of total dynamic head  
 No. of bowls or stages \_\_\_\_\_  
 Pump setting 84 feet

14. WELL LOG:

Well bore (in)	Depth (feet)		Note each type of material, producing zones, & cisties if any. Give description at not less than 20 foot intervals and at changes.
	From	To	
4	0	7'	Sand -
	7	28	Mud
	28	67	Sandy grey clay sand
	67	185	Hard fine shaly clay

T.D. - 185'

15. CONTRACTOR'S CERTIFICATION:  
 This work was done under my jurisdiction and this report is true to the best of my knowledge and belief. The work commenced on April 15, 1985 and was completed on April 15, 1985

Eden Bell Well Drilling License Number 10521  
 Contractor  
James E. Dewberry License Number 150  
 Signature of Representative P.O. Box or Street  
2060 Springs, HOARFE Fla. 33590  
 City County State  
735-1181 Driller Philip Eden Bell  
 Phone Number

STATE OF FLORIDA  
 WATER WELL CONTRACTOR'S NOTIFICATION  
 OF CONSTRUCTION OR REPAIR OF A WATER WELL  
 DEPARTMENT OF NATURAL RESOURCES  
 DIVISION OF INTERIOR RESOURCES  
 505 Larson Building, Tallahassee, Florida 32304  
 Telephone: (904) 488-8476

Permit No. 75-8926-20  
 Owner's Well Identification 1087  
 No. 15277

Scale Well Number  
 For Department Use  
 ONLY

1. OWNER: William Smith Jr.  
 Name  
Rt 2 Apt Rd Wauchula Fla  
 Address City State

2. LOCATION OF WELL: 3 miles N. of Airport  
 Street Address/Road  
Wauchula Hardee  
 City County  
 Subdivision 36 Lot No. 25E  
 Section Township Range

3. PURPOSE OF WELL:  
 Domestic  Irrigation  Public Supply  
 Industrial  Stock  Other

4. TYPE OF WORK:  
 New Well  Plugging  Other  
 Deepening  Reconditioning

5. QUALITY:  
 Clear  Colored  Sulfur  Salty  Other  
 CHECK TEST MADE  
 None  Bacteria  County Health Dept.  
 Chemical  State Health Dept.  
 Chloride PPM  U.S.G.S.  
 (Check  if test was for sodium chloride)  Other  
 Temperature \_\_\_\_\_ Name \_\_\_\_\_  
 Well Disinfected  Yes  No Address \_\_\_\_\_

6. EQUIPMENT:  
 Rotary  Cable Tool  Other  
 Jet  Reverse Rotary

7. GROUT:  None  Cement  Other  
 Describe and give number of bags (54/lb.) From (ft) To (ft)

8. CASING AND LINER PIPE:  
 Diameter (inches) Kind From (ft) To (ft)  
4 inch black steel 0 50  
open hole 50 205  
 (Check One)  Threaded & Coupled  Welded Only  
 T & C & Welded  Other

9. WATER LEVEL:  
 Water level after well completed 36 feet  
 Above  Below land surface  
 Well Flowing:  Yes  No Flow \_\_\_\_\_ gal/min

10. SCREENS:  
 Make Material Diameter (in) Slot Size Location (ft) Below Surface From (ft) To (ft)

<u>NONE</u>						

11. UPPER END OF WELL:  
 Pump Installed  Valve  Cap  Other

12. PUMPING TEST:  
 Date 8-14-75  Test Pump  Permanent Pump  
 Measure point is Top of 4" casing  
 which is 1/2 feet  Above  Below land surface  
 Static water level 36 feet  Above  Below measure point  
 Maximum Drawdown 2 feet below measure point  
 Discharge at maximum drawdown 20 gal/min  
 After 2 hours

13. PUMP INSTALLED:  
 Type Schroeder Model No. \_\_\_\_\_  
 Motor Power 1/2 Horsepower H.P. 1/2  
Electric  
 Capacity 30 Gal/min at \_\_\_\_\_ ft. of total dynamic head  
 No. of bowls or stages \_\_\_\_\_  
 Pump setting 80 feet

14. WELL LOG:

Well bore (in)	Depth (feet)		Note each type of material, producing zones, & cavities if any. Give description at not less than 20 foot intervals and at changes.
	From	To	
4	0	20	sand
4	20	30	Fullers Earth
4	30	40	Blue clays
4	40	50	Blue clay & Rock
4	50	80	White clay & Rock
4	80	150	same as above
4	150	205	Tampa Lime Rock

15. CONTRACTOR'S CERTIFICATION:  
 This work was done under my jurisdiction and this report is true to the best of my knowledge and belief. The work commenced on 7-31-75 and was completed on 8-15-75  
George Duszky Well Drilling 1087  
 Company License Number  
George Duszky Jr. 310 Carlton St  
 Signature of Representative F.O. Box or Street  
Wauchula Hardee Co. Fla  
 City County State  
813-773-6977 Dan Duszky  
 Phone Number Editor

**SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (REGULATORY)**  
 2379 Broad Street, Brooksville, Florida 33512-9712  
 904/796-7211

148925

**APPLICATION FOR A PERMIT TO CONSTRUCT A WELL**

In compliance with the Rules and Regulations of the Southwest Florida Water Management District (Regulatory)

<u>CAESAR BLADHISE</u>			
DRILLING CONTRACTOR		LICENSE NUMBER	
<u>901 SOUTH 11th AVE</u>			
ADDRESS	STREET OR BOX NO.	CITY	ZIP CODE
<u>WAUCHUCA</u>	<u>1-C-A</u>		

(PLEASE TYPE OR PRINT IN ABOVE SPACE)

PERMIT NO.: 408523-20

STIPULATIONS REQUIRED: \_\_\_\_\_  
 (See Reverse)

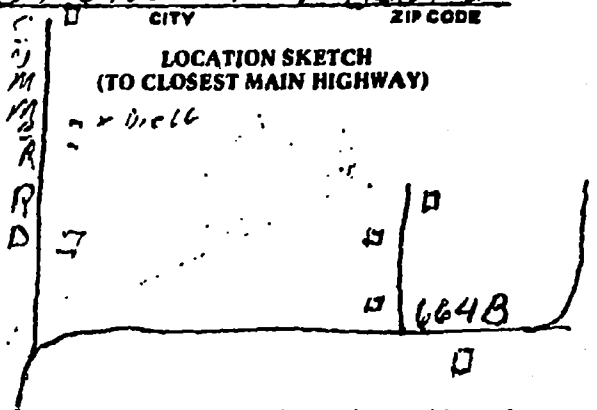
DATE: 9/26/85

Requests authorization to ~~construct~~ repair, modify a well for:  
 (Circle One)

George W. Drake at SUMMER ROAD (see legal)  
 NAME OF WELL OWNER ADDRESS OF WELL LOCATION STREET (OR BOX NO.) CITY ZIP CODE

Box 1182 WAUCHUCA 1-C-A 33878  
 OWNERS MAILING ADDRESS STREET OR BOX NO. CITY ZIP CODE

TYPE OF EQUIPMENT: ROTARY  
 APPROXIMATE DEPTH: 220 DIAMETER: 4"  
 APPROXIMATE CASSED DEPTH: 60 CASING MATERIAL: PVC  
 SEAL: Cement PURPOSE: Home  
 LEGAL DESCRIPTION:  
 QTR. SE QTR. NW SEC. 36 TWP. 33 S. RGE. 25 E.  
 LOT \_\_\_\_\_ BLK. \_\_\_\_\_ UNIT \_\_\_\_\_ SUBDIVISION \_\_\_\_\_  
 COUNTY: HARDEE



I agree to furnish a Completion Report within 30 days after drilling operations cease and to comply with all the provisions of the Rules and Regulations of the SWFWMD(R) relative to well construction. Driller should supply a copy of the Completion Report to the owner.

I understand if the withdrawal is from a well having an inside diameter of six inches (6") or more or if the withdrawal during any single day is to exceed one-million (1,000,000) gallons or if the average annual daily withdrawal is to exceed one hundred thousand (100,000) gallons average per day on an annual basis, then a Consumptive Use Permit must be approved prior to the Construction Permit being authorized.

Signature of Drilling Contractor Caesar Bladhise

Signature of Owner or His Authorized Agent Caesar Bladhise

**DO NOT WRITE BELOW THIS LINE--FOR OFFICIAL USE ONLY**

GRANTED BY: R. W. Richels DATE: 9/26/85

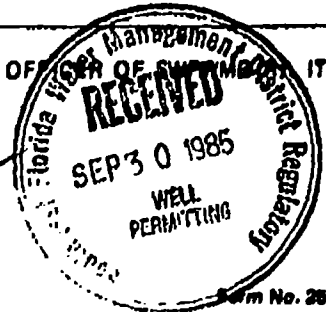
TITLE: Supervision Enforcement

**THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED BY AN AUTHORIZED OFFICIAL OF SWFWMD(R). IT SHALL BE KEPT AT THE WELL SITE DURING ALL DRILLING OPERATIONS.**

CUP NO. \_\_\_\_\_

SWFWMD(R)  
 BF 308(3) Rev. 4/79

IMS UPDATE  
 OCT 3 1985







STATE OF FLORIDA PERMIT APPLICATION TO CONSTRUCT, REPAIR, MODIFY, OR ABANDON A WELL

- Southwest
Northwest
St. Johns River
South Florida
Suwannee River

THIS FORM MUST BE FILLED OUT COMPLETELY.

The water well contractor is responsible for completing this form and forwarding the permit to the appropriate delegated county where applicable.

CHECK BOX FOR APPROPRIATE DISTRICT. ADDRESS ON BACK OF PERMIT FORM.

Permit No. 600529-01
Florida Unique I.D.
Permit Stipulations Required (See attached)
#39
62-524 well
CUP/WUP Application No.

Fold at this line in order that address is visible through envelope window.

1. PAUL DUMONT + JOHN HETTINGA P.O. Box 2581
Owner, Legal Name of Entity if Corporation Address City WALCHULA Zip Telephone Number
2. 565 BOYD COWART ROAD
Well Location - Address, Road Name or Number, City
3. EARL BASKINS Well Drilling
Well Drilling Contractor License No. 2381 Telephone No. 941-773-2422
P.O. BOX 1544 Address
WALCHULA, FLA. 33873 City State Zip
4. SE 1/4 of SE 1/4 of Section 31
5. Township 33S Range 25E
6. Haldee
County Subdivision Name Lot Block Unit SW SE

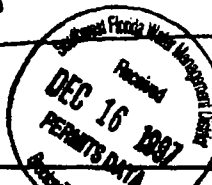
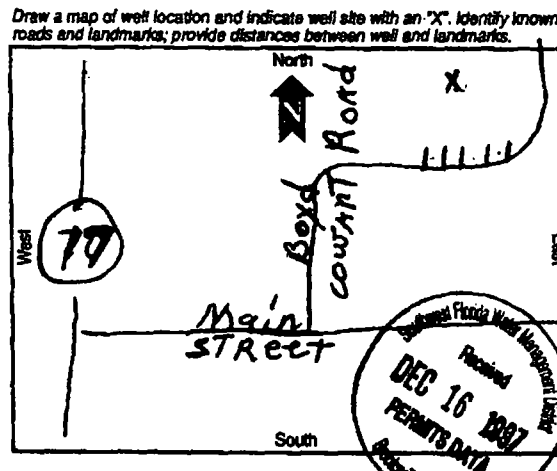
7. Number of proposed wells 1 Check the use of well: (See back of permit for additional choices) Domestic Monitor (type)
Irrigation (type) Public Water Supply (type) List Other
Distance from septic system 75 ft. Description of facility TRAILER Estimated start of construction date 12-16-97

8. Application for: New Construction Repair/Modify Abandonment
9. Estimated: Well Depth 200' Casing Depth 84'
Casing Material: Blk-Steel / Gal / PVC Casing Diameter
10. If applicable: Proposed From 0' to 84' Seal Material Cement
Grouting Interval From to Seal Material

11. Telescope Casing or Liner (check one) Diameter 5"
Blk-Steel / Galvanized / PVC Other (specify):
12. Method of Construction: Rotary Cable Tool Combination
Auger Other (specify):
13. Indicate total No. of wells on site 0. List number of unused wells on site 0

14. Is this well or any other well or water withdrawal on the owner's contiguous property covered under a Consumptive Water Use Permit (CUP/WUP) or CUP/WUP Application? No Yes
District well I.D. No.
Latitude Longitude
Data obtained from GPS or map or survey (map datum NAD 27 NAD 83)

15. I hereby certify that I will comply with the applicable rules of Title 40, Florida Administrative Code, and that a water use permit or artificial recharge permit, if needed, has been or will be obtained prior to commencement of well construction. I further certify that all information provided on this application is accurate and that I will obtain necessary approval from other federal, state, or local governments, if applicable. I agree to provide a well completion report to the District within 30 days after drilling of the permit operation, whichever occurs first.
Signature of Contractor License No. 2381 Owner's or Agent's Signature Date



Approval Granted By: Issue Date: 12-15-97 Hydrologist Approval
Owner Number: 247619 Fee Received: \$ 50. Receipt No. 9800447A Check No.: 2395

THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED BY AN AUTHORIZED OFFICER OR REPRESENTATIVE OF THE WMD. IT SHALL BE AVAILABLE AT THE WELL SITE DURING ALL DRILLING OPERATIONS. This permit is valid for 90 days from date of issue.

**WELL COMPLETION REPORT.** (Please complete in black ink or type.)

PERMIT # 600529-01 WUP # \_\_\_\_\_ DID # \_\_\_\_\_

If permit is for multiple wells indicate the number of wells drilled \_\_\_\_\_

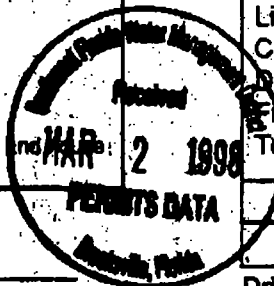
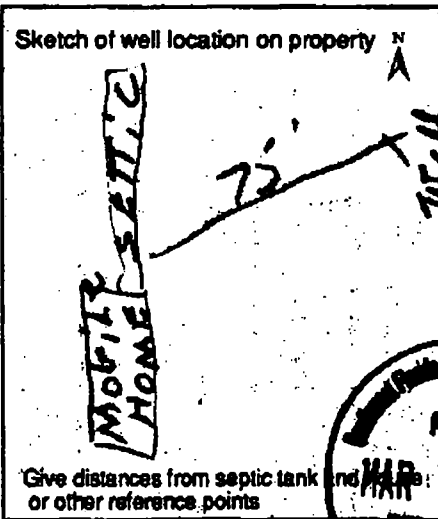
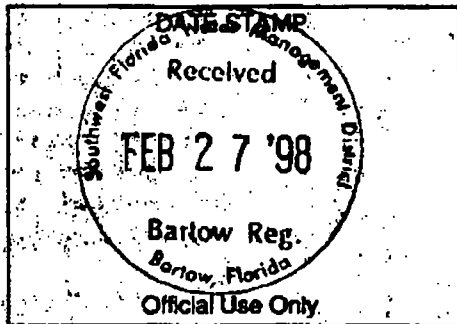
Indicate remaining wells to be cancelled \_\_\_\_\_

WATER WELL CONTRACTOR'S SIGNATURE Earl Gaskins license # 2381

I certify that the information provided in this report is accurate and true.

Grout	No. of Bags	From (Ft.)	To (Ft.)
Neat Cement:	<u>21 Bags</u>	<u>0'</u>	<u>60'</u>
Bentonite:			

WELL LOCATION: County Hardee  
 Qtr: \_\_\_\_\_ Qtr: \_\_\_\_\_ Sec: 36 Twp: 33 S Rge: 25 E



**CHEMICAL ANALYSIS**

Iron: \_\_\_\_\_ ppm Sulfate: \_\_\_\_\_ ppm

Chlorides: \_\_\_\_\_ ppm

[ ] Lab Test [ ] Field Test Kit

Pump Type

[ ] Centrifugal [ ] Jet [ ] Submersible [ ] Turbine

Horsepower \_\_\_\_\_ Capacity \_\_\_\_\_ G.P.M. \_\_\_\_\_

Pump Depth \_\_\_\_\_ Ft. Injection Depth \_\_\_\_\_ Ft.

OWNER'S NAME Paul Humonit + John Hettinga  
 COMPLETION DATE 2-13-98 Florida Unique I.D. \_\_\_\_\_

WELL USE: DEP/Public \_\_\_\_\_ Irrigation \_\_\_\_\_ Domestic  Monitor \_\_\_\_\_  
 HRS Limited \_\_\_\_\_ 62-524 \_\_\_\_\_ Other \_\_\_\_\_

DRILL METHOD [  Rotary [ ] Cable Tool [ ] Combination  
 [ ] Jet [ ] Auger Other \_\_\_\_\_

Measured Static Water Level <u>40'</u>		Measured Pumping Water Level _____	
After _____ Hours at _____ G.P.M. Measuring Pt. (Describe): _____			
Which is _____ Ft. [ ] Above [ ] Below Land Surface			
Casing: [ ] Black Steel [ ] Galv. [ <input checked="" type="checkbox"/> ] PVC Other _____			
[ <input checked="" type="checkbox"/> ] Open Hole [ ] Screen	Depth (Ft.) <u>140'</u>		DRILL CUTTINGS LOG Examine cuttings every 20 ft. or at formation changes. Give color, grain size, and type of material. Note cavities, depth to producing zones.
Casing Diameter & Depth (Ft.)	From	To	
Diameter <u>5"</u>	<u>0'</u>	<u>10'</u>	<u>Sand</u>
From <u>0'</u>	<u>10'</u>	<u>30'</u>	<u>Brown Clay</u>
To <u>40'</u>	<u>30'</u>	<u>50'</u>	<u>White Clay</u>
	<u>50'</u>	<u>60'</u>	<u>White Clay &amp; rock</u>
Diameter _____	<u>60'</u>	<u>80'</u>	<u>Rock &amp; white lime</u>
From _____	<u>80'</u>	<u>100'</u>	<u>White lime</u>
To _____	<u>100'</u>	<u>120'</u>	<u>White lime</u>
	<u>120'</u>	<u>140'</u>	<u>" "</u>
Liner [ ] or Casing [ ]	<u>140'</u>	<u>160'</u>	<u>White lime &amp; brown rock</u>
Diameter _____	<u>160'</u>	<u>180'</u>	<u>White lime</u>
From _____	<u>180'</u>	<u>200'</u>	<u>White lime &amp; rock</u>
To _____			

Driller's Name: Earl Gaskins  
 (print or type)

no completion report record



STATE OF FLORIDA PERMIT APPLICATION TO CONSTRUCT, REPAIR, MODIFY, OR ABANDON A WELL

- Southwest
Northwest
St. Johns River
South Florida
Suwannee River

THIS FORM MUST BE FILLED OUT COMPLETELY. The water well contractor is responsible for completing this form and forwarding the permit to the appropriate delegated county where applicable

CHECK BOX FOR APPROPRIATE DISTRICT ADDRESS ON BACK OF PERMIT FORM

Permit No. 680590.d
Florida Unique I.D.
Permit Stipulations Required (See attached)
31 39 045
62-524 well
CUP/WUP Application No

1. CHARLES E. + GAIL D. BEST P.O. Box 203 WAUCHULA, FL. 33873
Owner, Legal Name of Entity if Corporation Address City Zip Telephone Number

2. APP 4.2 M EAST NORTHEAST OF WAUCHULA, AT INTERSECTION OF SR HWY 664 D + SUMMER RD
Well Location - Address, Road, Name or Number, City

3. DOUGLAS WELL DRIVING 9127
Well Drilling Contractor License No. Telephone No

2404 GREENLEAF ROAD
Address 4. 2 1/4 of 2 1/4 of Section 36
(smallest) (biggest) (Indicate Well on Chart)

2018 Springs, FL. 33890
City State Zip 5. Township 33 Range 25

6. HARDEE
County Subdivision Name Lot Block Unit SW SE

7. Number of proposed wells 1 Check the use of well: Domestic Monitor (type)
Irrigation (type) Public Water Supply (type) List Other

Distance from septic system ft Description of facility Estimated start of construction date 2-03

8. Application for: X New Construction Repair/Modify Abandonment
(Reason for Abandonment)

9. Estimated: Well Depth 1000' Casing Depth 380" Screen Interval from to
Casing Material: Blk-Steel Gal / PVC Casing Diameter 12" Seal Material CEMENT

10. If applicable: Proposed Grouting Interval From to Seal Material

11. Telescope Casing or Liner (check one) Diameter
Blk-Steel / Galvanized / PVC Other (specify)

12. Method of Construction: X Rotary Cable Tool Combination
Auger Other (specify)

13. Indicate total No. of wells on site 0 List number of unused wells on site 0

14. Is this well or any other well or water withdrawal on the owner's contiguous property covered under a Consumptive/Water Use Permit (CUP/WUP) or CUP/WUP Application? No X Yes

(If yes, complete the following) CUP/WUP No. 20012395000

District well I.D. No. 111
Latitude 273416.45 Longitude 814544.08

Data obtained from GPS or map or survey (map datum NAD 27 NAD 83)

15. I hereby certify that I will comply with the applicable rules of Title 40, Florida Administrative Code, and that a water use permit or artificial recharge permit, if needed, has been or will be obtained prior to commencement of well construction. I further certify that all information provided on this application is accurate and that I will obtain necessary approval from other federal, state, or local governmental agencies, if applicable. I agree to provide a well completion report to the District within 30 days after drilling or the permit expiration, whichever occurs first.

I certify that I am the owner of the property, that the information provided is accurate, and that I am aware of my responsibilities under Chapter 373, Florida Statutes, to maintain or properly abandon this well, or, I certify that I am the agent of the owner, that the information provided is accurate, and that I have informed the owner of his responsibilities as stated above. Owner consents to personnel of the WMD or a representative access to the well site

Signature of Contractor 9127 License No. Owners of Agent's Signature 2-4-03 Date

DO NOT WRITE BELOW THIS LINE - FOR OFFICIAL USE ONLY

Approval Granted By: Suwannee Contractor Issue Date: 2-7-2003 Hydrologist Approval Initials

Owner Number: 249064 Fee Received: \$ 50.00 Receipt No.: BACB-2003-2008A Check No.:

THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED BY AN AUTHORIZED OFFICER OR REPRESENTATIVE OF THE WMD. IT SHALL BE AVAILABLE AT THE WELL SITE DURING ALL DRILLING OPERATIONS This permit is valid for 90 days from date of issue.

WHITE: ORIGINAL FILE
YELLOW: DRILLING CONTRACTOR
PINK: OWNER



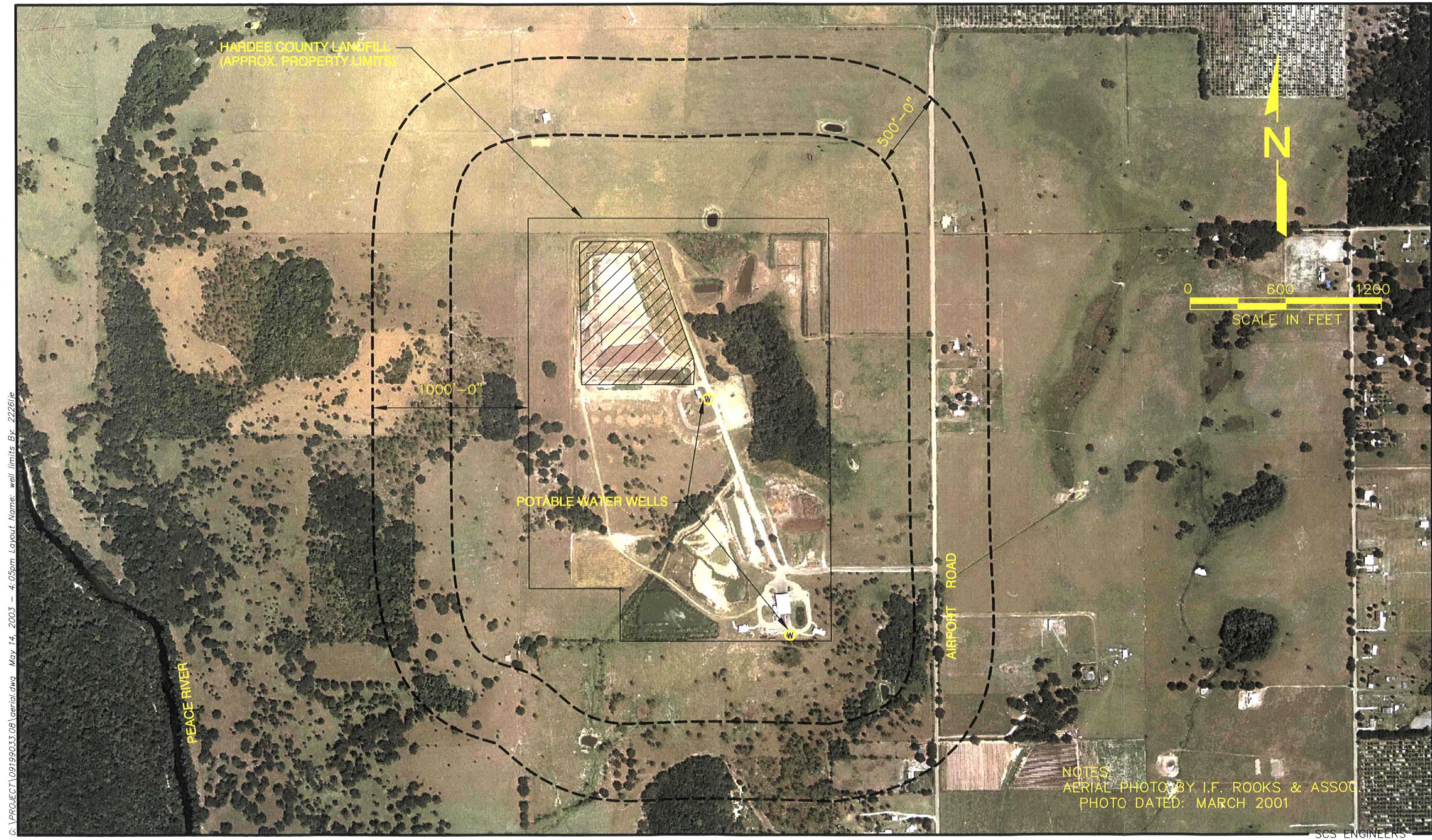


Figure I-1. Well Inventory Map (2003), Hardee County Landfill, Hardee County, Florida



## **SECTION J**

### **GEOTECHNICAL INVESTIGATION REQUIREMENTS**

The information required for Part J has not changed since the March 1997 application for permit renewal.

## **SECTION K**

### **VERTICAL EXPANSION OF LANDFILLS**

Part K of the permit application does not apply to this permit renewal and is designated as "Not Applicable" on the application form.

## **SECTION L**

### **LANDFILL OPERATION REQUIREMENTS**

The information required for Section L of the permit application is included in Attachment L-1, the Landfill Operation Plan.

**ATTACHMENT L-1**  
**LANDFILL OPERATION PLAN**



**Appendix C**  
**Training Certificates**

***Kohl Consulting Inc.***  
**Is Proud to Certify That**

***Janice Williamson***

**Has Successfully Completed the  
16 Hour Initial Training Course for  
Materials Recovery Facility Operators Entitled :**

**16-Hour Initial Training Course Materials  
Recovery Facility Operators (#198)  
November 27th and 28th, 2001**

**And Has Successfully Completed the Required Examination  
in Accordance with the Training Requirements**

**for Waste Processing Facility Operators in Florida**

**Signed this 4th Day of November, 2001**

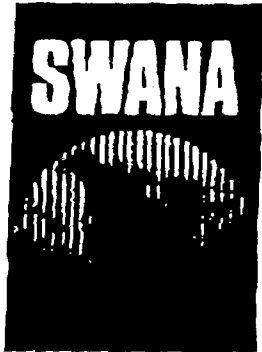


**Chris S. Kohl**

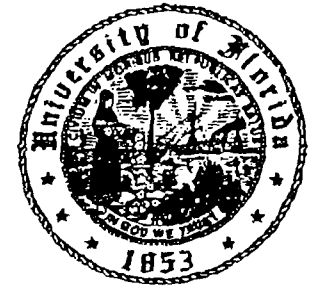
**President**

**Florida Chapter of Governmental Refuse Collection and Disposal Association**

in conjunction with



**University of Florida  
Center for Training, Research and Education  
for Environmental Occupations**



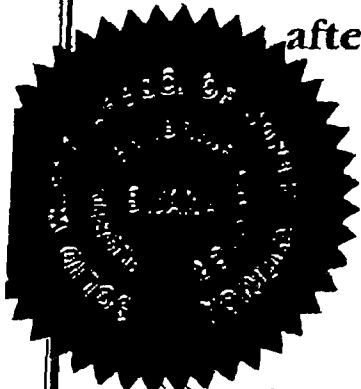
certifies that

**Janice Williamson**

after determination by review of experience, training and examination  
is hereby designated a

***Certified Sanitary Landfill Operator***

*June 15, 1998*



*William R. Williams*

President  
FLORIDA CHAPTER

Certificate # 0552

*William T. Engle*

Director  
UF/TREEO

FROM: JCS ENGINEERS  
FMA NO.: 0803081000  
DATE: 08-18-98

# ENVIRONMENTAL SAFETY & HEALTH INSTITUTE

Environmental Safety & Health Institute, Training Office  
1840 Southside Boulevard Suite 3-C Jacksonville, Florida 32216 Telephone (904) 723-5840

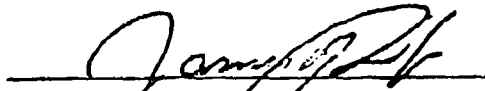
Certify that

*Janice Williamson*

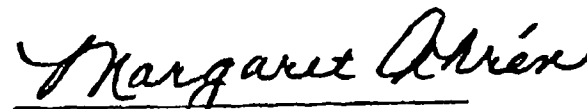
Certificate Number 2400199-04

has successfully completed the requisite training for  
OSHA 40-Hour Hazardous Materials/Waste: Health & Safety  
and in evidence thereof is awarded this

## *Certificate of Completion*

  
James Rizk  
Institute Director



  
Margaret Ahren  
Training Coordinator

Last Date of Attendance: January 29, 1999

Expiration Date: January 29, 2000

**Kohl Consulting Inc.**  
**Is Proud to Certify That**

***Jerry Hutto***

**Has Successfully Completed the  
16 Hour Initial Training Course for  
Materials Recovery Facility Operators Entitled :**

**16-Hour Initial Training Course Materials  
Recovery Facility Operators (#198)  
November 27th and 28th, 2001**

**And Has Successfully Completed the Required Examination  
in Accordance with the Training Requirements**

**for Waste Processing Facility Operators in Florida**

**Signed this 4th Day of November, 2001**



**Chris S. Kohl**

**President**



# UNIVERSITY OF FLORIDA

*Center for Training, Research and Education for Environmental Occupations  
(TREEO Center)*

*certifies that*

**STEVE STRICKLAND**

*attended*

*Solid Waste Landfill Operator Short School*

*November 13-15, 1996*

*and is awarded this*

*Certificate of Attendance*

*Date issued: 11/15/96*

*CEU's : 2.0*

*William T. Engel, Jr.*

*Dr. William T. Engel, Jr.*

*Director*



*This is to certify that*

**Jerry Hutto**

*has met the Solid Waste Association of North America's eligibility requirements and passed a comprehensive examination. Therefore SWANA hereby designates Jerry Hutto as a:*

## **Certified Landfill Technical Associate**

*As of 9/13/02 until 9/13/05*

**Certification No. 64524**

*RA Person*

Richard A. Person  
SWANA Certification Board Chairman

**SWANA**  <sup>®</sup> Educate  
Innovate  
Communicate

**Appendix H**  
**Monitoring Points**



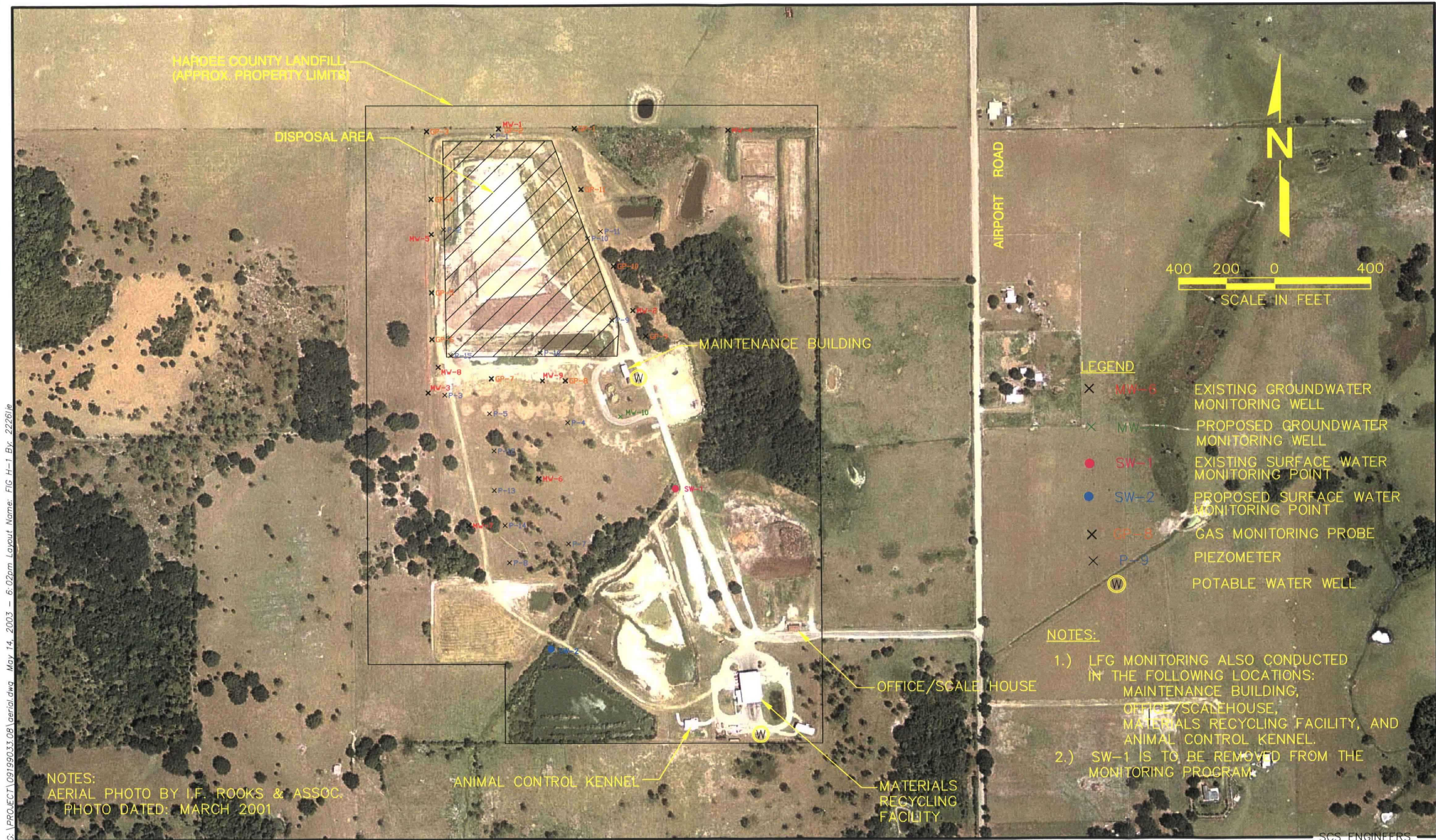


Figure H-1. Monitoring Locations, Hardee County Landfill, Hardee County, Florida



**Appendix I**

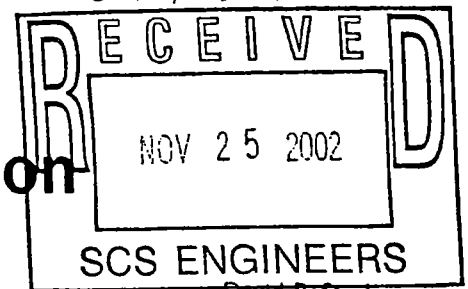
**Current FDEP Permit  
(Number 38414-002-SO)**



Jeb Bush  
Governor

# Department of Environmental Protection

Southwest District  
3804 Coconut Palm Drive  
Tampa, Florida 33619



David B. Struhs  
Secretary

## NOTICE OF PERMIT

November 22, 2002

Hardee County Board of  
County Commissioners  
Ms. Janice Williamson,  
Solid Waste Superintendent  
685 Airport Road  
Wauchula, FL 33873

Dear Ms. Williamson:

Enclosed is the Modification Number **38414-006** to Permit Number 38414-002-SO, issued pursuant to Section(s) 403.087(1), Florida Statutes.

A person whose substantial interests are affected by this permit (or permit modification) may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Department's Office of General Counsel, 3900 Commonwealth Blvd., MS 35, Tallahassee, Florida 32399-3000, within fourteen (14) days of receipt of this Notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within fourteen (14) days shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information;

- (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department File Number and the county in which the project is proposed;
- (b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
- (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;

"More Protection, Less Process"

Printed on recycled paper.

Hardee County BOCC  
c/o Ms. Janice Williamson  
Modification No.: 38414-006  
Permit No.: 38414-002-SO

November 22, 2002  
Page Two

- (d) A statement of the material facts disputed by the petitioner, if any;
- (e) A statement of the facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;
- (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and
- (g) A statement of the relief sought by the petitioner, stating precisely the action the petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition and to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C. Mediation is not available.

This permit (or permit modification) is final and effective on the date filed with the Clerk of the Department unless a petition is filed in accordance with the above paragraphs or 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 Chapters 62-110 and 28-106, F.A.C. Upon timely filing a petition or a request for an extension of time this permit (or permit modification) will not be effective until further Order of the Department.

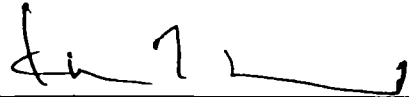
Hardee County BOCC  
c/o Ms. Janice Williamson  
Modification No.: 38414-006  
Permit No.: 38414-002-SO

November 22, 2002  
Page Three

When the Order (permit or permit modification) is final, any party to the Order 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 Blvd., MS 35, Tallahassee, Florida 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: Elected Official Notification List  
Ray Dever, P.E., SCS Engineering  
Susan Pelz, P.E., FDEP Tampa (permit notebook)  
Richard Tedder, P.E., FDEP Tallahassee  
Douglas Beason, OGC, FDEP Tallahassee  
Fred Wick, FDEP Tallahassee

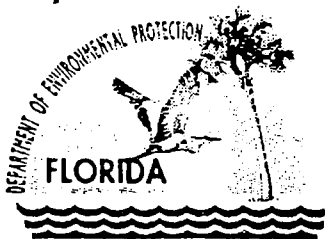
CERTIFICATE OF SERVICE

This is to certify that this NOTICE OF PERMIT and all copies were mailed before the close of business on November 22, 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

11/22/2002  
Date



# Department of Environmental Protection

Jeb Bush  
Governor

Southwest District  
3804 Coconut Palm Drive  
Tampa, Florida 33619

David B. Struhs  
Secretary

November 22, 2002

**PERMITTEE:**

Hardee County Board of  
County Commissioners  
Ms. Janice Williamson,  
Solid Waste Superintendent  
685 Airport Road  
Wauchula, FL 33873

Re: Modification #38414-006 to existing Operation Permit  
Permit No.: 38414-002-SO, Hardee County  
Hardee County Class I Landfill

Dear Ms. Williamson:

Your existing operation permit No. 38414-002-SO is hereby modified as follows:

SPECIFIC CONDITIONS:

TYPE OF MODIFICATION:

2.j. and 10.a

References revised plans for  
sequence of filling.

10.b.

Deletes condition no longer  
needed.

**General Information:** This modification is to revise the sequence of filling.

This letter and its attachments constitute a complete permit and replaces all previous permits and permit modifications for the above referenced facility.

Sincerely

Deborah A. Getzoff  
Director of District Management  
Southwest District

DAG/kbf/ab  
Attachments



# Department of Environmental Protection

Jeb Bush  
Governor

Southwest District  
3804 Coconut Palm Drive  
Tampa, Florida 33619

David B. Struhs  
Secretary

## PERMITTEE

Hardee County Board of  
County Commissioners  
Ms. Janice Williamson,  
Solid Waste Superintendent  
685 Airport Road  
Wauchula, Fl 33873

## PERMIT/CERTIFICATION

GMS ID No: 4025C30001  
Permit No: **38414-002-SO**  
Date of Issue: 11/19/98  
Expiration Date: **11/19/2003**  
County: Hardee  
Lat/Long: 27°34'10"N  
81°47'01"W  
Sec/Town/Rge: 35/33S/25E  
Project: Hardee County  
Class I Landfill  
Operation

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rule(s) 62-3, 62-4, 62-302, 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 a Class I landfill and related facilities (approximately 12.5 acres), referred to as the Hardee County Regional Landfill, subject to the specific and general conditions attached, located at 675 Airport Road, east of the City of Wauchula, Hardee County, Florida. The specific conditions attached are for the operation of:

1. Class I Landfill Disposal Facility
2. Special Waste Management

### General Information - Active Site:

Maximum elevation (including cover): +160 ~~140~~ feet NGVD [~~Sheet 7, SC#2.j.5 i(2)~~]  
Disposal Acreage: 12.5ac.  
Est. Date of Closure: September 2003 ~~March 2004~~ [~~SC#2.d., page 3-4~~]  
Bottom Liner, Leachate Collection System:  
In-situ clay bottom w/geosynthetic sidewalls.  
Perimeter leachate collection system.

Replaces Permit No.: SO25-214306  
Includes Modification Number: 38414-004 dated 08/10/2001,  
38414-005 dated 10/22/2001, and **38414-006 dated 11/22/2002**.

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.
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;



**GENERAL CONDITIONS:**

(General Condition #7, cont'd)

(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.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes 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.

GENERAL CONDITIONS:

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.

- (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.

GENERAL CONDITIONS:

16. In the case of an underground injection control permit, the following permit conditions also shall apply:

(a) All reports or information required by the Department shall be certified as being true, accurate and complete.

(b) Reports of compliance or noncompliance with, or any progress reports on, requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

(c) Notification of any noncompliance which may endanger health or the environment shall be reported verbally to the Department within 24 hours and again within 72 hours, and a final written report provided within two weeks.

1. The verbal reports shall contain any monitoring or other information which indicate that any contaminant may endanger an underground source of drinking water and any noncompliance with a permit condition or malfunction of the injection system which may cause fluid migration into or between underground sources of drinking water.

2. The written submission shall contain a description of and a discussion of the cause of the noncompliance and, if it has not been corrected, the anticipated time the noncompliance is expected to continue, the steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance, and all information required by Rule 62-28.230(4)(b), F.A.C.

(d) The Department shall be notified at least 180 days before conversion or abandonment of an injection well, unless abandonment within a lesser period of time is necessary to protect waters of the State.

**GENERAL CONDITIONS:**

17. The following conditions also shall apply to a hazardous waste facility permit.

(a) The following reports shall be submitted to the Department:

1. Manifest discrepancy report. If a significant discrepancy in a manifest is discovered, the permittee shall attempt to rectify the discrepancy. If not resolved within 15 days after the waste is received, the permittee shall immediately submit a letter report, including a copy of the manifest, to the Department.

2. Unmanifested waste report. The permittee shall submit an unmanifested waste report to the Department within 15 days of receipt of unmanifested waste.

3. Biennial report. A biennial report covering facility activities during the previous calendar year shall be submitted by March 1 of each even numbered year pursuant to Chapter 62-730, F.A.C.

(b) Notification of any noncompliance which may endanger health or the environment, including the release of any hazardous waste that may endanger public drinking water supplies or the occurrence of a fire or explosion from the facility which could threaten the environment or human health outside the facility, shall be reported verbally to the Department within 24 hours, and a written report shall be provided within 5 days. The verbal report shall include the name, address, I.D. number, and telephone number of the facility, its owner or operator, the name and quantity of materials involved, the extent of any injuries, an assessment of actual or potential hazards, and the estimated quantity and disposition of recovered material. The written submission shall contain:

1. A description and cause of the noncompliance.

2. If not corrected, the expected time of correction, and the steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

(c) Reports of compliance or noncompliance with, or any progress reports on, requirements in any compliance schedule shall be submitted no later than 14 days after each schedule date.

(d) All reports or information required by the Department by a hazardous waste permittee shall be signed by a person authorized to sign a permit application.

PECIFIC CONDITIONS:

1. **Landfill Designation.** This site shall be classified as a Class I landfill and shall be operated in accordance with all applicable requirements of Chapters 62-3, 62-4, 62-302, 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 the Class I landfill and related facilities in accordance with Department rules, the conditions of this permit, and the reports, plans and other information, submitted by Post, Buckley, Schuh and Jernigan, Inc. (PBSJ) (or as otherwise noted) as follows:
  - a. Hardee County Regional Landfill, Application for Renewal of Operation Permit, dated March 1997 (received March 11, 1997);
  - b. Additional information dated April 29, 1997 (received April 30, 1997);
  - c. Additional information (concerning groundwater contour maps) dated May 8, 1997 (received May 9, 1997);
  - d. Response to Request for Additional Information dated May 28, 1997 for the Renewal of Operations Permit..., dated June 1997 (received June 27, 1997);
  - e. Additional information (concerning evaluation of existing LCS) dated November 24, 1997 (received December 1, 1997);
  - f. Response to Request for Additional Information dated July 25, 1997 for the Renewal of Operations Permit..., dated December 31, 1997 (received January 2, 1998);
  - g. Response to Request for Additional Information dated January 30, 1998 for the Renewal of Operations Permit..., dated April 24, 1998 (received April 27, 1998), including, but not limited to, Section 7, "Landfill Operation Requirements";
  - h. Response to Request for Additional Information dated January 30, 1998 for the Application for Construction Permit..., dated April 24, 1998 (received April 27, 1998), including the following information as appropriate:
    - 1) Information concerning Section 8, "Water Quality and Leachate Monitoring Requirements" and Appendix D, "Water Quality Monitoring Plan Modification,"
    - 2) Section 5, "Landfill Construction Requirements" (Attachment B), and
    - 3) Proposed Surface Water Sampling Point (Attachment S);

SPECIFIC CONDITIONS:

(Specific Condition #2. cont'd)

i. Plan Sheets entitled, Hardee County Regional Landfill Operations Permit Renewal, dated March 1997 including the following sheets:

- 1) Aerial Surveys received April 30, 1997:
  - a) Sheet 2A of 5
  - b) Sheet 2B of 5
  - c) Sheet 3A of 5
  - d) Sheet 3B of 5
- 2) The following sheets signed and sealed June 26, 1997 (received June 27, 1997):
  - a) Sheet 6, "Sequencing Plan, Sequence 1 through Sequence 6";
  - b) Sheet 7, "Sequencing Plan, Sequence 7 and Details";
  - c) Sheet 8, "Cross Sections".
- 3) Sheet 4 of 5, "Site Plan" as revised June 1997 (received June 27, 1997); and
- 4) Sheet 5 of 5, including revisions April, June and August 1997, "Gas Management System and Miscellaneous Details at Closure" (received January 2, 1998).

j. Information concerning modified sequence of filling, prepared by SCS Engineers, Inc., as follows (replaces previous information as appropriate):

- 1) "Hardee County Landfill Operations Modification,..." information dated December 13, 2000 (received December 13, 2000);
- 2) "Response to Florida Department of Environmental Protection Comments, Hardee County Class I Landfill Modification of Sequence of Filling,..." dated May 11, 2001 (received May 14, 2001);
- ~~3) Plans titled, Hardee County Landfill Minor Operational Fill Sequence Revisions (9 sheets), dated May 2001 (received May 14, 2001);~~
- 4) Letter dated October 8, 2002, application form and calculations, received October 14, 2002;
- 5) Plans titled, Hardee County Landfill Operational Fill Sequence, revised November 2002, received November 18, 2002.  
New 08/10/2001, Amended 11/22/2002.

k. and in accordance with applicable Department rules.  
New 08/10/2001.

**ECIFIC CONDITIONS:**

**3. Permit Modifications.**

a. Any activities not previously approved as part of this permit shall require a separate Department permit unless the Department determines a permit modification to be more appropriate. Permits shall be modified in accordance with the requirements of Rule 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.

~~b. This permit does not authorize the operation of the leachate storage tanks system until the Certification of Construction Completion and supporting documentation has been specifically approved, in writing, by the Department. Operation of this system shall require a minor modification of this permit.~~  
Deleted 10/22/2001.

**4. Permit Renewal.**

a. No later than one hundred eighty (180) days before the expiration of this Operation 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 Rule 62-701.330(3), F.A.C.

b. The slope stability of the proposed 3H:1V slopes for the baled waste shall be evaluated specifically in the permit renewal application, if 3H:1V slopes are proposed for the final closure design. The interface friction angle of the bales shall be estimated, modeled, or otherwise determined in order to provide reasonable assurance that the bales, when placed at a 3H:1V slope in an undrained condition, including equipment loading, will not present a risk of failure with a reasonable factor of safety.  
New 08/10/2001.

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

**6. Special Wastes.**

a. The design, operation, and monitoring of disposal or control of any "special wastes" shall be in accordance with the information listed in Specific Condition #2.g., Section 7; Rules 62-701.300(8) and 62-701.520, F.A.C.; and any other applicable Department rules, to protect the public safety, health and welfare.

b. Large items such as mattresses, televisions, microwaves, sofas, other furniture, etc. shall be baled and disposed with other baled wastes or disposed in the loose waste active face. [ref. Specific Conditions (SC)#2.f., page 2, and #2.d., page 4] In the event that special handling of bulky wastes is required, the Department shall be notified and a minor modification of the Operations Plan may be required to incorporate those management procedures.

**SPECIFIC CONDITIONS:**

(Specific Condition #6. cont'd)

c. **Household hazardous waste (HHW) management.** HHW shall be managed as indicated in the information submitted in Specific Condition #2.g., above, and the conditions below.

- 1) At least weekly, spillage at the HHW Collection Center Facility shall be removed and properly packaged for disposal.
- 2) Liquids shall not be discharged outside of the containment structures of the HHW Collection Center.
- 3) Non-latex paints shall not be air dried.
- 4) Materials shall be stored within containment areas at all times.
- 5) Records on the quantities of HHW collected and removed for disposal shall be compiled monthly and maintained at the facility and copies provided to the Department upon request.

d. **White Goods.** White goods which may contain chlorofluorocarbons (CFCs, such as freon), shall be stored and managed in a manner such that the CFCs are not discharged to the atmosphere. White goods which have had the refrigerant appropriately removed shall be clearly marked.

e. **Scrap Metal.** Scrap metals which may include residual contaminants such as gasoline, oil, paint, antifreeze, PCBs, etc., shall be stored and managed such that the residues or constituents thereof are not spilled, leaked, dumped, or otherwise discharged onto the soil or into surface or groundwaters. Scrap metals shall be stored on an impervious surface. [ref. SC#2.d., page 5]

f. **Lawn Mowers.** Lawn mowers which contain oil or gasoline shall not be accepted. [ref. SC#2.g., page 7-3]

g. **Asbestos.** Asbestos shall be managed in accordance with Rule 62-701.520(4), F.A.C.; the information listed in Specific Condition #2.d., Section 9; and all other applicable federal and Department rules.

h. **C&D Debris.** Construction and demolition debris may be disposed within the lined, Class I disposal cell, subject to the following:

- 1) The C&D debris shall be disposed in a separate area of the Class I cell, as indicated in the Sequencing Plan Sheets [ref. SC#2.i(2), above].



**SPECIFIC CONDITIONS:**

(Specific Condition #6.h. cont'd)

2) C&D debris shall be compacted and sloped in a manner consistent with the final design grades and elevations of the Class I cell.

3) Within 90 days of issuance of this permit, the previous C&D debris disposal area shall be covered with a minimum of 24 inches of soil, compacted and sloped to promote drainage and a vegetative cover shall be established. The permittee shall notify the Department when these activities are complete.

4) No C&D debris shall be placed in Sequence #7 [ref. SC#2.i(2), and #2.f.(page 2)].

5) C&D debris shall not be placed in areas with ponded leachate. The C&D debris disposal area within the Class I disposal cell (shown in the Sequencing Plans, SC#2.i(2)) shall be dry prior to the disposal of any C&D debris. [ref. SC#2.d., page 2, and #2.g., page 7-2,]

i. **Yard Trash.** Yard trash shall be processed at least once every six months. [ref. SC#2.d, page 5 and #2.g., page 7-3] Processed yard trash and wood wastes which do not include painted or treated wood may be used for sideslope stabilization and erosion control in the Class I Landfill. Yard trash shall not be disposed in the Class I Landfill.

**7. Landfill Operation Requirements.**

a. The permittee shall operate this facility in accordance with Rule 62-701.500, F.A.C.; the information submitted in the references listed in Specific Condition #2, above; and applicable Department rules.

b. 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 during the construction or operation of this facility.

c. The permittee shall clearly stake/mark the location of the edge of the liner and maintain the locations as the landfill increases in elevation.

d. Litter shall be collected and disposed in the Class I Landfill at least weekly, or more frequently if necessary.

**8. Operating Personnel.** As required by Rules 62-701.500(1) and 62-701.730(8), F.A.C., at least one trained operator shall be at the Class I and C&D landfills at all times when the landfill receives waste. At least one trained spotter shall be at each working face (i.e. C&D and loose waste) when waste is received. Training documentation shall be maintained at the landfill site, and copies shall be provided to the Department upon request.

**SPECIFIC CONDITIONS:**

9. **Operation Plan and Operating Record.** Each landfill owner or operator shall have an operational plan which meets the requirements of Rules 62-701.500(2) and 62-701.730, F.A.C. 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. Operating records as required by Rules 62-701.500(3) and 62-701.730, F.A.C., are part of the operations plan, and shall also be maintained at the site.
10. **Method and Sequence of Filling.**  
a. The method and sequence of filling shall be in accordance with the Sequencing Plans [ref. SC#2.j.5 (3), above], ~~except as specified herein.~~  
Amended 08/10/2001, 11/22/2002.  
  
b. ~~This modified permit authorizes Fill Sequences 1 and 2 only (Sheets 4 and 5 of 9, [ref. SC#2.j(3)]). Later filling sequences which include placement of baled waste at (or to construct) slopes greater than 4H:1V are not authorized, at this time.~~  
New 08/10/2001, Deleted 11/22/2002.
11. **Waste Records.**  
a. Records shall be maintained as required by Rules 62-701.500(4), and 62-701.500(13), F.A.C., and the conditions of this permit. These records shall be maintained onsite, and copies provided to the Department upon request.  
  
b. The owner or operator shall conduct a survey of the Class I disposal area, and shall estimate the remaining disposal capacity and site life as required by Rule 62-701.500(13)(c). **Annually, no later than April 15th**, a copy of this survey, and supporting capacity calculations, signed and sealed by a registered professional engineer or land surveyor, as appropriate, shall be submitted to the Department. A topographic survey shall be conducted, and submitted with the permit renewal application required by Specific Condition #4.
12. **Control of Access.** Access to, and use of, the facility shall be controlled as required by Rule 62-701.500(5), F.A.C. Pursuant to Rule 62-701.500(12), F.A.C., the landfill shall have onsite roads which are maintained to allow access to monitoring devices and stormwater controls, for landfill inspections and for fire fighting.
13. **Monitoring of Waste.** Wastes shall be monitored as required by Rule 62-701.500(6), F.A.C. The permittee shall not accept hazardous waste or any hazardous substance at this site. Hazardous waste is a waste as defined 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 Rules 62-701.300(4) and 62-701.500(6)(b), F.A.C.

**ECIFIC CONDITIONS:**

**14. Waste Handling Requirements.**

a. All solid waste disposed of in the Class I area shall be covered as required by Rule 62-701.500(7), F.A.C. Initial cover shall be applied and maintained daily in accordance with Rule 62-701.500(7)(e), F.A.C., so as to protect the public health and welfare. Intermediate cover shall be applied and maintained in accordance with Rules 62-701.500(7)(a) and (f), F.A.C.

b. Alternate daily cover materials 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.

c. Areas which have significant vegetation shall be mowed as needed to provide adequate access for inspection and sampling activities.

d. The owner or operator shall conduct three random load checks per week on wastes which are not processed at the MRF and will be disposed in the "loose waste" working face. Documentation of the three random load checks, including descriptions (type and quantity) of unacceptable wastes discovered, shall be maintained on-site, and copies provided to the Department upon request. [ref. SC#2.g., pages 7-8 and 7-12]

e. Soil materials which have been previously used for intermediate or initial cover shall not be re-used for intermediate cover. These materials may be re-used as initial cover provided the runoff from these areas is managed as leachate.

f. Contaminated soils shall not be used for intermediate cover. These materials may be used for initial cover provided the runoff from these areas is managed as leachate. Analyses of the contaminated soils which demonstrate that the soils are not hazardous shall be maintained on-site, and copies provided to the Department upon request.

**15. Working Face.**

a. As required by Rule 62-701.500(7)(d), F.A.C., the owner or operator shall minimize the size of each working face to minimize leachate and the unnecessary use of cover material. The landfill may have 2 working faces, 1-"loose waste" and the other baled waste. C&D debris which has been mixed or commingled with other wastes is no longer considered to be C&D debris, and shall be disposed of as Class I waste.

Amended 08/10/2001.

**SPECIFIC CONDITIONS:**

(Specific Condition #15. cont'd)

b. Berms and swales as shown on the Sequencing Plans [ref. SC#2.i(2)] shall be maintained to prevent leachate runoff from the working face from entering the stormwater management system. Runoff from outside the bermed working face area will not be considered stormwater if the flow passes over areas which have not been intermediately covered as defined by Rule 62-701.200(55), F.A.C., and stabilized to prevent erosion.

16. **Final Cover.** Portions of the landfill which have been filled with waste to the extent of designed dimensions shall be closed **within 180 days** of reaching design dimensions in accordance with Rule 62-701.500(7)(g), F.A.C., and all applicable requirements of Department rules.

17. **Leachate Management.**

a. Leachate shall be managed in accordance with the requirements of Rule 62-701.500(8), F.A.C., and the information submitted in the references listed in Specific Condition #2, above.

b. No later than **thirty (30) days** prior to the expiration of any contracts or agreements for the disposal of leachate at wastewater treatment facilities, the permittee shall provide a copy of the contract renewal or the issuance of a new contract for leachate disposal. Since the current agreement expires January 11, 1999 [ref. SC#2.b., Attachment 7-4], this renewal information shall be submitted **initially, no later than December 12, 1998.**

c. In the event that the primary leachate disposal facility (i.e. City of Wauchula POTW) becomes unable or unwilling to accept leachate for disposal, **within three (3) days** of the cessation of leachate acceptance by the POTW, the landfill owner or operator shall notify the Department and shall explain the contingency measures which will be implemented. The contingency measures shall be implemented **within seven (7) days** of the cessation of leachate acceptance at the POTW [ref. SC#2.g., page 7-24], or in accordance with an alternate schedule approved by the Department.

d. Leachate generation reports shall be compiled monthly and submitted to the Department **quarterly, by January 15th, April 15th, July 15th and October 15th** each year.

1) Leachate generation reports shall include precipitation amounts, the number of open, intermediate and closed acres, and the quantities of leachate collected, stored or impounded, recirculated, and hauled off-site to a wastewater treatment facility.

**SPECIFIC CONDITIONS:**

(Specific Condition #17. cont'd)

~~e. As part of the submittal for the Certification of Construction Completion for the new leachate storage tanks system (required by Specific Condition #13 of Permit Number 38414-001-SC), the permittee shall request a modification to this operating permit to include specific conditions for the operation of the new leachate storage tanks system.~~

Deleted 10/22/2001.

f. Leachate which has accumulated in low areas within the disposal area shall be removed **daily**, for off-site disposal or storage in the leachate storage tanks system.

g. Prior to permit renewal, an inspection, videotape or other appropriate assessment as approved by the Department, of the leachate collection system (LCS) shall be conducted. A report summarizing the results of this inspection shall be submitted to the Department **with the permit renewal application**. 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 and schedule for implementation of corrective actions as appropriate. The permittee shall retain the videotape at the facility for reference and shall provide a copy to the Department upon request.

VIDEO  
TAPE

h. For normal operations when both tanks are in use, each leachate storage tank shall contain no greater than 50% of the maximum capacity for each tank. In the event that the storage tanks contain greater than 50% of the maximum capacity for each tank, the owner or operator shall increase the quantity of leachate which is removed for off-site disposal each day in order to restore sufficient storage capacity and resume normal operations.

i. In the event of an emergency (i.e. substantial rainfall event), the maximum capacity of the tanks may temporarily be utilized. However, **within 2 weeks** of the emergency event, the operator shall ensure that sufficient storage capacity has been restored in the storage tanks system to resume normal operations.

j. **Tank Manufacturer's Inspection.**

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

**SPECIFIC CONDITIONS:**

(Specific Condition #17.j. cont'd)

2) Additionally, the permittee shall arrange for the tank manufacturer's initial inspection of the tank. This inspection shall be conducted **no later than one (1) year** after the tank's initial use. A copy of the manufacturer's inspection report shall be submitted to the Department **within 30 days** of the inspection. In the event that deficiencies are noted in the inspection report, the permittee shall propose corrective measures (including a schedule for implementation) to the Department. The deficiencies shall be corrected in accordance with the schedule approved by the Department.

k. The leachate storage tanks and LCRS shall be inspected at least weekly [ref. SC #2.h(2), pages 5-7 and 5-8].

**18. Landfill Gas - NSPS and Title V Air Requirements.**

a. This solid waste permit will meet the statutory requirement to obtain an air construction permit before modifying or constructing a source of air pollution, except for those landfills that are subject to the prevention of significant deterioration (PSD) requirements of Chapter 62-212, F.A.C. Facilities that are subject to the PSD requirements shall obtain an air construction permit from the Bureau of Air Regulation prior to beginning construction or modification pursuant to Rule 62-210.400, F.A.C.

b. The permittee shall comply with any applicable Title V air operation permit application requirements of Chapter 62-213, F.A.C., and 40 CFR 60, Subparts WWW and Cc, as adopted by reference at Rule 62-204.800, F.A.C. Title V Permit applications shall be submitted to the District Air Program Administrator or County Air Program Administrator with air permitting authority for the landfill.

c. The permittee shall submit to the Division of Air Resources Management, Department of Environmental Protection, Mail Station 5500, 2600 Blair Stone Road, Tallahassee, FL 32399-2400 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).

**19. Gas Management and Monitoring.**

a. Landfill gas shall be monitored as required by Rule 62-701.500(9), F.A.C. Landfill gas collection, monitoring and recovery systems shall be operated to comply with Rules 62-701.400(10) and (11), F.A.C., respectively.

**SPECIFIC CONDITIONS:**

(Specific Condition #19. cont'd)

b. The results of the quarterly monitoring as required by Rule 62-701.400(10)(c)2, F.A.C., shall be submitted by the following dates:

Quarter 1	April 15th
Quarter 2	July 15th
Quarter 3	October 15th
Quarter 4	January 15th

20. **Gas Monitoring Locations.** The gas monitoring probes GP-1 through GP-9 are shown on Sheet 5 of 5 in the Plan Sheets entitled, "Gas Management System and Miscellaneous Details at Closure," as revised April, June and August 1997 (received January 2, 1998), prepared by PBS&J. These probes, and the following structures shall be sampled **quarterly** for the Lower Explosive Limit (LEL) of methane, as described in Rule 62-701.400(10)(c), F.A.C.:

Maintenance Building  
Materials Recovery Facility  
Scalehouse/Administrative Offices  
Kennel

21. **Gas Remediation.** If the Lower Explosive Limit (LEL) is greater than 25% inside structures both on or off of the landfill site, or greater than 100% at the property boundary, the owner shall submit to the Department **within 7 days** a remediation plan detailing the nature and extent of the problem and the proposed remedy. The remedy shall be completed **within 60 days** of detection unless otherwise approved by the Department.

22. **Waste Burning.** Open burning of solid waste is prohibited except in accordance with Rule 62-701.520(2), F.A.C. 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 Rule 62-2.500(1)(e), F.A.C. Any accidental fires which require longer than one (1) hour to extinguish must be promptly reported to the Department of Environmental Protection.

23. **Closure Permit Requirements.** The landfill owner or operator shall submit a closure permit application to the Department, on DEP Form 62-701.900(1), for those portions of the landfill which have reached design dimensions and grades. The permit application shall be submitted either (whichever occurs first):

a. At least **90 days prior** to the date when wastes will no longer be accepted for active portions of the landfill, as required by Rule 62-701.600(3), F.A.C., or

b. **Within sixty (60) days** of completion of Sequence #4 [ref. SC#2.i(2)].

**SPECIFIC CONDITIONS:**

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

a. . All costs for closure and long-term care shall be adjusted and submitted **annually, by September 1st** 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.  
Amended 08/10/2001.

25. **Control of Nuisance Conditions.** The operating authority shall be responsible for the control of odors and fugitive particulates arising from this operation. 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. The owner or operator shall control mosquitoes and rodents or request such control measures from the local mosquito control office, so as to protect the public health and welfare.

26. **Facility Maintenance and Repair.** The site shall be properly maintained including erosion control, maintenance of grass cover, prevention of ponding, gas venting and monitoring systems repairs, groundwater monitoring system repairs, and repair and maintenance of leachate collection and removal systems, including leachate storage tanks system.

a. In the event of damage to any portion of the landfill site facilities or failure of any portion of the landfill systems (except routine equipment maintenance), the permittee shall **immediately (within 24 hours)** notify the Department of Environmental Protection explaining such occurrence and remedial measures to be taken and time needed for repairs. Written detailed notification shall be submitted to the Department **within seven (7) days** following the occurrence.

b. In the event that any portion of the groundwater monitoring system is damaged, remedial measures shall be completed within **sixty (60) days** of the written notification specified in Specific Condition #26.a. above, unless otherwise approved by the Department.



**SPECIFIC CONDITIONS:**

(Specific Condition #26. cont'd)

c. In the event that the stormwater or leachate management systems are damaged or are not operating effectively, corrective actions shall be implemented within **thirty (30) days** of the written notification specified in Specific Condition #26.a. above, unless otherwise approved by the Department.

d. Repairs shall be initiated within 48 hours of detection of significant erosion in intermediately covered areas, or areas which discharge to the stormwater management system [ref. SC#2.6., page 10]. For the purposes of compliance with this Specific Condition, "significant" means that either:

- 1) the soil cover materials have eroded such that greater than 50% of the soil in that location has been eroded, or
- 2) waste is exposed.

27. **Stormwater System Management.** The landfill shall have a surface water management systems designed, constructed, operated, and maintained to prevent surface water from running onto waste filled areas, and a stormwater runoff control system designed, constructed, operated, and maintained to collect and control stormwater to meet the requirements of Chapter 62-330, F.A.C., and the requirements for management and storage of surface water in accordance with Rule 62-701.500(10), F.A.C., to meet applicable standards of Chapters 62-3, 62-302, and 62-330, F.A.C.

28. **Water Quality Requirements.** Landfills shall be designed, constructed, operated, maintained, closed, and monitored throughout its design period to control the movement of waste and waste constituents into the environment so that groundwater and surface water quality standards and criteria of Chapters 62-4, 62-302, and 62-520, F.A.C., will not be violated beyond the zone of discharge specified for the landfill.

29. **Water Quality Monitoring Quality Assurance.**

a. The field testing, sample collection and preservation and laboratory testing, including quality control procedures, 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, A.S.T.M., or EPA methods shall be used.

**SPECIFIC CONDITIONS:**

(Specific Condition #29. cont'd)

b. All field and laboratory work done in connection with the facility's Water Quality Monitoring Plan shall be conducted by a firm possessing a Quality Assurance Project Plan or a Comprehensive Quality Assurance Plan approved by the Department to meet the requirements of Chapter 62-160, F.A.C. The Quality Assurance Plan must specifically address the types of sampling and analytical work that is required by the permit. The Quality Assurance Plan shall be required of all persons performing sampling or analysis, and shall be followed by all persons collecting or analyzing samples related to this permit. Documentation of an approved QAP shall be submitted with the first water quality reports conducted by either a new sampling organization or a new laboratory. Documentation shall include the completed signature page and the Table of Contents of the approved plan.

**30. Zone of Discharge.**

a. The zone of discharge for this site shall extend horizontally 100 feet from the limits of the landfill closure or to the property boundary, whichever is less, and shall extend vertically to the bottom of the surficial aquifer.

b. The permittee shall ensure that the water quality standards and minimum criteria for Class G-II groundwaters will not be exceeded at the boundary of the zone of discharge according to Rules 62-520.400 and 62-520.420, F.A.C.

**31. Leachate Sampling.** Leachate shall be sampled from Manhole 1 (see Sheet 4 of 5, ref. SC#2.i(3)) of the leachate collection system, and analyzed **every 6 months** for the following monitoring parameters:

Field parameters  
Specific Conductivity  
pH  
Dissolved oxygen  
Colors, sheens  
(by observation)

Laboratory parameters  
Total Ammonia - N  
Bicarbonate  
Chlorides  
Iron  
Mercury  
Nitrate  
Sodium  
Total Dissolved Solids (TDS)  
Those parameters listed in  
40 CFR Part 258, Appendix I

**SPECIFIC CONDITIONS:**

(Specific Condition #31. cont'd)

In addition, leachate shall be sampled and analyzed **annually** for the parameters listed in 40 CFR Part 258, Appendix II. If this annual analysis indicates that a contaminant listed in 40 CFR 261.24 exceeds the regulatory level listed therein, the permittee shall initiate a monthly sampling and analysis program. If in any three consecutive months the same listed contaminant exceeds the regulatory level, the permittee shall, within 90 days, initiate a program designed to identify the source and reduce the presence of the contaminant in the leachate so that it no longer exceeds the regulatory level. This program may include additional monitoring of waste received and additional up-front separation of waste materials. Any leachate which is not recirculated or taken to a permitted industrial or domestic wastewater treatment facility shall be treated or managed so that no contaminant exceeds the regulatory level.

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.

32. **Surface Water Sampling.** Samples shall be collected **every 6 months** from location SW-1, (see Attachment S, ref. SC#2.h(3)). The samples shall be analyzed for the following parameters:

Field parameters

Specific Conductivity  
pH  
Dissolved Oxygen  
Turbidity

Temperature  
Colors and sheens  
(by observation)

Laboratory parameters

Zinc  
Unionized Ammonia  
Total Hardness  
Biochemical Oxygen Demand (BOD<sub>5</sub>)  
Copper  
Iron  
Mercury  
Nitrate

Total Dissolved Solids (TDS)  
Total Organic Carbon (TOC)  
Fecal Coliform  
Total Phosphorous  
Chlorophyll A  
Total Nitrogen  
Chemical Oxygen Demand(COD)  
Total Suspended Solids (TSS)  
Those parameters listed in  
40 CFR Part 258, Appendix I

Additional samples, monitoring points, and parameters may be required based upon subsequent analysis.

**SPECIFIC CONDITIONS:**

33. **Groundwater Monitoring Well and Piezometer Locations.** The groundwater monitoring wells shall be located as shown on the Site Plan, Attachment S [ref. SC#2.h(3)] (attached to this permit). All existing site wells and piezometers shall be kept in working condition in case they may be useful at a later date. The following monitoring wells are required to be sampled:

<u>Well No.</u>	<u>Aquifer</u>	<u>Designation</u>	<u>Location</u>
MW-1	Surficial	Detection	See Attached Site Plan
MW-2	Surficial	Detection	"
MW-4	Surficial	Background	"
MW-5	Surficial	Detection	"
MW-8*	Surficial	Detection	"
MW-9*	Surficial	Detection	"

<u>Piezometer</u>	<u>Location</u>
P-1	See Attached Site Plan
P-2	"
P-3	"
P-4	"
P-5	"
P-6	"
P-9	"
P-10	"
P-11	"
P-15*	"
P-16*	"

\*Well/Piezometer to be constructed.

All wells and piezometers are to be clearly labeled and easily visible at all times.

**ECIFIC CONDITIONS:**

34. **Groundwater Sampling.** All wells listed in Specific Condition No. 33 shall be sampled and analyzed **semi-annually** for the groundwater monitoring parameters listed as follows:

<u>Field parameters</u>	<u>Laboratory parameters</u>
Static Water Level before purging	Total Ammonia - N
Specific Conductivity	Chlorides
pH	Iron
Dissolved Oxygen	Mercury
Turbidity	Nitrate
Temperature	Sodium
Colors and sheens (by observation)	Total Dissolved Solids (TDS)
	Those parameters listed in 40 CFR Part 258, Appendix I

**Semi-annually**, Monitoring wells MW-6 and MW-7 shall be measured for groundwater elevations and specific conductivity only.

**Semi-annually**, all piezometers listed in Specific Condition No. 33 shall be measured for ground water and leachate elevations. [ref. SC #2.g, page 7-17]

Additional samples, wells, and parameters may be required based upon subsequent analysis. Compliance with groundwater standards will be based on analysis of unfiltered samples.

35. **Groundwater Monitoring Well Construction.** New wells MW-8 and MW-9, and new piezometers P-15 and P-16 must be constructed and documentation submitted in accordance with Permit No. 38414-001-SC. Any other new wells must be approved by the DEP in a permit modification, and the following information submitted:

a. Documentation of the following for each well installed:

Well Identification	Boring (Lithology) Log
Aquifer monitored	Total depth of well
Screen type and slot size	Casing diameter
Screen length	Casing type and length
Screen diameter	SWFWMD well construction permit Nos.
Elevation at top of casing	Elevation at ground surface

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

**SPECIFIC CONDITIONS:**

(Specific Condition #35. cont'd)

c. 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) and surface water monitoring stations 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 surface water and 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.

d. 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. The permittee shall submit a written report to the Department providing verification of the well abandonment. A written request for exemption to the abandonment of a well must be submitted to the Department's Solid Waste Section for approval.

36. **Assessment 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 15 days 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 representative of current groundwater conditions at the facility, and assessment monitoring/corrective action as described in Rule 62-701.510(7), F.A.C., shall be initiated.

37. **Water Quality Reporting Requirements.** All leachate, surface water and groundwater quality monitoring shall be reported on the Department Form 62-522.900(2), Groundwater Monitoring Report (attached). This report shall contain all items listed in Rule 62-701.510(9)(a), F.A.C. The permittee shall submit to the Department the results of the analysis by **January 15th and July 15th**. The results shall be sent to: Solid Waste Section, Department of Environmental Protection, Southwest District Office, 3804 Coconut Palm Drive, Tampa, Florida 33619-8318.

**SPECIFIC CONDITIONS:**

38. **Groundwater Monitoring Plan Evaluation.** Every two years and prior to 90 days before the expiration of the Department Permit, the permittee shall submit an evaluation of the Groundwater Monitoring Plan as per Rule 62-701.510(9)(b), F.A.C. The evaluation shall include the applicable information as required by Rule 62-701.510(9), F.A.C., and shall include assessment of the effectiveness of the existing landfill design and operation as related to the prevention of groundwater contamination. Any groundwater contamination that may exist, shall be addressed as part of a groundwater investigation for the landfill assessment. The Groundwater Monitoring Plan shall be adequate to monitor any modifications to the existing landfill site including but not limited to closure. The first evaluation shall be submitted to the Solid Waste Section of the Department by July 1, 2000.
39. **Professional Certification.** Where required by Chapter 471 (P.E.) or Chapter 492 (P.G.), Florida Statutes, applicable portions of permit applications 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.
40. **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.
41. **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 to fail to comply with all conditions and deadlines.
42. **Regulations.** Rule 62-701, F.A.C., effective April 23, 1997, is incorporated into this permit by reference.

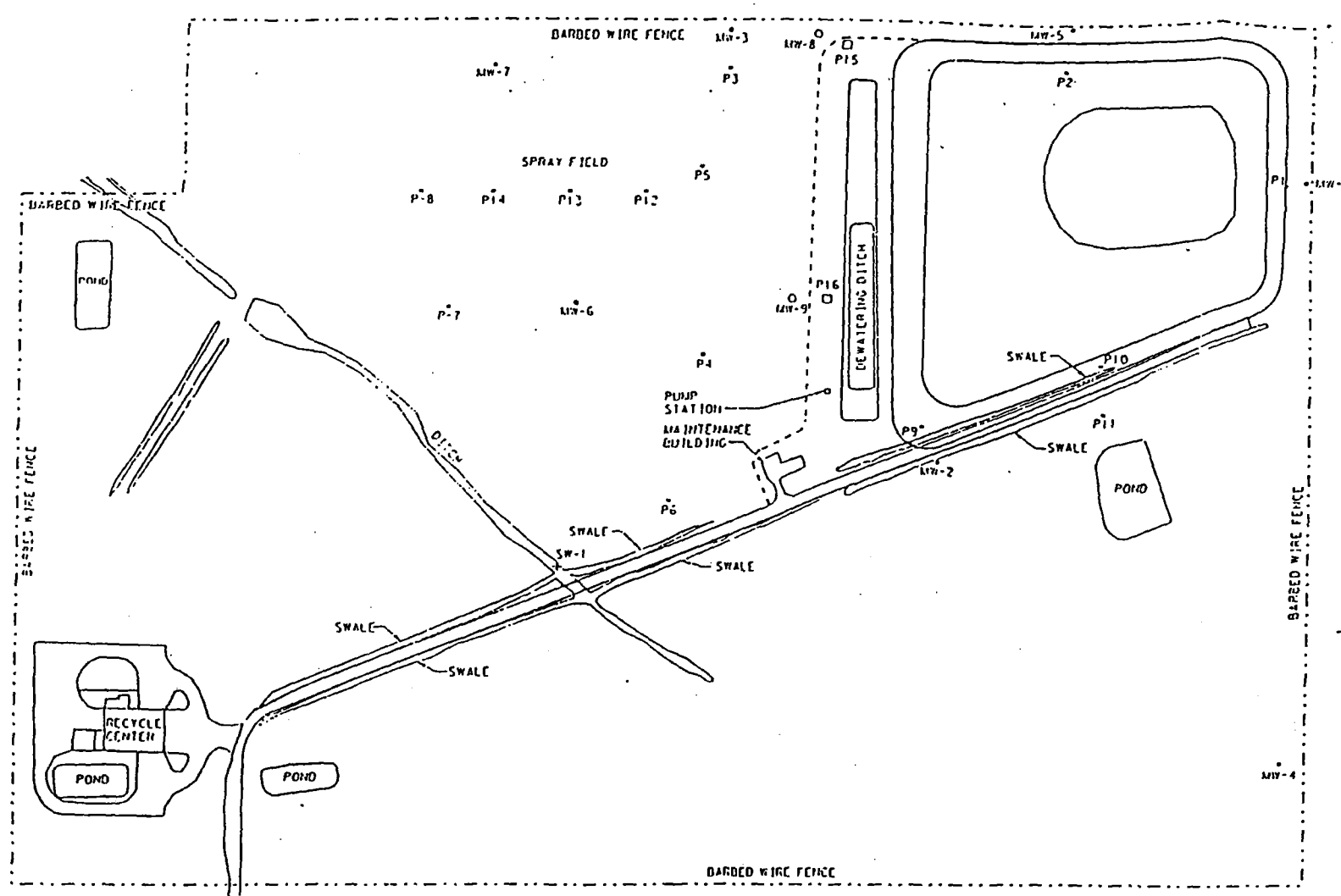
ATTACHMENT 1

SPECIFIC CONDITION	SUBMITTAL DUE DATE	REQUIRED ITEM
4.	180 days prior to permit expiration	Permit Renewal Application
6.h(3)	Within 90 days of permit issuance	Complete Final Closure of old C&D disposal area
11.	Annually, by April 15th	Survey and capacity calculations
17.b.	30 days prior to expiration of contract	Submit copy of new or renewal contract with WWTP for leachate disposal
17.b.	December 12, 1998	Submit renewal to current leachate disposal agreement
17.d., 19.b., 20	Quarterly, by January 15th, April 15th, July 15th, and October 15th	Leachate generation reports, and Gas monitoring reports
17.j.	1 year after initial use	Tank Manufacturer's Inspection
17.j.	Within 30 days of inspection	Submit tank manufacturer's inspection report
21.	Within 60 days of detection	Completion of gas remediation
23.	90 days prior to date of final waste acceptance, or within 60 days of completion of Sequence #4	Closure Permit Application
24.	Annually, by September 1st	Financial assurance cost estimates
24.	Annually	Submit proof of funding



ATTACHMENT 1 (cont'd)

SPECIFIC CONDITION	SUBMITTAL DUE DATE	REQUIRED ITEM
26.a.	Within 24 hours of occurrence	Notification of damage to any system
26.a.	Within 7 days of occurrence	Written notification
26.b.	Within 60 days of written notification	Complete groundwater monitoring system repairs
26.c.	Within 30 days of written notification	Implement corrective actions for stormwater or leachate management systems
31., 32., 34.	Semi-annually	Leachate sampled/analyzed; Surface water sampled/analyzed; Groundwater sampled/analyzed
31.	Annually	Leachate sampled/analyzed for 40 CFR Part 258, Appendix II parameters
35.b.	Within 1 week of well completion	New wells sampled
37.	Every 6 months, by January 15th and July 15th each year	Leachate, surface water, and groundwater quality reporting submitted
38.	Every two years, and 90 days prior to permit expiration	Evaluation of groundwater monitoring plan
38.	July 1, 2000	Evaluation of groundwater monitoring plan



SCALE: 1" = 200'

- LEGEND**
- MW-2 MONITORING WELL
  - P11 PIEZOMETER
  - PROPOSED LINER
  - MW-8 PROPOSED MONITORING WELL
  - P15 PROPOSED PIEZOMETER
  - FENCE
  - + SW-1 SURFACE WATER MONITORING POINT

HARDEE COUNTY SOLID WASTE MANAGEMENT FACILITY  
SITE PLAN

**PBS** POST, BUCKLEY, SCHINDLER & PERKINS, INC.

# Florida Department of Environmental Protection

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

DEP Form # 62-522.900(2)
Form Title <u>Ground Water Monitoring Report</u>
Effective Date _____
DEP Application No. _____

## 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

Ground Water Elevation (NGVD): \_\_\_\_\_ ( ) Compliance

( ) Other

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

## **SECTION M**

### **WATER QUALITY AND LEACHATE MONITORING REQUIREMENTS**

The information required for Section M of the permit application is presented in Attachment M-1, the Biennial Groundwater Monitoring Plan Evaluation Report. Attachment M-2 is the revised Water Quality and Leachate Monitoring Plan for the Hardee County Landfill.

**ATTACHMENT M-1**

**BIENNIAL GROUNDWATER MONITORING PLAN EVALUATION REPORT**

**SCS ENGINEERS**

File No. 09199033.07  
May 12, 2003

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

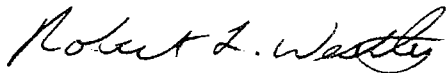
Subject: Hardee County Landfill Biennial Groundwater Monitoring Plan Evaluation  
Permit Number 38414-002-SO

Dear Mr. Morris:

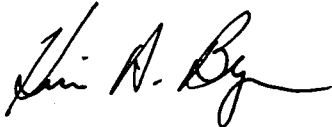
On behalf of Hardee County, Florida, SCS Engineers (SCS) is pleased to provide the Southwest District of the Florida Department of Environmental Protection (FDEP) with the Biennial Groundwater Monitoring Plan Evaluation for the Hardee County Landfill.

This report is being submitted in order to comply with Specific Condition 38 of the Hardee County Operation Permit. If you have any questions or comments regarding this evaluation please contact us at (813) 621-0080.

Very truly yours,



Robert L. Westly, P.G.  
Project Director



Kim A. Byer  
Project Professional  
SCS ENGINEERS

RLW: kab  
Attachments

cc: Janice Williamson, Hardee County



**BIENNIAL  
GROUNDWATER MONITORING PLAN  
EVALUATION  
HARDEE COUNTY LANDFILL  
HARDEE COUNTY, FLORIDA**

**Prepared by:**

SCS Engineers  
3012 U.S. Highway 301, North, Suite 700  
Tampa, FL 33619  
(813) 621-0080

**Prepared for:**

Hardee County Board of County Commissioners  
685 Airport Road  
Wauchula, FL 33873

May 12, 2003  
File No. 09199033.07





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## **SECTION 1**

### **INTRODUCTION**

#### **BACKGROUND**

The current Florida Department of Environmental Protection (FDEP) permit (Permit Number 38414-002-SO), to operate a Class I landfill, approximately 12.5 acres at the Hardee Landfill, expires on November 19, 2003. Specific Condition No. 38 of the permit requires that "every two years and prior to 90 days before the expiration of the Permit, the permittee shall submit an evaluation of the Groundwater Monitoring Plan as per 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 groundwater contamination." SCS Engineers (SCS) is submitting this groundwater monitoring evaluation on behalf of Hardee County to fulfill these permit conditions. This evaluation includes data for the period June 1999 to December 2002 (referred to as the "period of record").

#### **REQUIREMENTS OF F.A.C. 62-701.510(9)(B)**

The requirements of F.A.C. 62-701.510(9)(b) include the following:

1. Tabular and graphical displays of any data which show that a monitoring parameter has been detected, including hydrographs for all monitoring wells.
2. Trend analyses of any monitoring parameters detected.
3. Comparisons among shallow, middle, and deep zone wells.
4. Comparisons between up gradient and down gradient wells.
5. Correlation between related parameters such as total dissolved solids and specific conductance.
6. Discussion of erratic and/or poorly correlated data.
7. An interpretation of the groundwater contour maps, including an evaluation of groundwater flow rates.
8. An evaluation of the adequacy of the water quality monitoring frequency and sampling locations based upon site conditions.

The following sections of this biennial report address each of the above requirements, although not necessarily in the order listed. The evaluation includes groundwater data from June 1999 to December 2002. Section 5.0 of this report is an assessment of the effectiveness

of the existing landfill design and operation as it applies to the prevention of groundwater contamination.

## **HISTORY**

Prior to 1998, leachate was collected south of the waste disposal area using a drainage ditch system. The leachate was then spray irrigated south of the leachate containment ditch. This system was discontinued and the leachate ditch was subsequently incorporated into the southern portion of the landfill. Currently, Hardee County disposes of leachate through the City of Wauchula Wastewater Treatment Facility. The approximate locations of the dewatering ditch (leachate containment area) and spray field (no longer used) are shown on Figure 1-1. The figure was provided in the previous Hardee County Permit (1993) by Seaburn and Robertson, Inc.

Permit Figure 1.

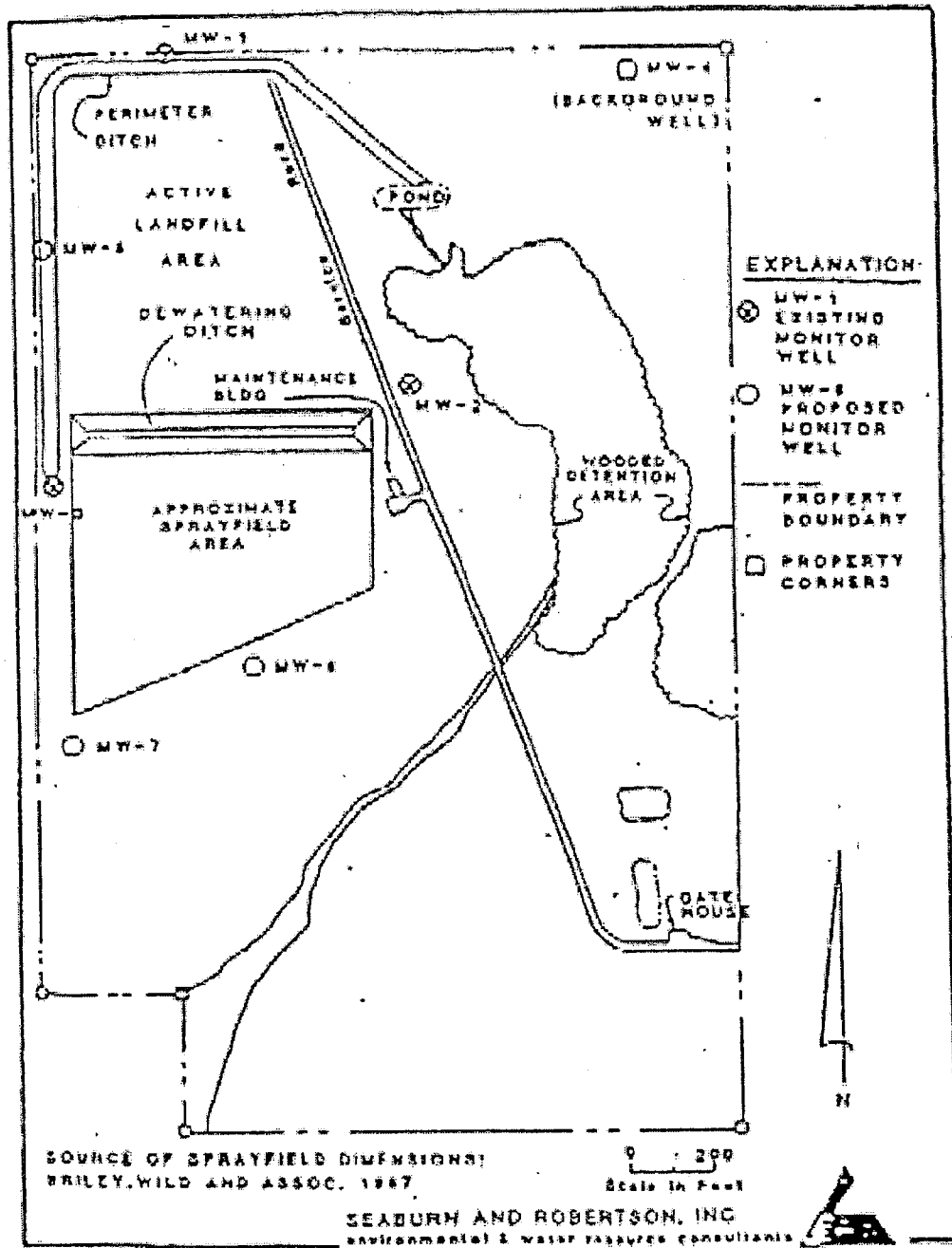


FIGURE 1.- LOCATION OF MONITOR WELLS.

Figure 1-1 Location of former Leachate dewatering ditch and spray field

## SECTION 2

### SUMMARY OF THE GROUNDWATER MONITORING PROGRAM

Water quality monitoring at the Hardee County Landfill is conducted at six groundwater sites (MW-1, MW-2, MW-4, MW-5, MW-8, and MW-9), one leachate site (Manhole 1), and one surface water site (SW-1). Groundwater levels are measured semi-annual at MW-1, MW-2, MW-4, MW-5, MW-6, MW-7, MW-8, and MW-9 and at ten piezometers. All monitoring points are shown on Figure 2-1. Eleven piezometers were included in the current permit; however, P-6 was abandoned and has not been replaced.

#### GROUNDWATER QUALITY MONITORING

Groundwater quality monitoring for the Hardee County landfill consists of six-groundwater monitoring wells, one leachate site, and one surface water site.

#### GROUNDWATER MONITORING WELLS

As established in the current permit, the groundwater-monitoring program consists of the monitoring wells listed in Table 2-1.

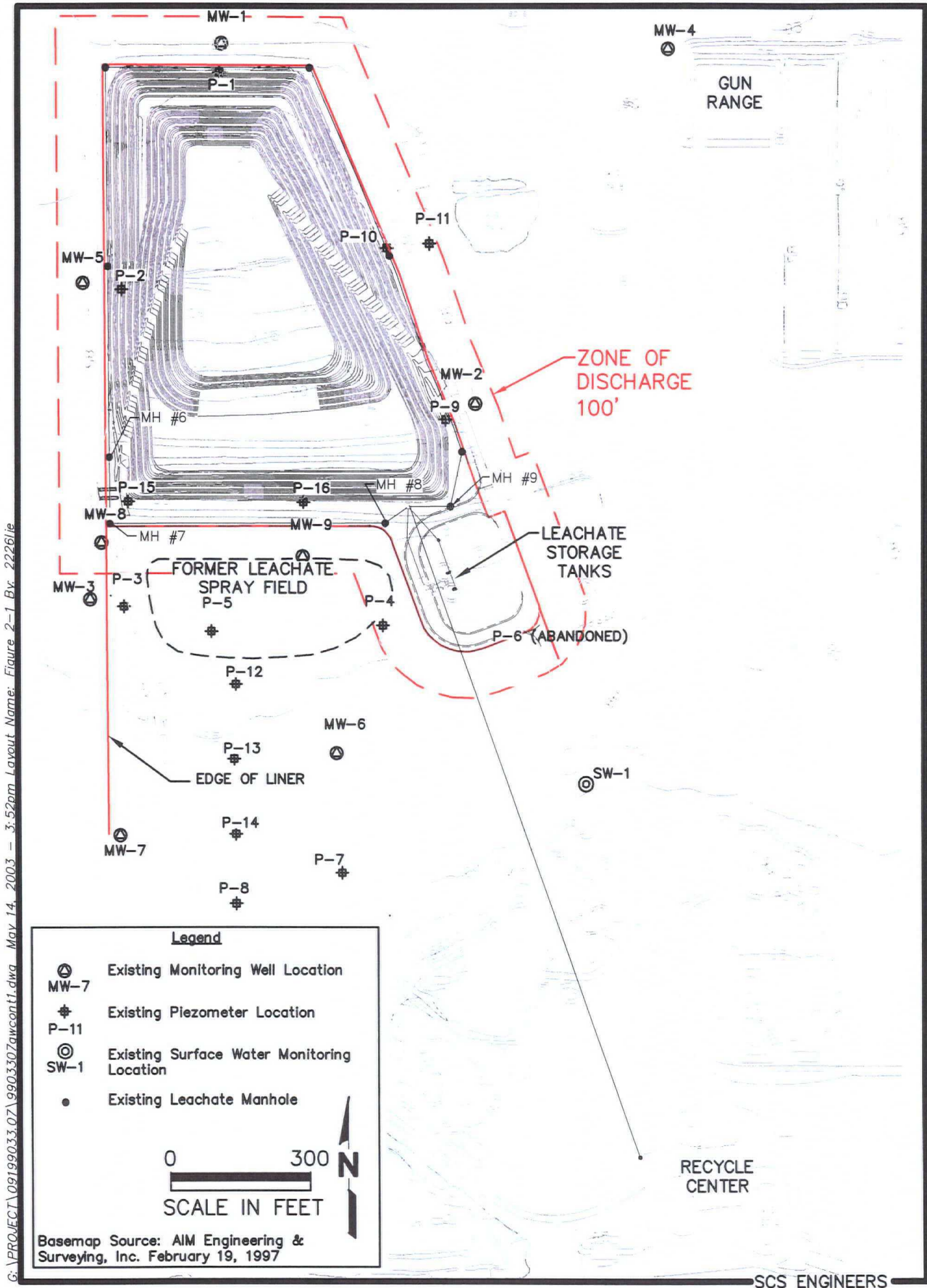
**TABLE 2-1. GROUNDWATER MONITORING WELLS AT THE HARDEE COUNTY LANDFILL**

Well Number	Aquifer Monitored	Permit Designation
MW-1	Surficial	Detection
MW-2	Surficial	Detection
MW-4	Surficial	Background
MW-5	Surficial	Detection
MW-8	Surficial	Detection
MW-9	Surficial	Detection

The monitoring program includes one designated background well (MW-4) and five designated detection wells (MW-1, MW-2, MW-5, MW-8 and MW-9).

#### GROUNDWATER QUALITY PARAMETERS

The current Groundwater Quality Parameters requires semi-annual sampling of MW-1, MW-2, MW-4, MW-5, MW-8 and MW-9 for the field and laboratory parameters listed below. Per Specific Condition 34 of the current permit, semi-annual water levels and field conductance are required at groundwater monitoring wells MW-6 and MW-7, located down gradient of the former spray field (shown on Figure 2-1).



G:\PROJECT\091990.33.07\990.330Zawcont1.dwg May 14, 2003 - 3:52pm Layout Name: Figure 2-1 Br. 22261.e

Figure 2-1. Overall Site Map, Hardee County Solid Waste Disposal Facility



## **FIELD PARAMETERS**

- Static water level before purging
- Specific Conductivity
- pH
- Dissolved Oxygen
- Turbidity
- Temperature
- Color and Sheen by observation

## **LABORATORY PARAMETERS (UNFILTERED)**

- Total Ammonia -N
- Chlorides
- Iron
- Mercury
- Nitrate
- Sodium
- Total Dissolved Solids (TDS)
- Parameters listed in 40 CFR part 258, Appendix I

## **GROUNDWATER LEVEL MONITORING**

Groundwater levels are measured in the groundwater monitoring wells and in the ten piezometers located around the Hardee County landfill semi-annually. Construction characteristics and top of casing elevations for the groundwater monitoring wells are shown in Table 2-2.

## **LEACHATE MONITORING**

Leachate samples are to be collected at Manhole 1 semi-annually. However Manhole 9, which is hydraulically down gradient from Manhole 1, is used as an alternative sampling site when Manhole 1 is dry.

## **LEACHATE PARAMETERS**

The permit requires semi-annual sampling for the field and laboratory parameters listed below.

## **FIELD PARAMETERS**

- Specific Conductivity

**Table 2-2 Hardee County Monitoring Well Construction Details**

Well ID	Well Diameter	Well Designation	Total Depth (bls)	Casing Length (ft)	Screen Length	TOC Elevation (NGVD)	Ground Surface Elevation (Ft-NGVD)	screen top/bottom (ft. bls)	screen top/bottom (NGVD)	Maximum Water Level (NGVD)	Minimum Water Level (NGVD)
MW-1	4"	Detection	11.00'	7.80'	5'	87.97	86.24	7.0/11.0	79.24/75.24	85.44 (Feb 95)	78.27 (June 00)
MW-2	4"	Detection	10.50'	7.80'	5'	85.86	83.75	5.5/10.5	81.25/73.25	82.46 (Dec 02)	75.56 (June 00)
MW-4	2"	Background	18.90'	12.20'	10'	87.16	84.09	8.9/18.9	75.19/65.19	83.06 (Dec 02)	76.56 (June 00)
MW-5	2"	Detection	18.10'	11.00'	10'	88.76	85.83	8.1/18.1	77.73/67.73	82.91 (Dec 97)	76.46 (June 00)
MW-8	2"	Detection	13.50'	3.50'	10'	88.98	85.80	3.5/13.5	82.30/72.30	83.18 (Dec 02)	75.58 (June 01)
MW-9	2"	Detection	13.50'	3.50'	10'	88.71	85.90	3.5/13.5	82.40/72.40	83.11 (Dec 02)	75.31 (June 01)

- pH
- Dissolved Oxygen
- Color and Sheen by observation

#### **LABORATORY PARAMETERS (UNFILTERED)**

- Total Ammonia -N
- Bicarbonate
- Chlorides
- Iron
- Mercury
- Nitrate
- Sodium
- Total Dissolved Solids (TDS)
- Parameters listed in 40 CFR part 258, Appendix I

In addition to the above-mentioned parameters, leachate is to be sampled annually for parameters listed in 40 CFR part 258, Appendix II.

#### **SURFACE WATER MONITORING**

Surface water samples are required to be collected semi-annually from location SW-1. However, during the reporting period no surface water was present at SW-1.

#### **SURFACE WATER PARAMETERS**

When surface water is present at SW-1, the following parameters are required for analysis:

#### **FIELD PARAMETERS**

- Specific Conductivity
- pH
- Dissolved Oxygen
- Temperature
- Color and Sheen by observation

#### **LABORATORY PARAMETERS (UNFILTERED)**

- Zinc
- Unionized Ammonia
- Total Hardness
- Biochemical Oxygen Demand (BOD)
- Copper
- Iron

- Mercury
- Nitrate
- Total Dissolved Solids (TDS)
- Total Organic Carbon (TOC)
- Fecal Coliform
- Total Phosphorous
- Chemical Oxygen Demand (COD)
- Total Suspended Solids (TSS)
- Those Parameters listed in 40 CFR part 258, Appendix I

## SECTION 3

### WATER QUALITY MONITORING DATA FINDINGS

This section summarizes water quality data for the period of record. Attachment A lists water quality data for each monitoring well for the period of record. The groundwater tables include values above the method detection limits (MDL) for FDEP drinking water standards listed in F.A.C. Chapter 62-550. The tables also include groundwater cleanup target levels, as listed in Chapter 62-777, F.A.C., for parameters that do not have primary and secondary drinking water standards. Attachment B includes trend analyses charts for constituents that were detected above the maximum concentration limit (MCL) for the applicable groundwater standards or that were consistently detected above the MDL in groundwater samples.

Semi-annual data for leachate monitoring is also shown in Attachment C. The data was compared to the toxicity standards listed in 40 CFR part 258, Appendix II, in addition to primary and secondary drinking water standards, Chapter 62-550 F.A.C., groundwater cleanup target levels, Chapter 62-777, F.A.C., and surface water standards Chapter 62-302, F.A.C.

Samples were collected and analyzed for the parameters identified in the FDEP permit by Short Environmental Laboratory in accordance with F.A.C. Chapter 62-160 and F.A.C. 62-701.510(2) (b). The monitoring data discussed in this include the following sampling dates:

- June 1999
- December 1999
- June 2000
- December 2000
- June 2001
- December 2001
- June 2002
- December 2002

Surficial aquifer monitoring wells MW-8 and MW-9 were not sampled during the June 1999 and the December 1999 semiannual sampling events because they were not installed until April 2000. Also, surficial monitoring wells MW-6 and MW-7 were sampled for field conductivity as required by Specific Condition 34.

#### GROUNDWATER

The analytical data collected for the six on-site groundwater-monitoring wells were evaluated for the period of record, regulatory exceedances and trends are discussed below.

## **Regulatory Exceedances and Trend Analysis**

Attachment B includes trend analyses charts compiled from the exceedances data tables. Trend analyses charts were developed for leachate key indicator parameters and for those constituents with concentrations in excess of the FDEP groundwater standards or criteria.

Constituents detected in groundwater samples at concentrations above FDEP primary and secondary drinking water standards and FDEP Groundwater cleanup target levels include iron, vanadium, and pH. Exceedances for iron and pH were detected in both background and detection monitoring wells. Discussions of the trends for those parameters that exceed the regulatory criteria from the eight sampling events during the monitoring period are provided below.

### **Groundwater Quality Trend Analysis**

**Iron** – Iron was consistently detected above the Secondary Drinking Water Standard (SDWS) of 300 ug/L in surficial monitoring wells MW-1, MW-2, MW-4, and MW-5, MW-8 and MW-9. Iron was detected in substantially higher concentrations in up gradient wells, MW-1 and MW-4 than in the cross gradient wells and down gradient wells. There were no definitive trends in iron concentrations observed during the reporting period. However, iron is a naturally occurring element and has been detected in the surficial aquifer in this region at concentrations of 43,900 µg/l, according to the Florida Geological Survey (FGS) Special Publication No. 34.

**pH (field)**– pH measurements consistently have been outside (below) of the SDWS range of 6.5-8.5 in all on-site surficial monitoring wells, including the surficial aquifer background monitoring well, MW-4. There were no definitive trends in pH concentrations observed during the reporting period.

**Dissolved Oxygen (DO) (field)**- During the June 1999 sampling event field DO at MW-2 was detected at 25.8 mg/l. At Temperatures of 0°-30° Celsius, DO should only range from 1-17 mg/L. This reading appears to be erroneous and may be due to field calibration error.

**Turbidity (field)**- Field turbidity is elevated at various sites during the period of record. On Dec 2001 the turbidity at MW-8 was measured at 364 NTUs. This value appears to be erroneous as no other parameters indicates this increase in turbidity. This is most likely due to field calibration error or sampling technique. Short Environmental Laboratories collected groundwater samples using bailers until June 2002. This sampling technique may cause increase turbidity in the sample. The use of bailers has since been replaced with pumps.

**Vanadium** – Although not a PDWS nor SDWS, vanadium was detected above the Groundwater Cleanup Target Level (GCTL) of 49 ug/L in surficial monitoring well MW-9 during the June 2001 monitoring event. The method detection limit (MDL) for vanadium during the reporting period was in excess of the maximum contamination limit (MCL); therefore, no trend can be assessed at this time.

## **Correlation between parameters and data--**

Graphs of concentration versus time for TDS and conductivity are included in Attachment D. TDS and conductivity values appear to be increasing at detection well MW-6 and background well MW-4. The reason for the trend is unknown but may be related to natural conditions. These trends will be further assessed during the next biennial reporting period.

Conductivity in monitoring well MW-8 appears to be trending upward while TDS is trending downward. The results may be due to either field error or laboratory error, generally trends for field conductivity and TDS values coincide. The most notable differences occurred during in June 2000. During this sampling event TDS decreased at MW-4, MW-5 and MW-8 while conductivity increased. Field and lab protocols will be evaluated to further assess these trends.

## **LEACHATE**

The analytical data for leachate was collected and analyzed for the previously mentioned parameters, the evaluation of leachate data is discussed below.

### **Leachate Results and Regulatory Exceedances**

Leachate monitoring is described in Specific Condition 31 of the permit. Leachate is monitored through the collection of leachate samples from Manhole 1. However Manhole 9 is commonly sampled because Manhole 1 is frequently dry during the semi-annual events. Attachment C summarizes leachate data for the period of record. There were no exceedances of the 40 CFR Chapter I-Part 261 Toxicity Characteristics.

### **Surface Water**

The surface water system is described in Specific Condition 32 of the permit. Surface water is monitored through the collection of surface water samples from one sampling location:

- SW-1

Due to low surface water conditions samples could not be obtained for any of the sampling events included in the reporting period therefore no trend analysis is necessary.

## **SECTION 4**

### **GROUNDWATER LEVELS AND FLOW ASSESSMENT**

Groundwater levels were evaluated at eight groundwater-monitoring wells and ten piezometer on-site in order to evaluate groundwater flow and velocity. The findings are discussed below.

#### **POTENTIOMETRIC MAPS AND HYDROGRAPHS**

Groundwater flow assessment measurements were conducted for the surficial aquifer for each of the previous monitoring periods extending from June 1999 through December 2002. The assessment activities included the collection of groundwater monitoring depth intervals and the calculation of groundwater elevations in the site monitoring wells and piezometers. These data have been plotted on site figures to assess groundwater flow direction. Copies of the potentiometric maps generated for each monitoring event are presented in Attachment E. The potentiometric flow maps were generated using Surfer 7.0. The groundwater elevations for the period of record are shown in Table 4-1.

The estimated groundwater flow direction during the period of record in the surficial aquifer is south to southeast with exception to December 2002 (Figure E-8). The landfill liner affects the groundwater flow in the vicinity of the landfill. The north side of the landfill, consisting of a PVC liner while the remaining southern portion of the landfill is a HDPE liner. By design groundwater is not allowed to flow through the liner therefore flow is diverted along the outer wall.

Hydrographs depicting the groundwater elevations within each well for each sampling event over the monitoring period were generated and presented in Attachment E. The groundwater level calculations indicated higher groundwater table elevations in the December monitoring events and lower groundwater table elevations in the June monitoring events. These data are consistent with previous biennial reporting data and reflect rainfall conditions.

#### **HYDROGEOLOGY AND HYDRAULIC CHARACTERISTICS**

A hydrogeological investigation, dated March 17, 1993 was performed by Mevers and Associates. This report indicated that the Hardee County landfill site is underlain by a 10 to 15-foot thick surficial aquifer consisting mainly of fine sand to clayey fine sand. These results were consistent with the site soil conditions reported by Envisors, Inc. in 1982. The lithologic logs as prepared by Envisors, Inc., 1982 are provided as Attachment F. According to Envisors, Inc (1982), the surficial aquifer is separated from the deeper Floridan Aquifer by a continuous confining clay layer that varies in thickness from 14 feet to 35 feet with an average thickness of approximately 25 feet thick. Based on field permeability testing, Mevers found the surficial aquifer to have an average horizontal permeability of about 5 feet per day, the porosity of the upper sands was estimated to be 0.2.



**Table 4-1 Groundwater Elevations for the Piezometers and Groundwater Monitoring Wells located at the Hardee County Landfill**

		June 1999 through December 2002								
Location	Top of Casing Elevation (NGVD)	6/1/1999	12/6/1999	6/8/2000	12/6/2000	6/6/2001	12/10/2001	6/10/2002	12/16/2002	
		GW Elevation (NGVD)	GW Elevation (NGVD)	GW Elevation (NGVD)	GW Elevation (NGVD)	GW Elevation (NGVD)	GW Elevation (NGVD)	GW Elevation (NGVD)	GW Elevation (NGVD)	GW Elevation (NGVD)
		79.97	82.17	78.27*	81.77	81.67	81.17	79.97	84.12**	
MW-1	87.97	79.97	82.17	78.27*	81.77	81.67	81.17	79.97	84.12**	
MW-2	85.86	76.86	78.76	75.56*	77.56	77.06	78.16	76.36	82.46**	
MW-4	87.16	77.71	79.96	76.56*	78.66	77.86	79.96	77.56	83.06**	
MW-5	88.76	77.71	79.76	76.46*	77.96	76.56	79.51	77.46	81.56**	
MW-6	87.94	75.59	ND	74.54	75.54	74.64	77.44	74.54*	83.44**	
MW-7	87.51	75.86	ND	74.36*	75.51	74.41	75.91	74.91	83.26**	
MW-8	88.98	ND	ND	76.18	77.58	75.58*	80.28	76.38	83.18**	
MW-9	88.71	ND	ND	75.51	76.91	75.31*	78.31	76.21	83.11**	
P-1	91.27	79.92	80.87	80.02	80.47	80.27	81.37**	77.47*	78.57	
P-2	90.66	77.56	79.46	76.56	77.61	76.46	79.76**	74.11*	78.46	
P-3	89.23	77.45	ND	ND	77.83	77.98	80.75	75.70*	80.70**	
P-4	88.34	76.44	77.64	75.39	76.5	76.5	78.74	72.44*	80.39**	
P-5	89.25	77.05	77.95	76.65	76.85	Dry	OBSTRUCTED	74.45*	80.55**	
P-9	87.06	76.56	80.06**	75.71	76.66	75.66	78.56	ND	ND	
P-10	88.56	Dry	80.06**	ND	77.46	Dry	79.16	74.06*	76.96	
P-11	87.16	76.01	ND	75.86	76.36	76.06	77.76	72.96*	78.06**	
P-15	89.21	ND	ND	ND	75.81	74.56	ND	71.26*	78.41**	
P-16	88.83	ND	ND	72.65	76.33	Dry	75.55	70.33*	79.69**	

Notes:

1. ND = No Data Reported
2. NGVD = National Geodetic Vertical Datum.
3. TOC = top of casing.
4. \* = Minimum groundwater level for the reporting period
5. \*\* = Maximum groundwater level for the reporting period
6. GW = Groundwater

On May 15, 1995 PBS&J conducted slug tests at MW-6, MW-7 and MW-3, located down gradient from the extent of waste. Based on these tests the average hydraulic conductivity of the surficial across the site is  $1.4 \times 10^{-4}$  ft/min (0.0230 feet per day). The hydraulic gradient (I) was based on groundwater flow maps generated for the period of record.

The groundwater flow velocity was calculated using the following aquifer values and Darcy's Law ( $V=KI/\eta$ ),

V= groundwater velocity in feet per day

K= hydraulic conductivity of the surficial aquifer (0.0230-5.00 utilized for calculation)

I = gradient of the surficial aquifer (0.003 utilized for calculation)

$\eta$ = effective porosity of the surficial aquifer (0.2 utilize or calculation)

Based on the aquifer characteristics discussed above, the groundwater flow velocity in the surficial aquifer ranges from 1 to 27 ft/year.

## SECTION 5

### ADEQUACY OF THE WATER QUALITY MONITORING LOCATIONS AND SAMPLING FREQUENCY

Currently, the groundwater-monitoring plan includes six monitoring wells, five designated as detection wells and one designated as a background well, MW-4. In addition, it includes ten piezometers and two groundwater wells which are monitored for specific conductance and water levels only. Each monitoring well and piezometer is designed to monitor the surficial aquifer. Table 5-1 lists the monitoring wells with their current permit designation. The table also includes their approximate distance from waste and their location relative to waste along the hydraulic gradient. Distances were determined in AutoCAD based on the site location map utilizing the latitude and longitude of each well.

**TABLE 5-1. WELL LOCATIONS**

Well Number	Permit Designation	Approx. Distance from Waste (ft)	Hydraulic Direction
MW-1	Detection	52	Up gradient
MW-2	Detection	62	Cross gradient
MW-4	Background	862	Up gradient
MW-5	Detection	65	Cross gradient
MW-8	Detection	45	Down gradient
MW-9	Detection	70	Down gradient

The current permit indicates that MW-1, MW-2, MW-5, MW-8, and MW-9 are detection wells. Detection wells are to be located down gradient from, and within 50 feet of, disposal units, unless site-specific conditions make such placement impossible. Due to the presence of perimeter ditches on the north and west side of the landfill, monitoring wells MW-1 and MW-5 were placed greater than 50 feet from the edge of waste. At the time of installation of MW-8 and MW-9 a leachate containment ditch was located on the southern edge of the landfill. MW-8 and MW-9 were placed down gradient of the leachate containment ditch. Also a heavily traveled road is located on the east side of the landfill. MW-2 was placed east of the access road to avoid traffic. It is located approximately 62 feet west of the edge of waste.

According to Chapter 62-791 F.A.C., background wells are required to be hydraulically up gradient from waste. MW-1 and MW-4 serve this purpose in the monitoring plan. However, only MW-4 is designated as a background well.

The up-gradient monitoring well locations are no greater than 1500 feet apart, as required by Ch. 62-701.510 F.A.C. The existing down gradient monitoring wells, however, will require an additional monitoring well in the southeast section of the edge of waste to comply with the Chapter 62-701.510, for down-gradient spacing of no greater than 500 feet apart.

Under the current permit groundwater- monitoring wells MW-6 and MW-7 are measured for specific conductance and water levels semi-annually. These wells are located in the former spray field area. These wells should no longer be used for conductivity monitoring as the spray field is no longer in use and MW-8 and MW-9 adequately monitor the conductance of the groundwater down gradient from the landfill. These wells should be re-designated as piezometers and measured semi-annually for water levels only.

### **LOCATIONS OF SCREENS**

Table 2-2 lists the construction characteristics of the monitoring wells currently located at the Hardee County landfill site along with the historical maximum and minimum groundwater levels at each well. In monitoring wells MW-1, MW-2, MW-4, and MW-5, the maximum water level exceeds the screen interval. However several sampling events were performed when water levels intercepted the screened interval and did not indicate the presence of lighter constituents. Based on the above information, the screened intervals of the on-site wells are appropriately placed to intercept contaminants during sampling.

### **LEACHATE MONITORING**

The compliance monitoring protocol for leachate monitoring specifies leachate sampling at Manhole 1, however, this location is occasionally dry and Manhole 9 is sampled as an alternative. The sample location is hydraulically down gradient from Manhole 1 and provides adequate leachate monitoring.

### **SURFACE WATER MONITORING**

According to Chapter 62-701.510. (4), all surface water bodies that may be affected by contamination releases from the facility are currently included in the monitoring plan, SW-1. However, this site is frequently dry, and an alternative sampling location down stream may serve as a more appropriate sampling point. The alternative location should be located downstream from SW-1 and allow for representative sampling of the surface water body before exiting the landfill property.

### **MONITORING FREQUENCY**

The monitoring locations are sampled and analyzed semi-annually in accordance with the permit. Based on groundwater velocity calculations, groundwater movement between the semi-annual sampling events is 0.50 –14 feet . This rate provides sufficient time to evaluate groundwater contamination at the edge of the zone of discharge if contamination is observed at the detection wells.

## **PARAMETER LISTS**

After reviewing the laboratory parameters detected in the leachate, it appears the required analytical parameters for groundwater and leachate may need to be altered. Currently the parameters listed in 40 CFR Part 258, Appendix I are required for both Leachate and groundwater. However, all parameters detected in the leachate samples are volatile organics and would be detected in EPA 8260 analysis. Therefore the required 40 CFR Part 258, Appendix I parameters for groundwater should be replaced with EPA 8260. Currently, key indicator parameters for leachate are not included in the required parameters for groundwater or leachate. Sulfate, biological oxygen demand (BOD), chemical oxygen demand (COD), and Magnesium are typical parameters detected in leachate. Therefore, these parameters should be added to both the groundwater and leachate semi-annual sampling requirements.

## SECTION 6

### PROPOSED MODIFICATIONS/RECOMMENDATIONS TO THE MONITORING PROGRAM

The current monitoring program does not appear to be adequate to meet the requirements of Chapter 62-710, F.A.C. The following modifications to the plan are recommended.

#### LABORATORY QUALITY CONTROL AND REPORTING PROCEDURES

After reviewing the semi-annual groundwater analytical reports for the Hardee County Landfill the following recommendations are outlined below:

- The laboratory performing the analysis should provide Hardee County with a Quality Assurance Statement in the front of the semi-annual analytical report summarizing the quality assurance objectives and findings.
- The laboratory should achieve lower method detection limits for vanadium, 1,2-dibromoethane (EDB) and 1,2-dibromo-3-chloropropane (DBCP) to meet applicable groundwater standards.
- The quality control samples, field blanks and duplicates, should be analyzed for the identical parameters analyzed in the monitoring well samples.
- Field turbidity ideally should be 2 NTU's or less. The use of a more quiescent sampling technique would aid in achieving this standard.

#### GROUNDWATER PARAMETERS

Analytical parameters for groundwater should include the following:

Parameters required in current permit	Revised groundwater parameters
Specific Conductivity	Specific Conductivity
pH	pH
Dissolved Oxygen	Dissolved Oxygen
Turbidity	Turbidity
Temperature	Temperature
Total Ammonia -N	Total Ammonia -N
Chlorides	Chlorides
Mercury	Mercury
Nitrate	Nitrate
Iron	Iron

Sodium	Sodium
Total Dissolved Solids (TDS)	Total Dissolved Solids (TDS)
40 CFR part 258 Appendix I	
Color and Sheen (observation)	Color and Sheen (observation)
	EPA 8260
	Sulfate
	Magnesium
	BOD
	COD

### LEACHATE PARAMETERS

Analytical parameters for leachate should include the following:

Parameters required in current permit	Revised leachate parameters
Specific Conductivity	Specific Conductivity
pH	pH
Dissolved Oxygen	Dissolved Oxygen
Bicarbonate	Bicarbonate
Total Ammonia -N	Total Ammonia -N
Chlorides	Chlorides
Mercury	Mercury
Nitrate	Nitrate
Iron	Iron
Sodium	Sodium
40 CFR part 258 Appendix I	40 CFR part 258 Appendix I
40 CFR part 258 Appendix II (annually)	40 CFR part 258 Appendix II (annually)
Color and Sheen (observation)	Color and Sheen (observation)
	Total Dissolved Solids (TDS)
	Sulfate
	Hardness

## **PROPOSED LEACHATE MONITORING LOCATION**

Manhole 9 should replace Manhole 1 as the leachate sampling location. Manhole 9 is located down gradient from Manhole 1 and will allow for representative characterization of the leachate composition. The location of Manhole 9 is shown on Figure 6-1.

In addition, hardness should be added to the list of leachate laboratory parameters, as it will allow the leachate results to be compared with surface water standards. Hardness is required to calculate surface water standards for various metals.

## **PROPOSED SURFACE WATER MONITORING LOCATION**

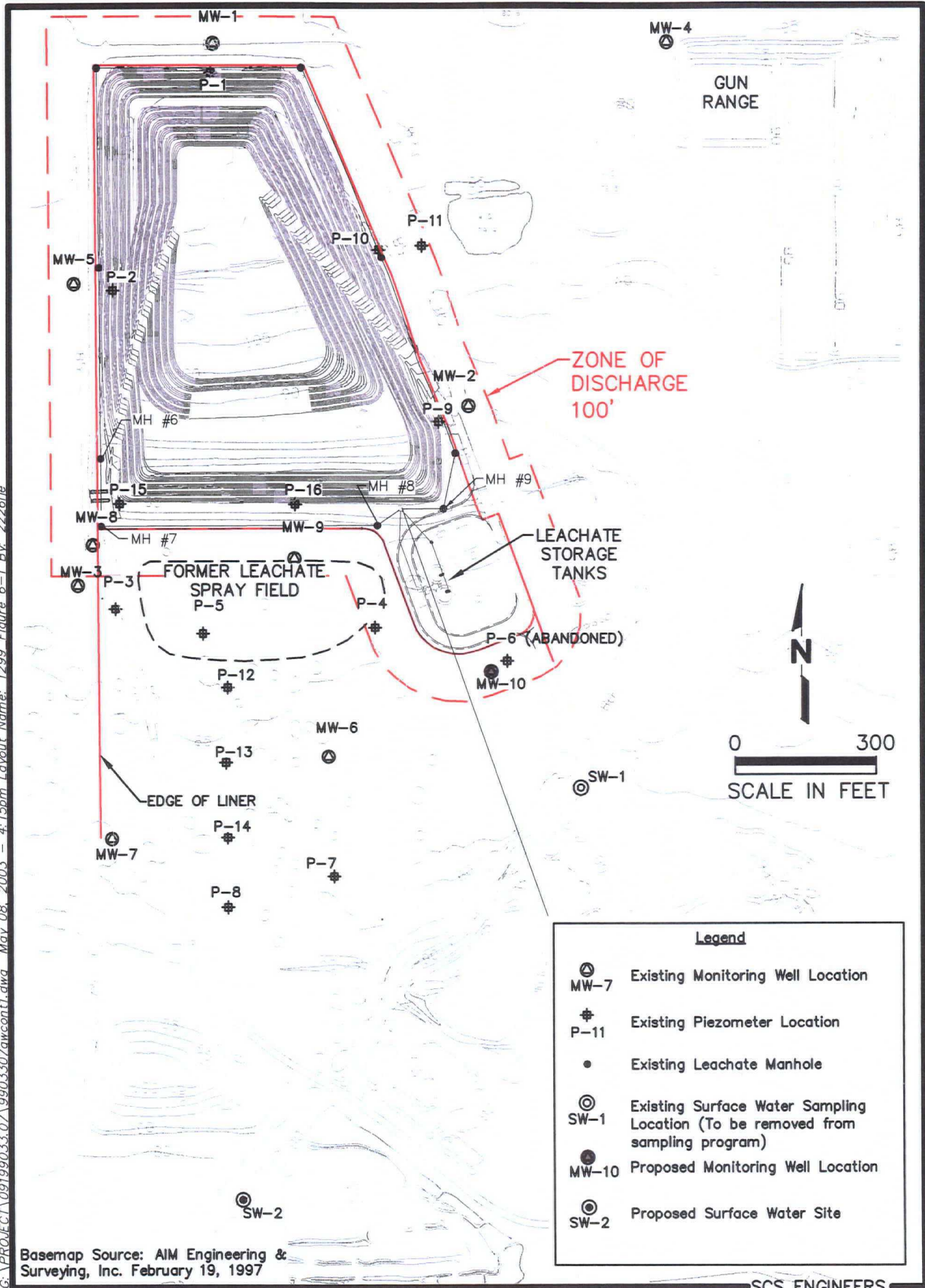
The current sampling location, SW-1, should be replaced with an alternative location, SW-2. SW-2 should be located in the creek, southwest of SW-1. This location will allow for monitoring of the surface water quality at the landfill property boundary. Per Rule 62-710.510 F.A.C., the surface water monitoring location should be marked and the position determined by a registered Florida Land Surveyor. The proposed location of SW-2 is shown on Figure 6-1.

## **PROPOSED MONITORING WELLS**

An additional detection well, MW-10, should be added to the monitoring plan. It will be located less than 500 feet south east of MW-9, in order to comply with Chapter 62-710,510 F.A.C., well spacing should be no greater than 500 feet apart. This well will also serve as a replacement water level data point for the destroyed piezometer P-6. Figure 6-2 lists the proposed well location. Table 6-1 lists the approximate construction characteristics. The total depth and screened interval are based on the specifications and groundwater level fluctuation measured in MW-9.



G:\PROJECT\091990.33.07\9903307awcont1.dwg May 08, 2003 - 4:15pm Layout Name: 1299\_Figure 6-1 Bx: 22261e



Basemap Source: AIM Engineering & Surveying, Inc. February 19, 1997

SCS ENGINEERS

Figure 6-1. Site Map of Proposed Well Locations for Revised Monitoring Plan Hardee County Solid Waste Disposal Facility

**TABLE 6-1. PROPOSED MONITORING WELL MW-10 CONSTRUCTION SPECIFICATIONS**

Well Number	Well Diameter	Total Depth bls (ft)	Casing length (ft)	Screen length (ft)	Screened Intervals bls (ft)
MW-10	2'	17.00	2	15.00	2-17

**Revised Groundwater Monitoring Plan Well Designations**

According to Chapter 62-701 F.A.C., background wells are required to be hydraulically up gradient and MW-1 and MW-4 appear to serve this purpose in the monitoring plan. The well designation for MW-1 should be changed to a background well.

It is recommend that the designation of the monitoring wells be revised as listed in Table 6-2 to meet the requirements of Chapter 62-710, F.A.C.

**TABLE 6-2. REVISED DESIGNATION OF MONITORING WELLS**

Well Number	Permit Designation	Approx. Distance from Waste (ft)	Hydraulic Direction
MW-1	Background	52.00	Up gradient
MW-2	Detection	62.05	Cross gradient
MW-4	Background	861.66	Up gradient
MW-5	Detection	64.96	Cross gradient
MW-8	Detection	44.55	Down gradient
MW-9	Detection	70.17	Down gradient
MW-10*	Detection	50.00	Down gradient

\* Proposed Groundwater Monitoring Well

Monitoring wells MW-6 and MW-7 should be designated as piezometers and monitored semi-annually for water levels only.

**ATTACHMENT A**  
**GROUNDWATER QUALITY DATA CHARTS**

HARDEE COUNTY LANDFILL

MW-2 DATA SUMMARY										
Detection Well										
PARAMETER	MCL	UNITS	DATE OF SAMPLE COLLECTION							
			Jun-99	Dec-99	Jun-00	Dec-00	Jun-01	Dec-01	Jun-02	Dec-02
<b>Inorganic Parameters:</b>										
Arsenic <sup>1</sup>	50	µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Barium <sup>1</sup>	2,000	µg/L	<20	<20	<20	<20	<20	30	40	50
Cadmium <sup>1</sup>	5	µg/L	<2	<2	<2	<2	<2	<2	<2	4
Chromium <sup>1</sup>	100	µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Copper <sup>2</sup>	1,000	µg/L	10	<10	<10	<10	<10	<10	20	<10
Iron <sup>2</sup>	300	µg/L	2,410	8,920	7,920	8,480	5,980	8,140	14,200	3,240
Lead <sup>1</sup>	15	µg/L	<1.0	<1.0	<1.0	<1.0	1	3	5	<1
Nickel <sup>1</sup>	100	µg/L	20	<10	<10	<10	<10	<10	<10	20
Sodium <sup>1</sup>	160,000	µg/L	8,700	8,900	6,700	7,200	6,900	8,800	14,000	24,000
Vanadium <sup>1</sup>	49	µg/L	<100	<100	<100	<100	<100	<100	<100	<100
Zinc <sup>2</sup>	5,000	µg/L	3	2	4	3	<2.0	7	28	<2
Total Dissolved Solids <sup>2</sup>	500	mg/L	148	182	193	194	174	178	236	350
Chloride <sup>2</sup>	250	mg/L	7	10	11	8.5	6.7	12	30	35
Nitrate, Nitrogen <sup>1</sup>	10	mg/L	0.03	0.06	0.07	0.03	0.11	0.06	0.07	<0.02
Nitrite, Nitrogen <sup>1</sup>	1	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01
Nitrate + Nitrite Nitrogen (NO2 + NO3) <sup>1</sup>	10	mg/L	0.03	0.06	0.07	0.03	0.11	0.06	0.08	<0.02
Nitrogen Ammonia (As N) <sup>3</sup>	2.8	mg/L	0.15	0.10	0.19	0.14	0.06	0.14	0.18	<0.04
<b>Field Parameters:</b>										
Specific Conductance (Field)	NS	umho/cm	320	359	382	320	263	306	392	535
pH (Field) <sup>2</sup>	6.5-8.5	Unit	6.60	6.76	6.83	6.64	6.34	6.47	6.44	6.62
Temperature (Field)	NS	Deg C	25.9	25.1	26.1	23.7	25.1	25.7	27.5	20.4
Turbidity (Field)	NS	NTU	5.8	15.6	28.5	16.4	21.6	6.33	17.30	25.10
Dissolved Oxygen (Field)	NS	mg/L	25.8	4.6	1.4	4.6	2.1	3.2	4.6	1.7
<b>Organic Parameters:</b>										
Total Xylenes <sup>1</sup>	10,000	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<1.0
<b>Notes:</b>										
MCL = Maximum Contaminant Level.										
NS = No Standard Set										
--- = Not Tested.										
Shaded = Sample result above the MCL.										
<sup>1</sup> Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).										
<sup>2</sup> Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).										
<sup>3</sup> Parameter MCL is a Groundwater Clean-up Target Level (62-777 F.A.C.).										



HARDEE COUNTY LANDFILL

MW-4 DATA SUMMARY										
Background Well										
PARAMETER	MCL	UNITS	DATE OF SAMPLE COLLECTION							
			Jun-99	Dec-99	Jun-00	Dec-00	Jun-01	Dec-01	Jun-02	Dec-02
<b>Inorganic Parameters:</b>										
Arsenic <sup>1</sup>	50	µg/L	8	8	8	<5.0	<5.0	14	10	14
Barium <sup>1</sup>	2,000	µg/L	<20	<20	<20	<20	40	30	40	40
Cadmium <sup>1</sup>	5	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	4
Chromium <sup>1</sup>	100	µg/L	<5.0	6	<5.0	7	9	5	5	5
Copper <sup>2</sup>	1,000	µg/L	20	<10	<10	<10	<10	<10	<10	<10
Iron <sup>2</sup>	300	µg/L	9,110	8,590	12,500	3,210	5,150	10,900	7,260	895
Lead <sup>1</sup>	15	µg/L	<1.0	1.0	<1.0	1	6	<1.0	<1.0	<1.0
Nickel <sup>1</sup>	100	µg/L	<10	<10	<10	<10	<10	<10	10	20
Sodium <sup>1</sup>	160,000	µg/L	4,600	4,600	6,600	3,800	6,100	6,700	5,800	3,000
Vanadium <sup>1</sup>	49	µg/L	<100	<100	<100	<100	<100	<100	<100	<100
Zinc <sup>2</sup>	5,000	µg/L	8	<2.0	<2.0	<2.0	4	<2.0	<2.0	<2.0
Total Dissolved Solids <sup>2</sup>	500	mg/L	128	144	140	164	192	288	172	312
Chloride <sup>2</sup>	250	mg/L	8.5	7.3	44	5.5	14	9	10	6.7
Nitrate, Nitrogen <sup>1</sup>	10	mg/L	0.02	<0.02	0.02	0.06	0.29	<0.02	0.75	<0.02
Nitrite, Nitrogen <sup>1</sup>	1	mg/L	<0.01	<0.01	0.02	<0.01	0.03	0.02	0.02	<0.01
Nitrate + Nitrite Nitrogen (NO2 + NO3) <sup>1</sup>	10	mg/L	0.02	<0.02	0.04	0.06	0.32	0.03	0.77	<0.02
Nitrogen Ammonia (As N) <sup>3</sup>	2.8	mg/L	0.14	<0.04	0.21	<0.04	<0.04	0.22	0.16	0.16
<b>Field Parameters:</b>										
Specific Conductance (Field)	NS	umho/cm	182	116	195	123	138	299	189	363
pH (Field) <sup>2</sup>	6.5-8.5	Unit	6.26	6.20	5.83	5.98	5.63	6.27	6.12	6.58
Temperature (Field)	NS	Deg C	22.8	23.4	23	23	24.3	23.3	24.7	21.8
Turbidity (Field)	NS	NTU	10.8	41	8.72	60.2	82.4	8.24	0.92	0.95
Dissolved Oxygen (Field)	NS	mg/L	2.8	4.8	1	1.8	2.4	2.8	3.5	1.5
<b>Organic Parameters:</b>										
Total Xylenes <sup>1</sup>	10,000	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<1.00
<b>Notes:</b>										
MCL = Maximum Contaminant Level.										
NS = No Standard Set										
--- = Not Tested.										
Shaded = Sample result above the MCL.										
<sup>1</sup> Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).										
<sup>2</sup> Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).										
<sup>3</sup> Parameter MCL is a Groundwater Clean-up Target Level (62-777 F.A.C.).										

HARDEE COUNTY LANDFILL

MW-5 DATA SUMMARY										
Detection Well										
PARAMETER	MCL	UNITS	DATE OF SAMPLE COLLECTION							
			Jun-99	Dec-99	Jun-00	Dec-00	Jun-01	Dec-01	Jun-02	Dec-02
<b>Inorganic Parameters:</b>										
Arsenic <sup>1</sup>	50	µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Barium <sup>1</sup>	2,000	µg/L	<20	<20	<20	<20	<20	<20	<20	<20
Cadmium <sup>1</sup>	5	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2
Chromium <sup>1</sup>	100	µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Copper <sup>2</sup>	1,000	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Iron <sup>2</sup>	300	µg/L	4,430	3,560	2,930	3,090	3,330	4,030	3,880	2,950
Lead <sup>1</sup>	15	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel <sup>1</sup>	100	µg/L	<10	<10	<10	<10	<10	<10	<10	10
Sodium <sup>1</sup>	160,000	µg/L	4,500	4,400	3,300	4,300	3,900	3,600	3,100	5,100
Vanadium <sup>1</sup>	49	µg/L	<100	<100	<100	<100	<100	<100	<100	<100
Zinc <sup>2</sup>	5,000	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	6
Total Dissolved Solids <sup>2</sup>	500	mg/L	44	60	46	74	74	56	56	54
Chloride <sup>2</sup>	250	mg/L	12	5.6	6.6	6.5	5.4	5.1	5.1	3.9
Nitrate, Nitrogen <sup>1</sup>	10	mg/L	<0.02	<0.02	0.03	<0.02	0.03	<0.02	<0.02	0.02
Nitrite, Nitrogen <sup>1</sup>	1	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02
Nitrate + Nitrite Nitrogen (NO <sub>2</sub> + NO <sub>3</sub> ) <sup>1</sup>	10	mg/L	<0.02	<0.02	0.03	<0.02	0.03	<0.02	<0.02	0.04
Nitrogen Ammonia (As N) <sup>3</sup>	2.8	mg/L	0.16	0.08	0.16	0.07	0.10	0.15	0.16	0.11
<b>Field Parameters:</b>										
Specific Conductance (Field)	NS	umho/cm	75	72	100	83	88	71	75	62
pH (Field) <sup>2</sup>	6.5-8.5	Unit	5.18	5.32	5.29	5.25	5.08	5.07	5.31	5.17
Temperature (Field)	NS	Deg C	24.9	25.1	25.2	24.7	26.6	25.9	26.4	23.3
Turbidity (Field)	NS	NTU	2.7	1.71	10	5.28	16.8	16.30	0.93	14.90
Dissolved Oxygen (Field)	NS	mg/L	2.4	3.6	1.1	0.9	1.8	2.6	2.5	2.6
<b>Organic Parameters:</b>										
Total Xylenes <sup>1</sup>	10,000	µg/L	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<1.00
<b>Notes:</b>										
MCL = Maximum Contaminant Level.										
NS = No Standard Set										
--- = Not Tested.										
Shaded = Sample result above the MCL.										
<sup>1</sup> Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).										
<sup>2</sup> Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).										
<sup>3</sup> Parameter MCL is a Groundwater Clean-up Target Level (62-777 F.A.C.).										



**HARDEE COUNTY LANDFILL**

<b>MW-8 DATA SUMMARY</b>										
<b>Detection Well</b>										
<b>PARAMETER</b>	<b>MCL</b>	<b>UNITS</b>	<b>DATE OF SAMPLE COLLECTION</b>							
			<b>Jun-99</b>	<b>Dec-99</b>	<b>Jun-00</b>	<b>Dec-00</b>	<b>Jun-01</b>	<b>Dec-01</b>	<b>Jun-02</b>	<b>Dec-02</b>
<b>Inorganic Parameters:</b>										
Arsenic <sup>1</sup>	50	µg/L	---	---	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Barium <sup>1</sup>	2,000	µg/L	---	---	<20	<20	40	110	30	40
Cadmium <sup>1</sup>	5	µg/L	---	---	<2.0	<2.0	<2.0	<2.0	<2.0	3
Chromium <sup>1</sup>	100	µg/L	---	---	<5.0	<5.0	17	36	<5.0	<5.0
Copper <sup>2</sup>	1,000	µg/L	---	---	<10	<10	<10	<10	<10	<10
Iron <sup>2</sup>	300	µg/L	---	---	<b>3,310</b>	<b>2,670</b>	<b>7,770</b>	<b>14,300</b>	<b>820</b>	300
Lead <sup>1</sup>	15	µg/L	---	---	<1.0	1	8	4.0*	! 2	<1.0
Nickel <sup>1</sup>	100	µg/L	---	---	<10	<10	<10	<10	<10	<10
Sodium <sup>1</sup>	160,000	µg/L	---	---	6,300	7,600	7,200	9,900	6,900	8,700
Vanadium <sup>1</sup>	49	µg/L	---	---	<100	<100	<100	<100	<100	<100
Zinc <sup>2</sup>	5,000	µg/L	---	---	<2.0	3	12	26	9	23
Total Dissolved Solids <sup>2</sup>	500	mg/L	---	---	80	112	102	152	100	79
Chloride <sup>2</sup>	250	mg/L	---	---	18	22	18	16	11	11
Nitrate, Nitrogen <sup>1</sup>	10	mg/L	---	---	0.02	0.06	0.1	0.62	0.02	0.13
Nitrite, Nitrogen <sup>1</sup>	1	mg/L	---	---	<0.01	<0.01	<0.01	0.02	<0.01	<0.01
Nitrate + Nitrite Nitrogen (NO <sub>2</sub> + NO <sub>3</sub> ) <sup>1</sup>	10	mg/L	---	---	0.02	0.06	0.1	0.64	0.02	0.13
Nitrogen Ammonia (As N) <sup>3</sup>	2.8	mg/L	---	---	0.07	<0.04	<0.04	0.07	0.05	<0.04
<b>Field Parameters:</b>										
Specific Conductance (Field)	NS	umho/cm	---	---	172	168	171	135	128	184
pH (Field) <sup>2</sup>	6.5-8.5	Unit	---	---	<b>5.46</b>	<b>5.51</b>	<b>5.84</b>	<b>5.58</b>	<b>5.69</b>	<b>5.79</b>
Temperature (Field)	NS	Deg C	---	---	26.5	253	26.2	26	26.8	21.4
Turbidity (Field)	NS	NTU	---	---	40.2	21.2	58.6	364.00	2.24	21.40
Dissolved Oxygen (Field)	NS	mg/L	---	---	2.1	1.6	1.6	5	2.3	1.1
<b>Organic Parameters:</b>										
Total Xylenes <sup>1</sup>	10,000	µg/L	---	---	<0.11	<0.11	<0.11	<0.11	<0.11	<1.00
<b>Notes:</b>										
MCL = Maximum Contaminant Level.										
NS = No Standard Set										
--- = Not Tested.										
Shaded = Sample result above the MCL.										
* = Result is from the March 1, 2002 resampling event. December 2001 sampling result was 23 µg/L.										
<sup>1</sup> Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).										
<sup>2</sup> Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).										
<sup>3</sup> Parameter MCL is a Groundwater Clean-up Target Level (62-777 F.A.C.).										

HARDEE COUNTY LANDFILL

MW-9 DATA SUMMARY										
Detection Well										
PARAMETER	MCL	UNITS	DATE OF SAMPLE COLLECTION							
			Jun-99	Dec-99	Jun-00	Dec-00	Jun-01	Dec-01	Jun-02	Dec-02
<b>Inorganic Parameters:</b>										
Arsenic <sup>1</sup>	50	µg/L	---	---	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Barium <sup>1</sup>	2,000	µg/L	---	---	100	<20	30	<20	30	<20
Cadmium <sup>1</sup>	5	µg/L	---	---	<2.0	<2.0	<2.0	<2.0	<2.0	3
Chromium <sup>1</sup>	100	µg/L	---	---	<2.0	<5.0	<5.0	<5.0	<5.0	<5.0
Copper <sup>2</sup>	1,000	µg/L	---	---	<10	<10	<10	<10	<10	<10
Iron <sup>2</sup>	300	µg/L	---	---	3,320	1,320	1,140	580	300	350
Lead <sup>1</sup>	15	µg/L	---	---	<1.0	<1.0	3	<1.0	<1.0	<1.0
Nickel <sup>1</sup>	100	µg/L	---	---	<10	<10	<10	<10	<10	10
Sodium <sup>1</sup>	160,000	µg/L	---	---	31,000	36,000	25,000	14,000	6,200	9,800
Vanadium <sup>1</sup>	49	µg/L	---	---	<100	<100	110	<100	<100	<100
Zinc <sup>2</sup>	5,000	µg/L	---	---	3	<2.0	3	29	9	12
Total Dissolved Solids <sup>2</sup>	500	mg/L	---	---	130	150	114	64	60	138
Chloride <sup>2</sup>	250	mg/L	---	---	62	74	24	5.2	3.7	10
Nitrate, Nitrogen <sup>1</sup>	10	mg/L	---	---	<0.02	<0.02	<0.02	<0.02	0.51	0.06
Nitrite, Nitrogen <sup>1</sup>	1	mg/L	---	---	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate + Nitrite Nitrogen (NO <sub>2</sub> + NO <sub>3</sub> ) <sup>1</sup>	10	mg/L	---	---	<0.02	<0.02	<0.02	<0.02	0.51	0.06
Nitrogen Ammonia (As N) <sup>3</sup>	2.8	mg/L	---	---	0.23	0.07	<0.04	<0.04	0.07	<0.04
<b>Field Parameters:</b>										
Specific Conductance (Field)	NS	umho/cm	---	---	262	300	208	109	63	235
pH (Field) <sup>2</sup>	6.5-8.5	Unit	---	---	4.82	5.06	6.76	5.46	5.21	6.13
Temperature (Field)	NS	Deg C	---	---	26.5	25.2	26.1	25.6	28	22.5
Turbidity (Field)	NS	NTU	---	---	2.84	4.15	19.6	5.74	0.84	8.02
Dissolved Oxygen (Field)	NS	mg/L	---	---	1	0.8	1.5	2.4	1.9	3.9
<b>Organic Parameters:</b>										
Total Xylenes <sup>1</sup>	10,000	µg/L	---	---	0.11	<0.11	<0.11	<0.11	<0.11	<1.00
<b>Notes:</b>										
MCL = Maximum Contaminant Level.										
NS = No Standard Set										
--- = Not Tested.										
Shaded = Sample result above the MCL.										
<sup>1</sup> Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).										
<sup>2</sup> Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).										
<sup>3</sup> Parameter MCL is a Groundwater Clean-up Target Level (62-777 F.A.C.).										



## MW-6 DATA SUMMARY

PARAMETER	MCL	UNITS	DATE OF SAMPLE COLLECTION							
			Jun-99	Dec-99	Jun-00	Dec-00	Jun-01	Dec-01	Jun-02	Dec-02
<b>Field Parameters:</b>										
Specific Conductance (Field)	NA	umho/cm	180	---	---	---	---	123	101	107

**Notes:**

MCL = Maximum Contaminant Level.

NS = No Standard Set

--- = Not Tested.

Shaded = Sample result above the MCL.

<sup>1</sup> Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).

<sup>2</sup> Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).

<sup>3</sup> Parameter MCL is a Groundwater Clean-up Target Level (62-777 F.A.C.).

## MW-7 DATA SUMMARY

PARAMETER	MCL	UNITS	DATE OF SAMPLE COLLECTION							
			Jun-99	Dec-99	Jun-00	Dec-00	Jun-01	Dec-01	Jun-02	Dec-02
<b>Field Parameters:</b>										
Specific Conductance (Field)	NA	umho/cm	95	---	---	---	---	67	62	59

**Notes:**

MCL = Maximum Contaminant Level.

NS = No Standard Set

--- = Not Tested.

Shaded = Sample result above the MCL.

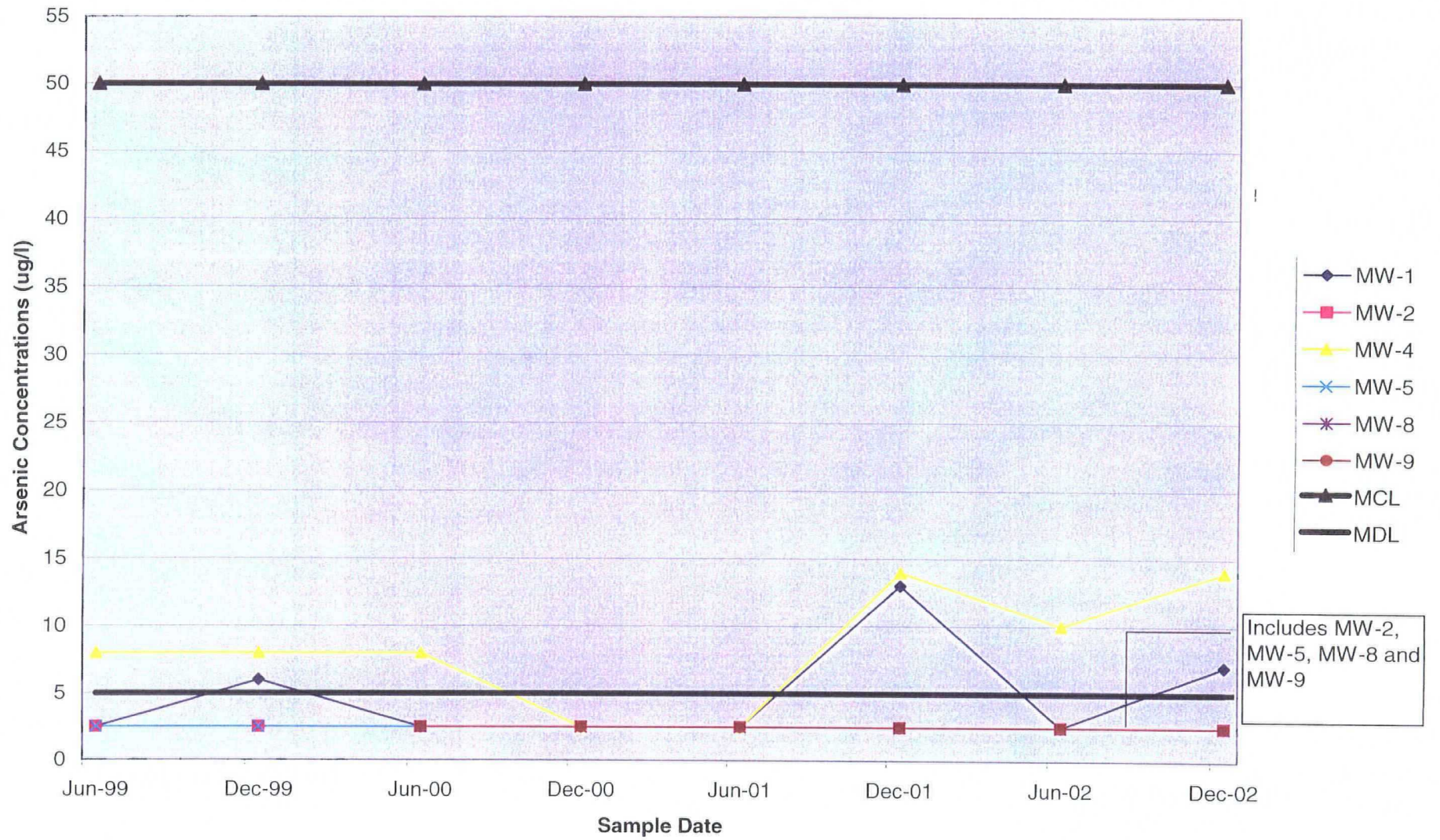
<sup>1</sup> Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).

<sup>2</sup> Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).

<sup>3</sup> Parameter MCL is a Groundwater Clean-up Target Level (62-777 F.A.C.).

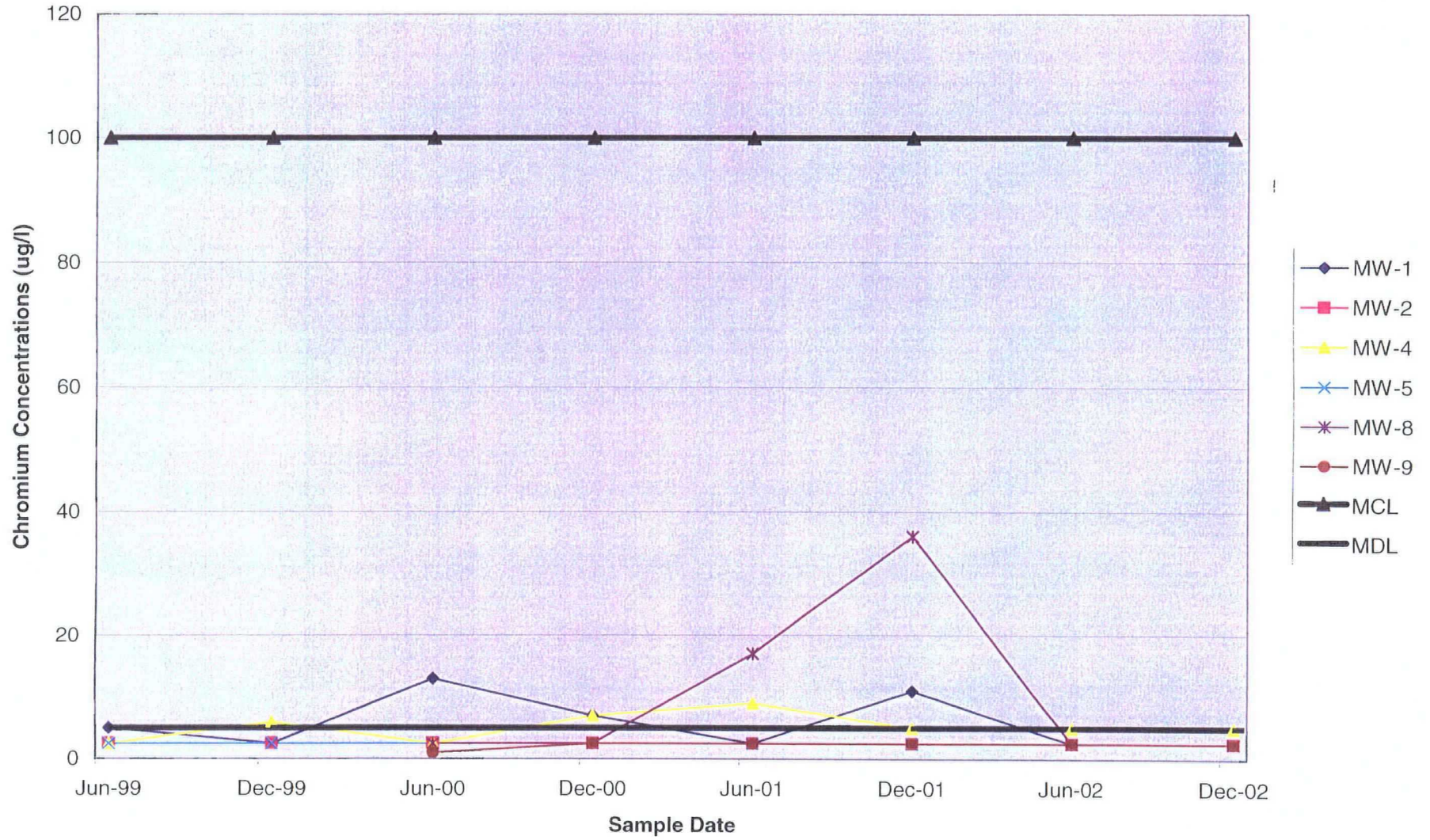
**ATTACHMENT B**  
**WATER QUALITY TREND ANALYSES**

### Arsenic Concentration Comparisons (ug/L)



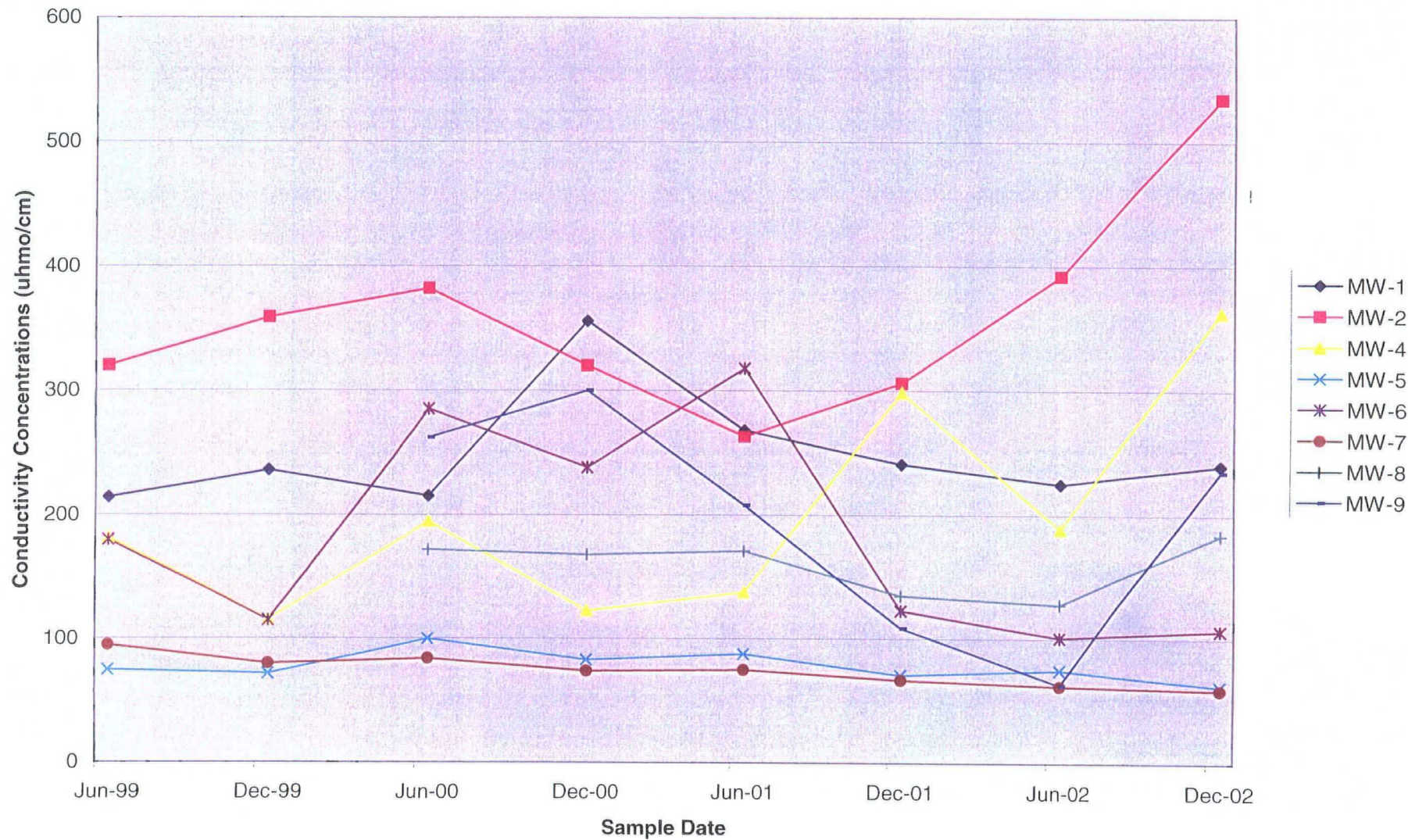


### Chromium Concentration Comparisons (ug/l)



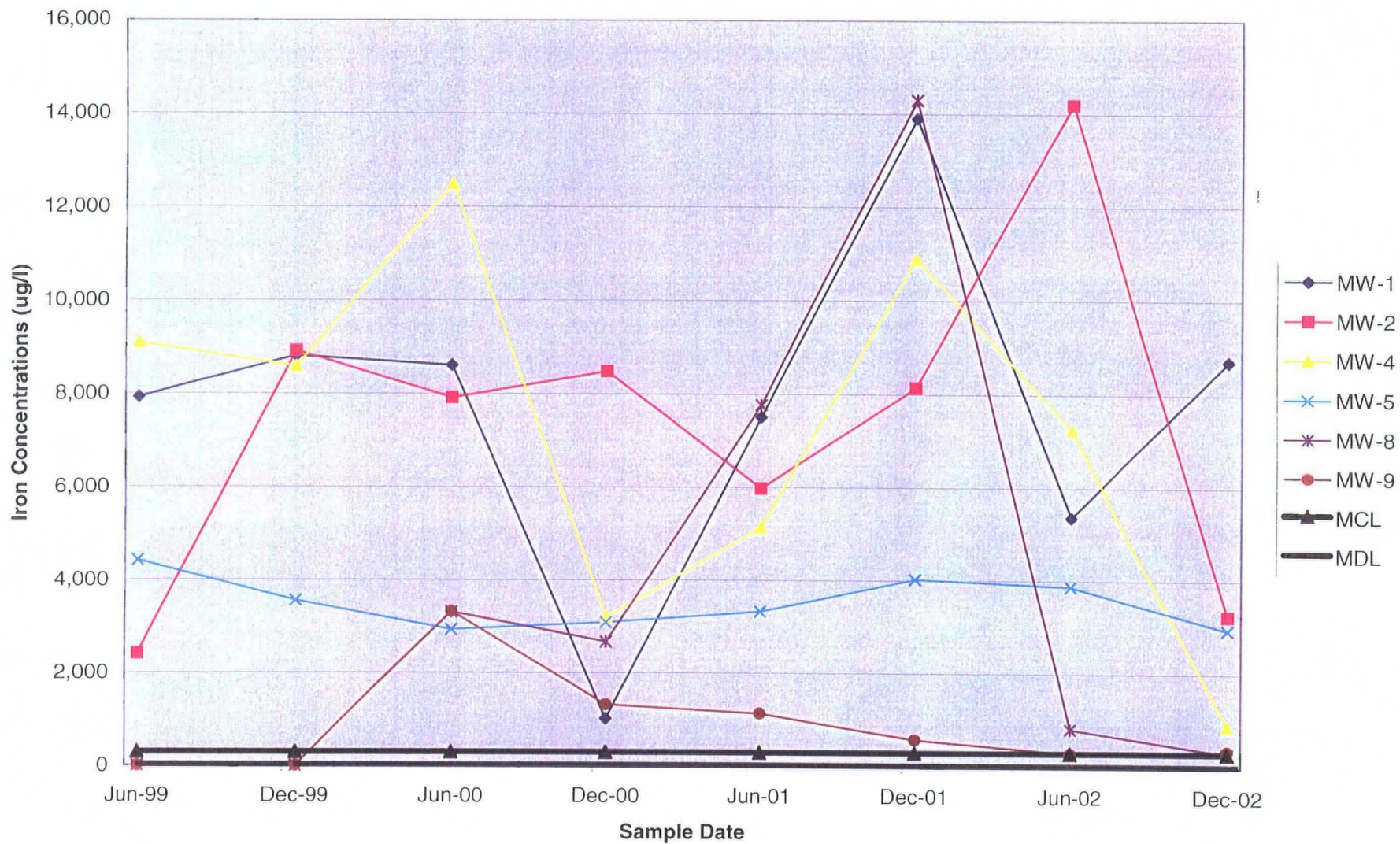


### Conductivity Concentration Comparisions (uhmo/cm)





### Iron Concentration Comparisons (ug/l)

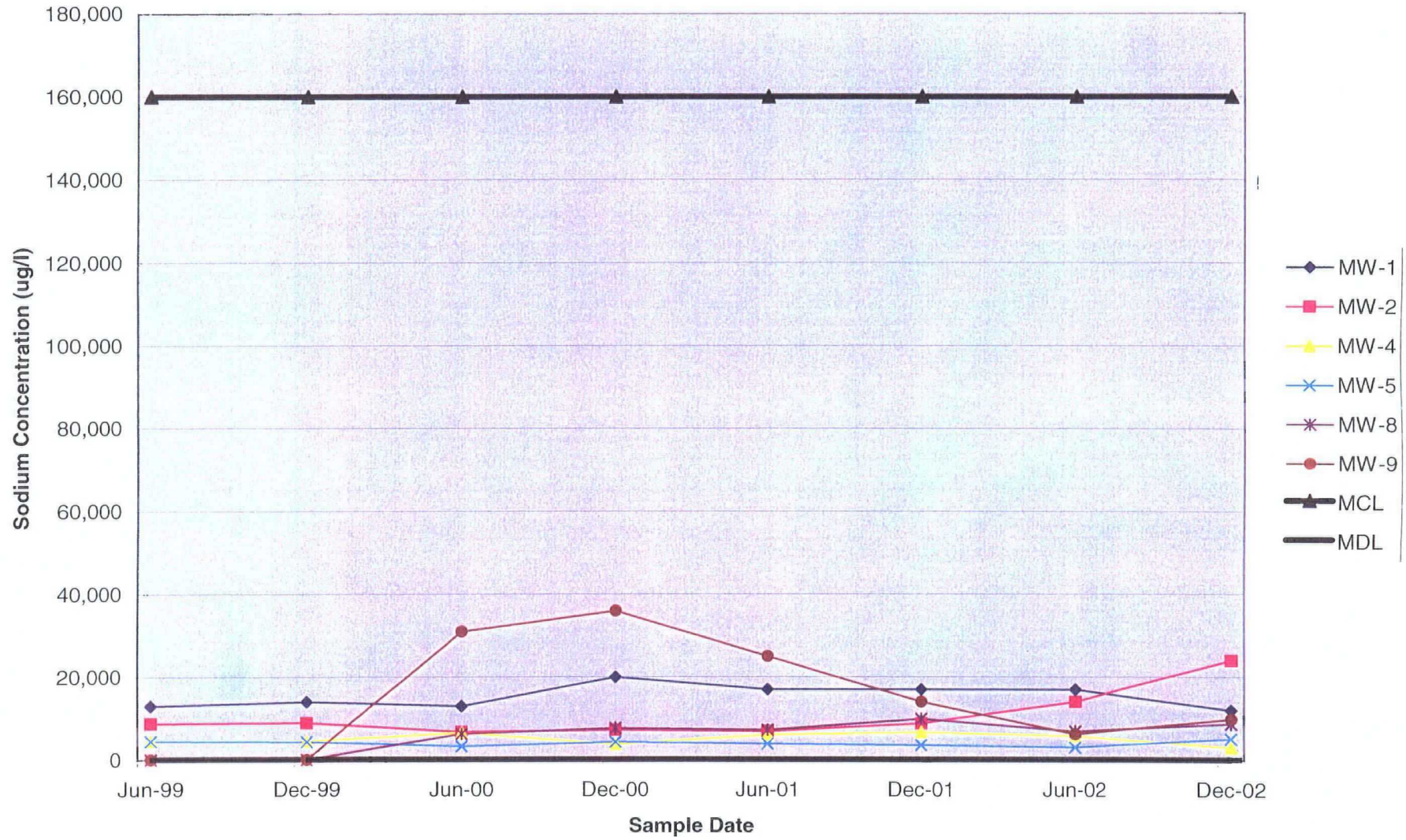






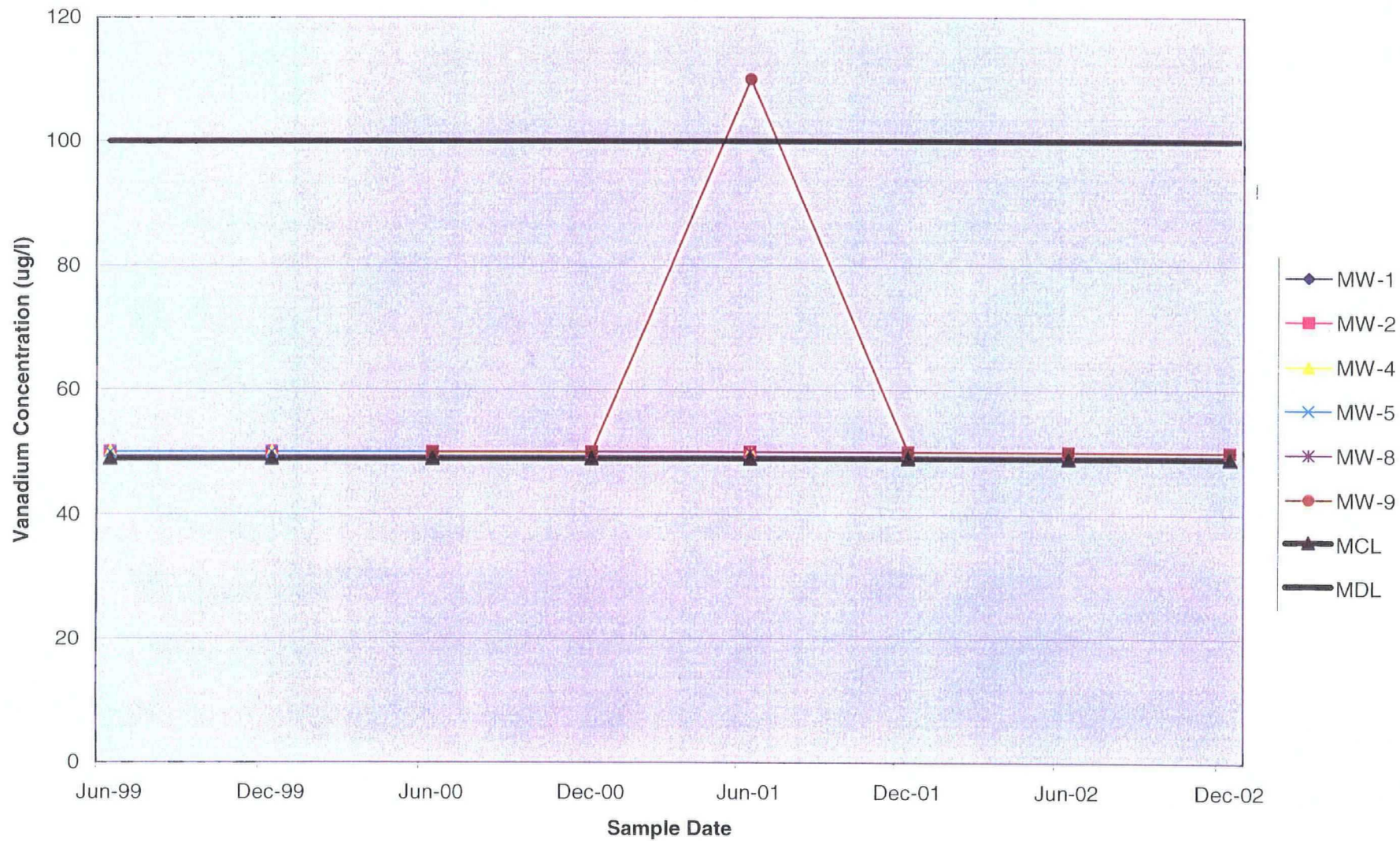


### Sodium Concentration Comparisions(ug/l)



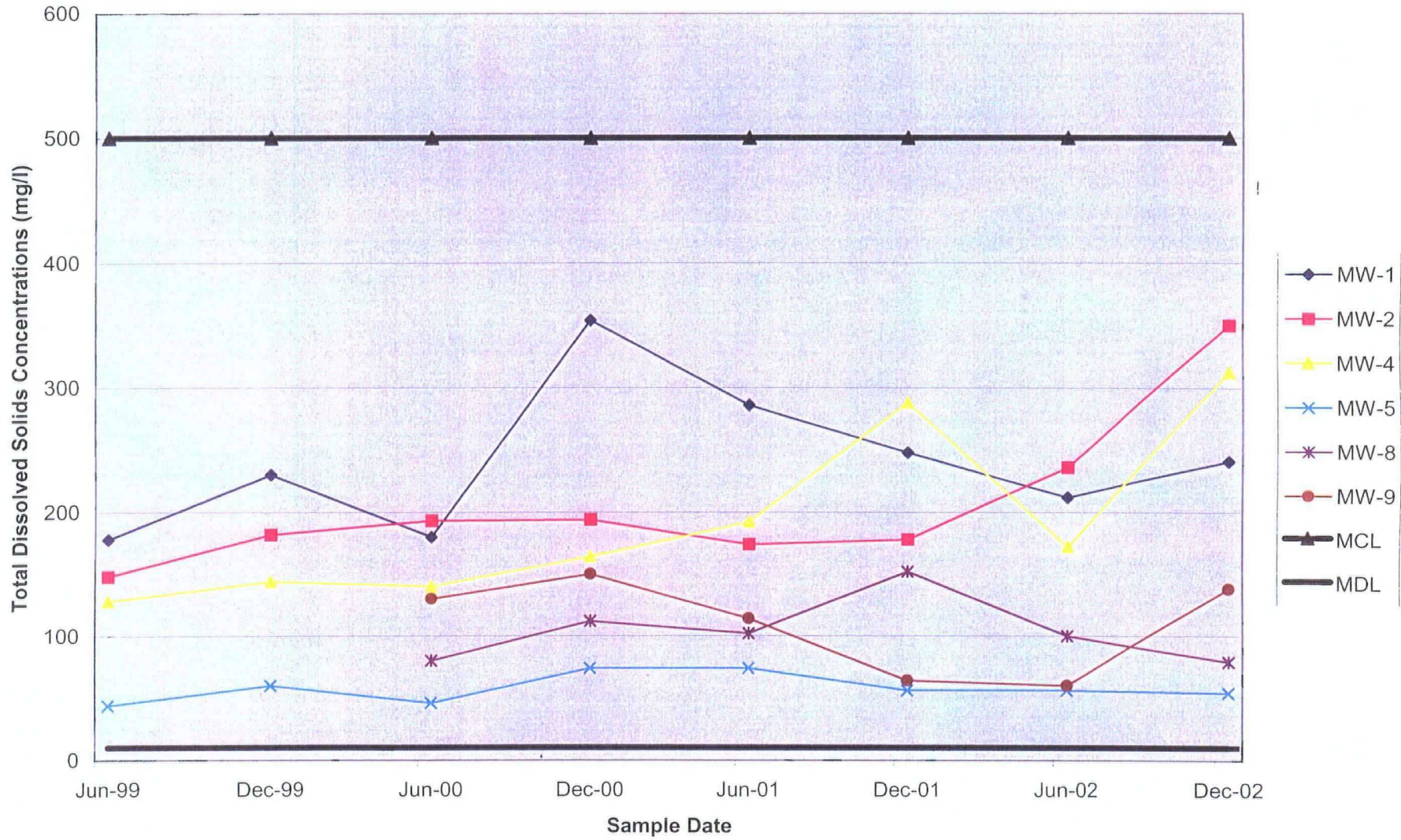


### Vanadium Concentration Comparison (ug/l)



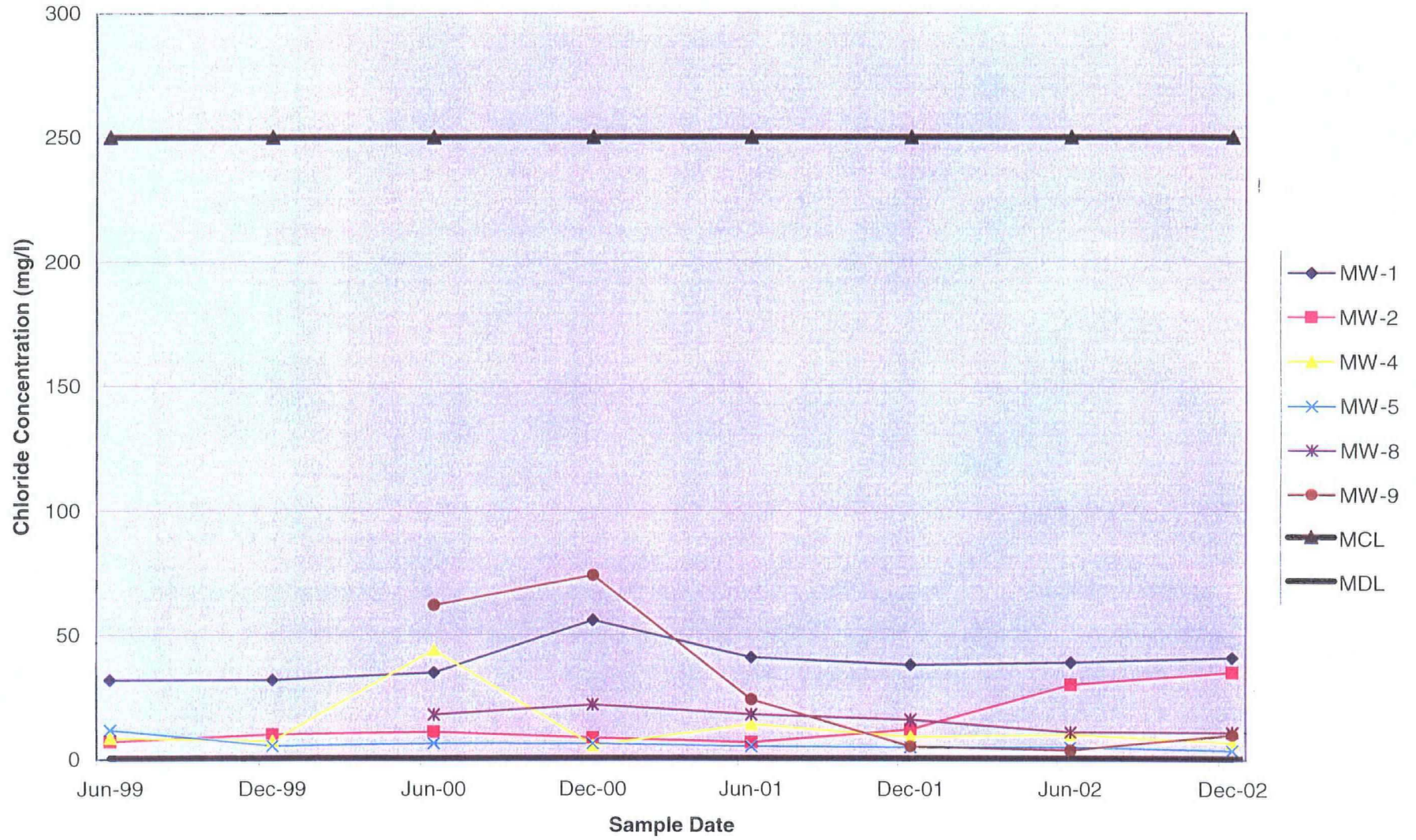


Total Dissolved Solids Concentration Comparison (mg/l)





### Chloride Concentration Comparison (mg/l)

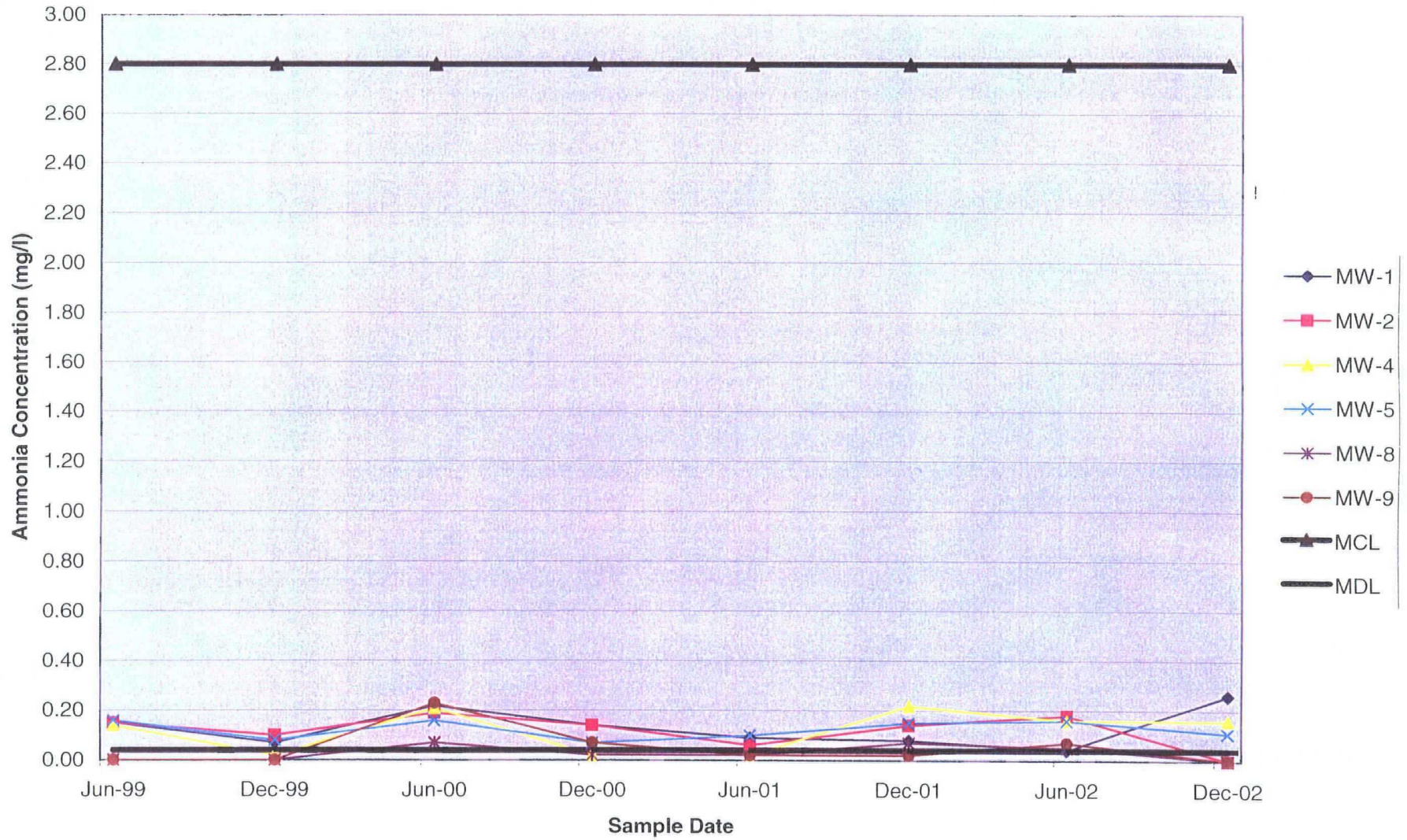






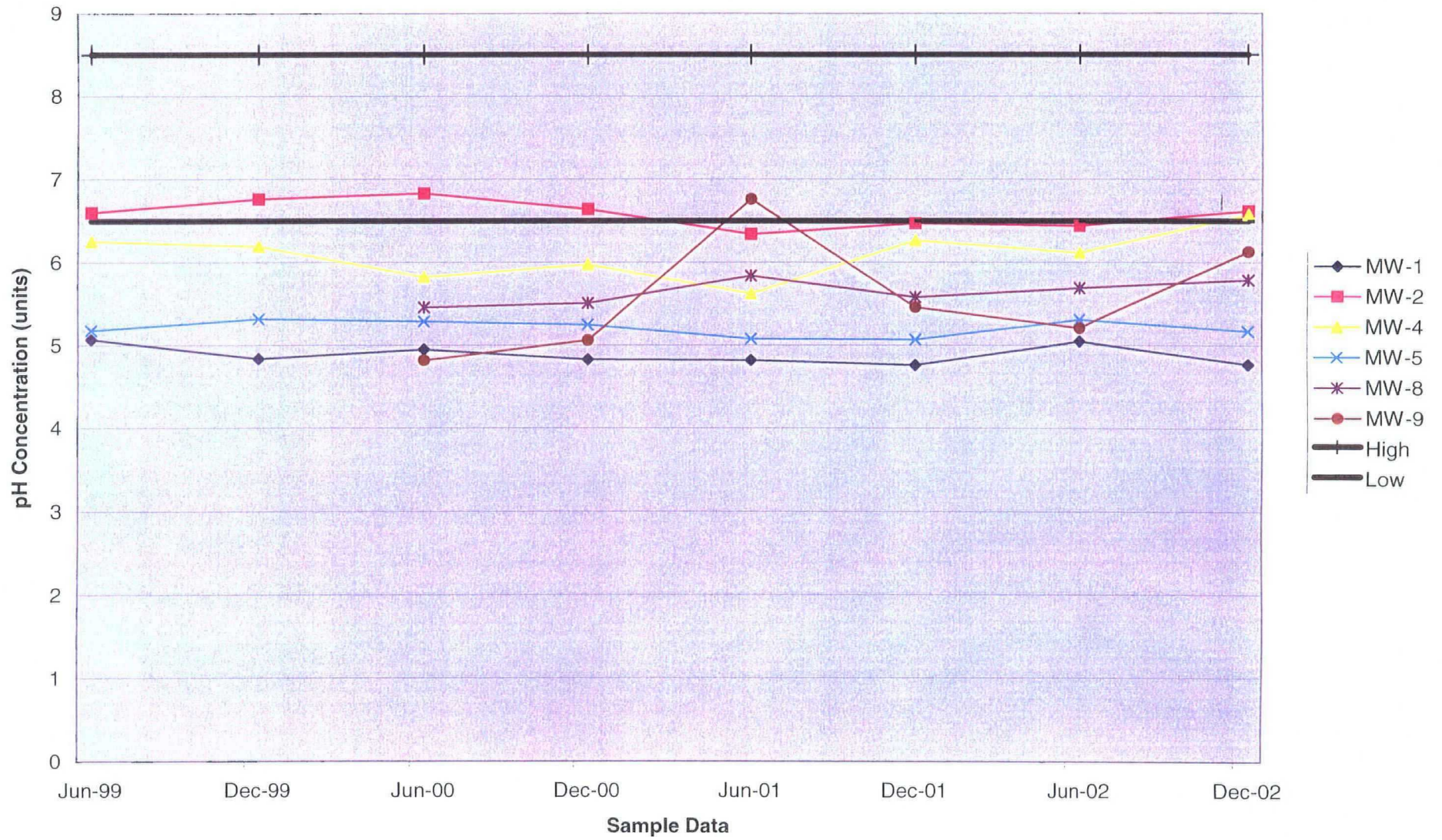


Ammonia Concentrations Comparison (mg/l)



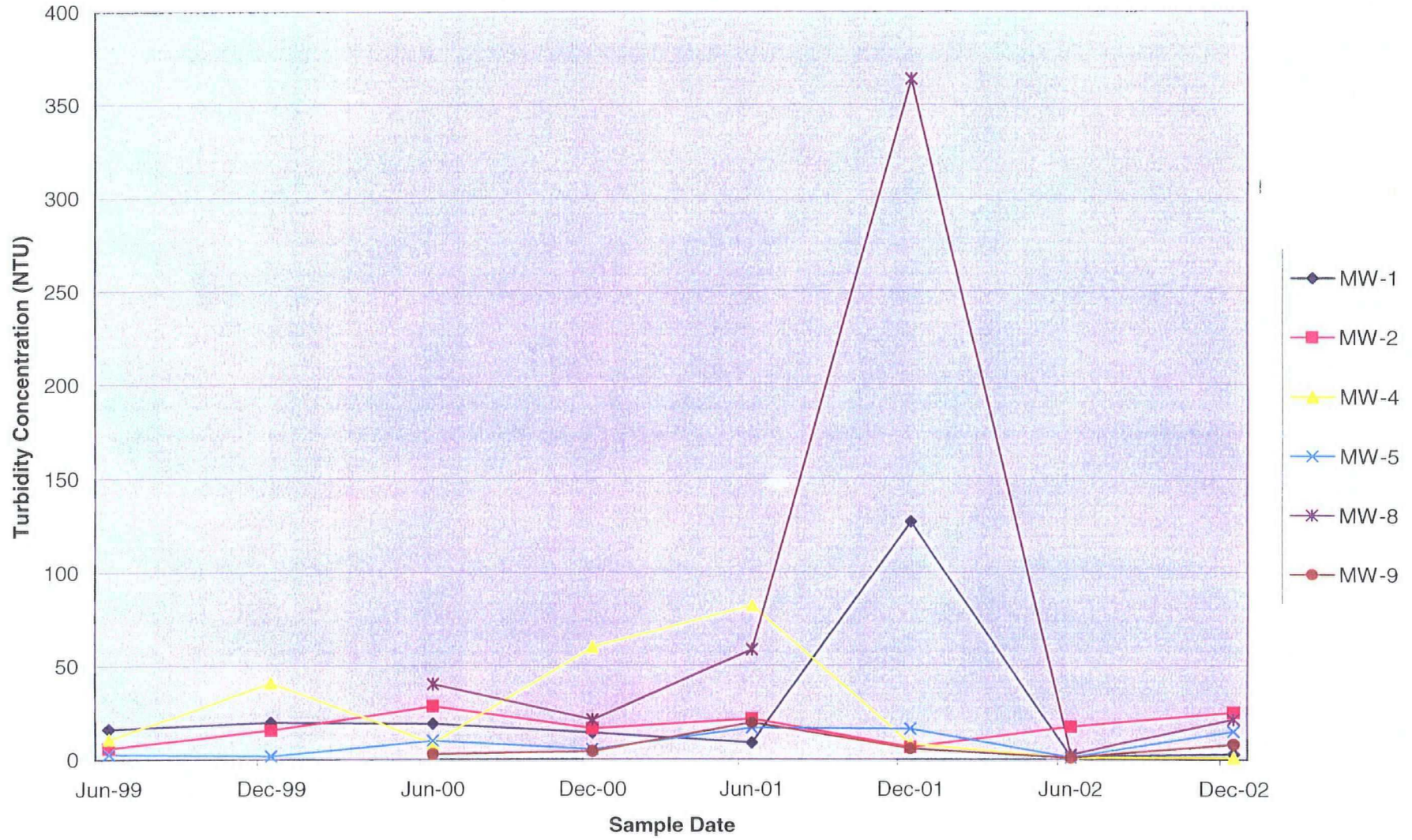


pH Concentration Comparision (units)



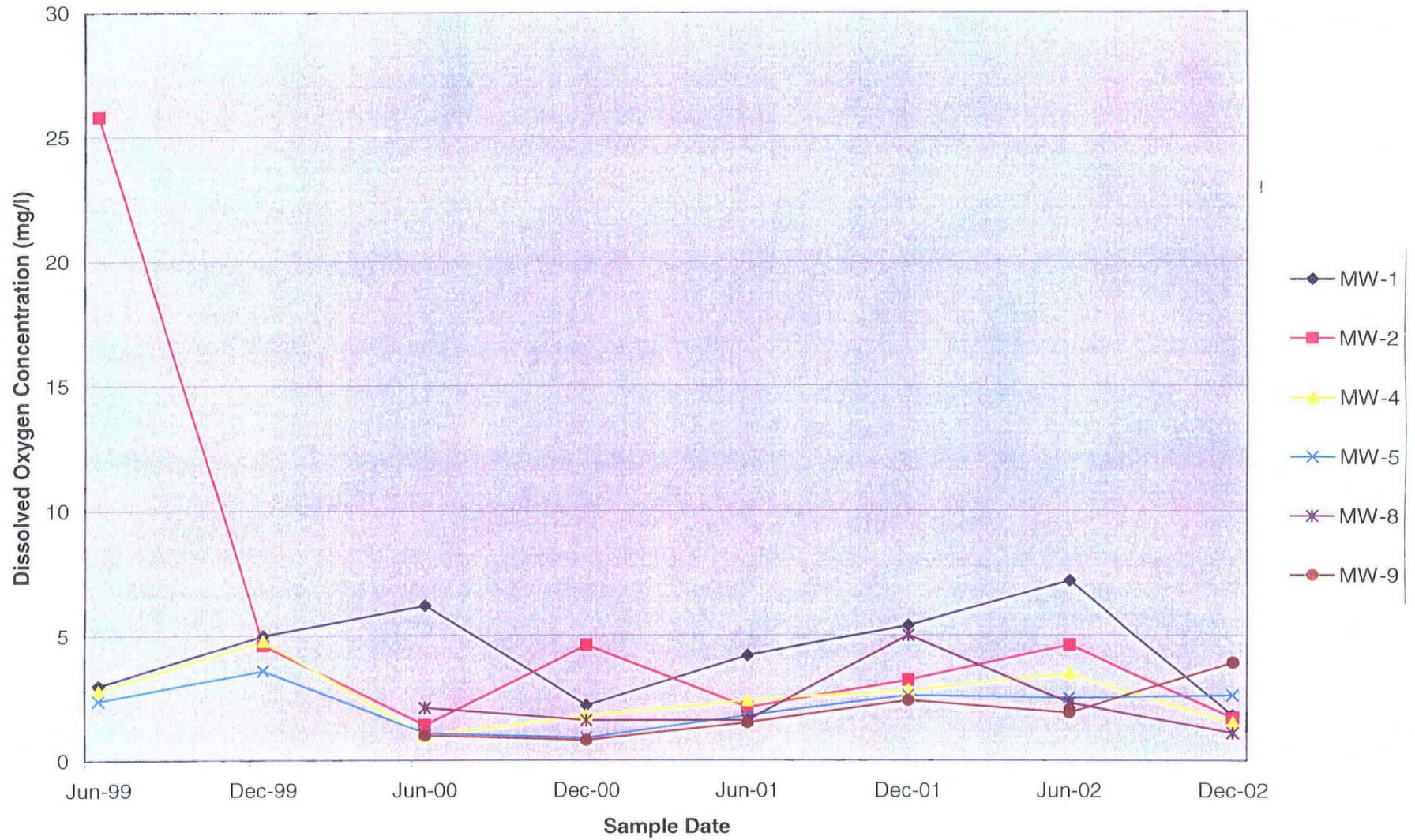


Turbidity Concentration Comparison (NTU)





Dissolved Oxygen Concentration Comparison (mg/l)





**ATTACHMENT C**  
**LEACHATE DATA SUMMARY CHART**

**HARDEL COUNTY  
SEMI-ANNUAL LEACHATE MONITORING RESULTS**

**JUNE 1999-DECEMBER 2002**

PARAMETER	40 CFR Chapter I-Part 261 Toxicity Characteristics	Units	Dec-99	Jun-00	Dec-00	Jun-01	Dec-01	Jun-02	Dec-02	Primary Drinking Water Standard (62-550 F.A.C.)	Surface Water Criteria (62-302 F.A.C.)
										Secondary Drinking Water Standard (62-550 F.A.C.)	Groundwater Clean-up Target Level (62-777 F.A.C.)
										Groundwater Clean-up Target Level (62-777 F.A.C.)	
<b>Inorganic Parameters:</b>											
Arsenic	5,000	µg/L	6	32	<5.0	352	<5.0	7	6	50	50
Barium	100,000	µg/L	30	250	40	4,600	110	40	30	2,000	unable to calculate
Beryllium	NA	µg/L	<1.0	<1.0	<1.0	30	<1.0	<1.0	<1.0	4	0.13
Cadmium	1,000	µg/L	<2.0	<2.0	<2.0	50	<2.0	<2.0	3	5	unable to calculate
Chromium	5,000	µg/L	6	29	<5.0	1,630	8	6	<5	100	unable to calculate
Cobalt	NS	µg/L	<50	<50	<50	100	<50	<50	<50	420	NA
Copper	NS	µg/L	<10	120	<10	1,010	<10	<10	<10	1,000	unable to calculate
Iron	NS	µg/L	27,700	72,900	3,410	793,000	10,000	1,910	12,500	300	1,000
Lead	5,000	µg/L	<1.0	38	<1.0	1,110	<1.0	5	<1	15	unable to calculate
Mercury	200	µg/L	<1.0	<1.0	<1.0	9	<1.0	<1.0	<1.0	2	0.012
Nickel	NS	µg/L	10	40	10	810	<10.0	20	<10	100	unable to calculate
Selenium	NS	µg/L	<5.0	<5.0	<5.0	52	<5.0	<5.0	<5.0	50	5
Silver	5,000	µg/L	<1.0	<1.0	<1.0	2	<1.0	<1.0	<1.0	100	0.07
Sodium	NS	µg/L	17,000	30,000	31,000	46,000	21,000	32,000	23,000	160,000	unable to calculate
Thallium	NS	µg/L	<2.0	5	<2.0	8	<2.0	<2.0	<2.0	2	6.3
Vanadium	NS	µg/L	<100	<100	<100	1,270	<100	<100	<100	49	NA
Zinc	NS	µg/L	10	590	18	4,960	<2.0	14	2	5,000	unable to calculate
Total Dissolved Solids	NS	mg/L	282	885	400	504	276	478	168	500	NA
Alkalinity	NS	mg/L	70	295	299	328	129	334	80.9	NA	<20
Chloride	NS	mg/L	31	64	46	82	37	66	42	250	NA
Nitrogen, Nitrate	NS	mg/L	0.03	0.07	0.02	0.55	0.06	0.04	<0.02	10,000	NA
Nitrogen, Nitrite	NS	mg/L	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1,000	NA
Nitrogen Ammonia (As N)	NS	mg/L	4.98	1.24	8.73	2.40	5.2	0.07	4.80	3	0.02
Sulfide	NS	mg/L	0.74	---	0.13	---	0.43	---	1.06	NA	NA
<b>Field Parameters:</b>											
Specific Conductance (Field)	NS	umho/cm	444	729	740	846	363	759	354	NA	1,275
pH (Field)	NS	Unit	6.14	6.18	6.92	6.94	6.24	7.53	5.95	6.5-8.5	6.5-8.5
Temperature (Field)	NS	Deg C	25.4	26.6	24.2	26.2	25.5	33.8	22.5	NA	NA
Dissolved Oxygen (Field)	NS	mg/L	3.8	0.7	0.8	0.7	3.6	6.5	2.2	NA	>5.0
<b>Organic Parameters:</b>											
Benzene	500	µg/L	2.12	15.00	<0.04	<0.04	<0.04	<0.04	<1.0	1.0	71.28 annual average
Chlorobenzene	100,000	µg/L	6.81	<0.04	<0.04	<0.04	<0.04	<0.04	<1.0	100	17
1,4-Dichlorobenzene	7500	µg/L	3.06	<0.03	0.61	<0.03	0.68	<0.03	2.22	75	100
Ethylbenzene	NS	µg/L	0.29	3.67	<0.06	<0.06	<0.06	<0.06	<1.0	700	605
Toluene	NS	µg/L	0.65	0.2	0.54	0.85	<0.11	<0.11	<1.0	1,000	475
Total Xylenes	NS	µg/L	3.61	14.6	9.54	0.78	<0.11	<0.11	<1.0	10,000	370

**Notes:**

MCL = Maximum Contaminant Level.

NA = Not Available.

NS= No Standard

--- = Not Tested.

Shaded = Sample result above the MCL. For 40 CFR Chapter I-part 261 Toxicity Standards

<sup>1</sup> Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).

<sup>2</sup> Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).

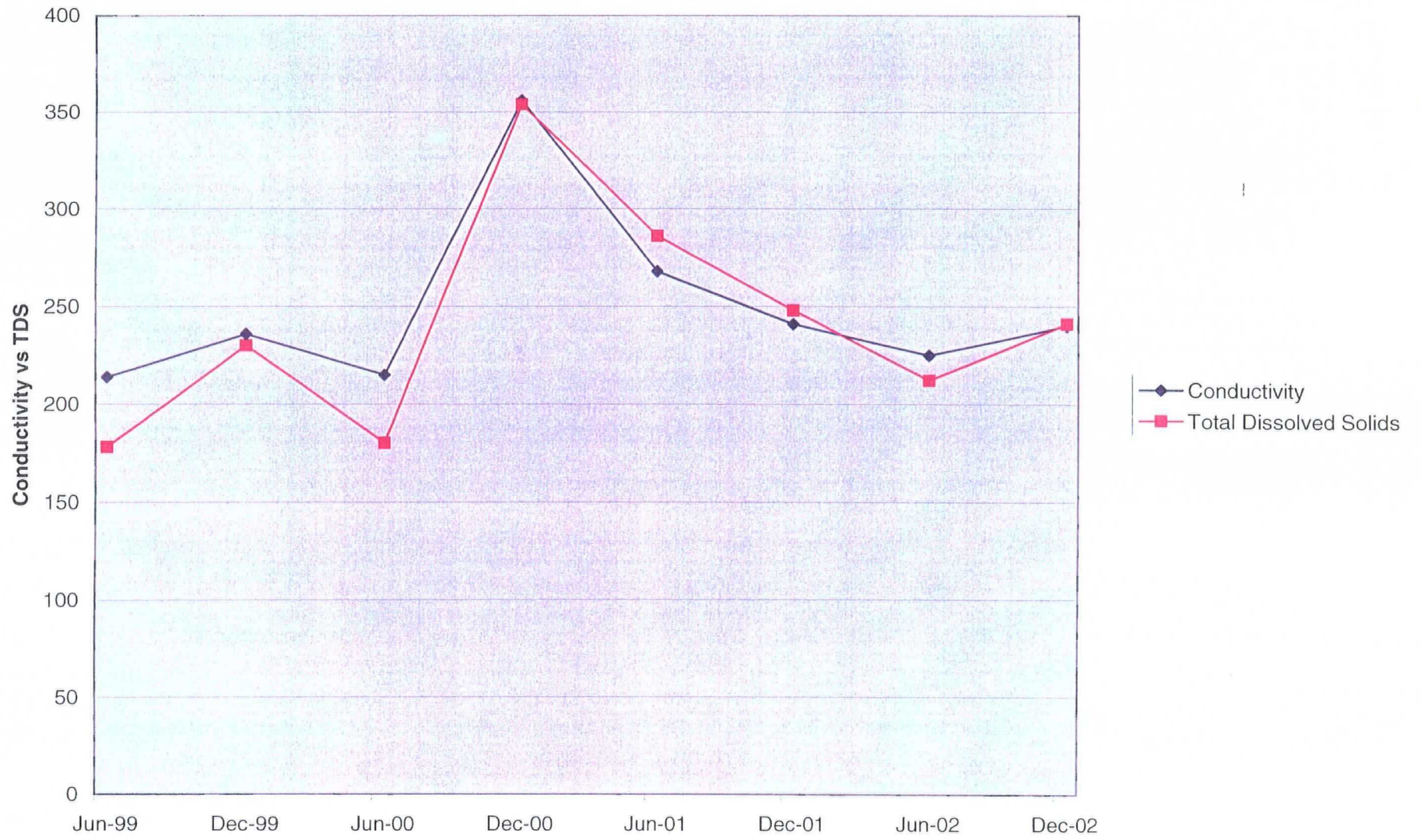
<sup>3</sup> Parameter MCL is a Groundwater Clean-up Target Level (62-777 F.A.C.).

\* = MCL, based on 40 CFR Chapter I-Part 261 Toxicity Characteristics  
unable to calculate= unable to calculate no value for hardness

**ATTACHMENT D**

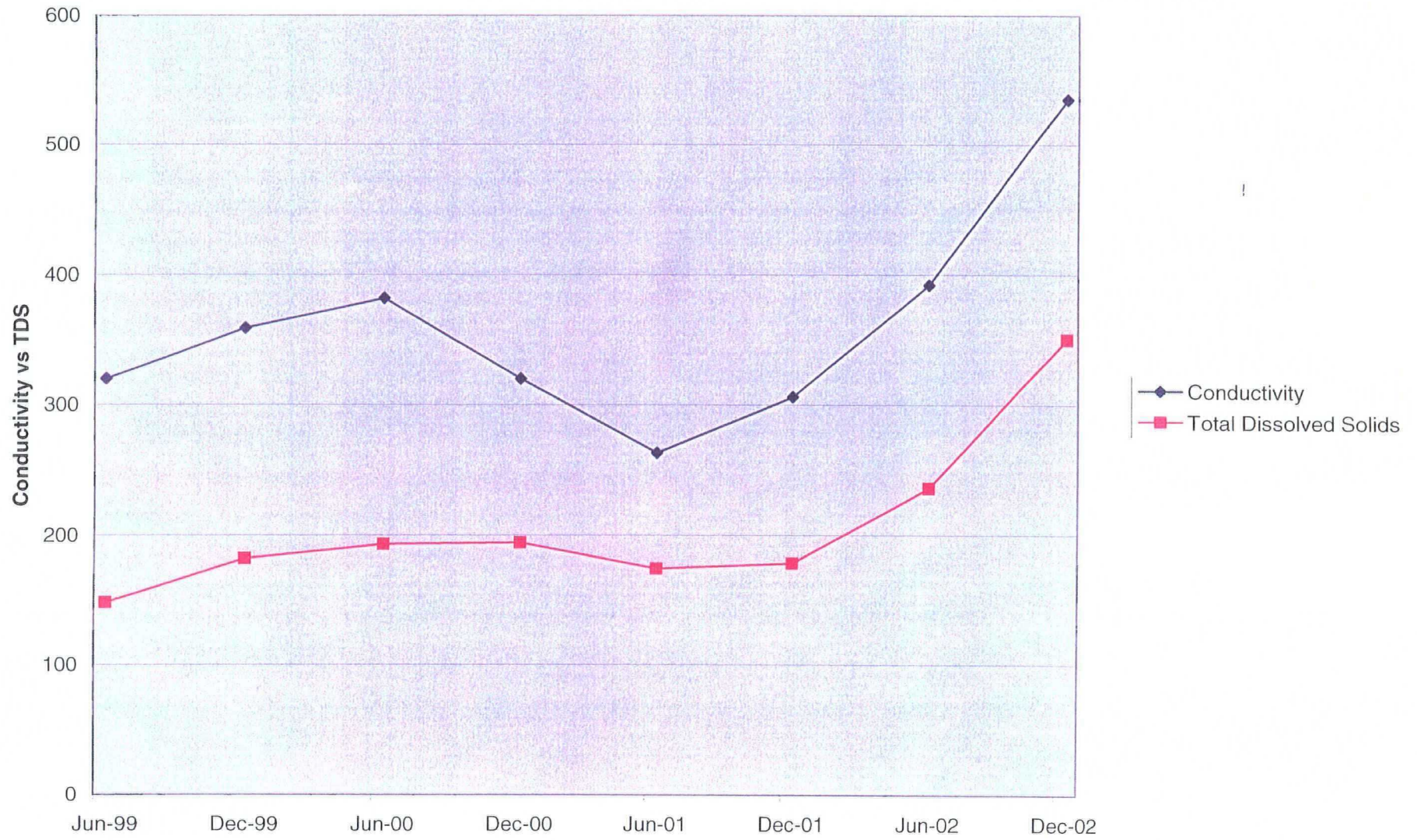
**TOTAL DISSOLVED SOLIDS VS. CONDUCTIVITY FOR GROUNDWATER  
MONITORING WELLS**

# MW-1



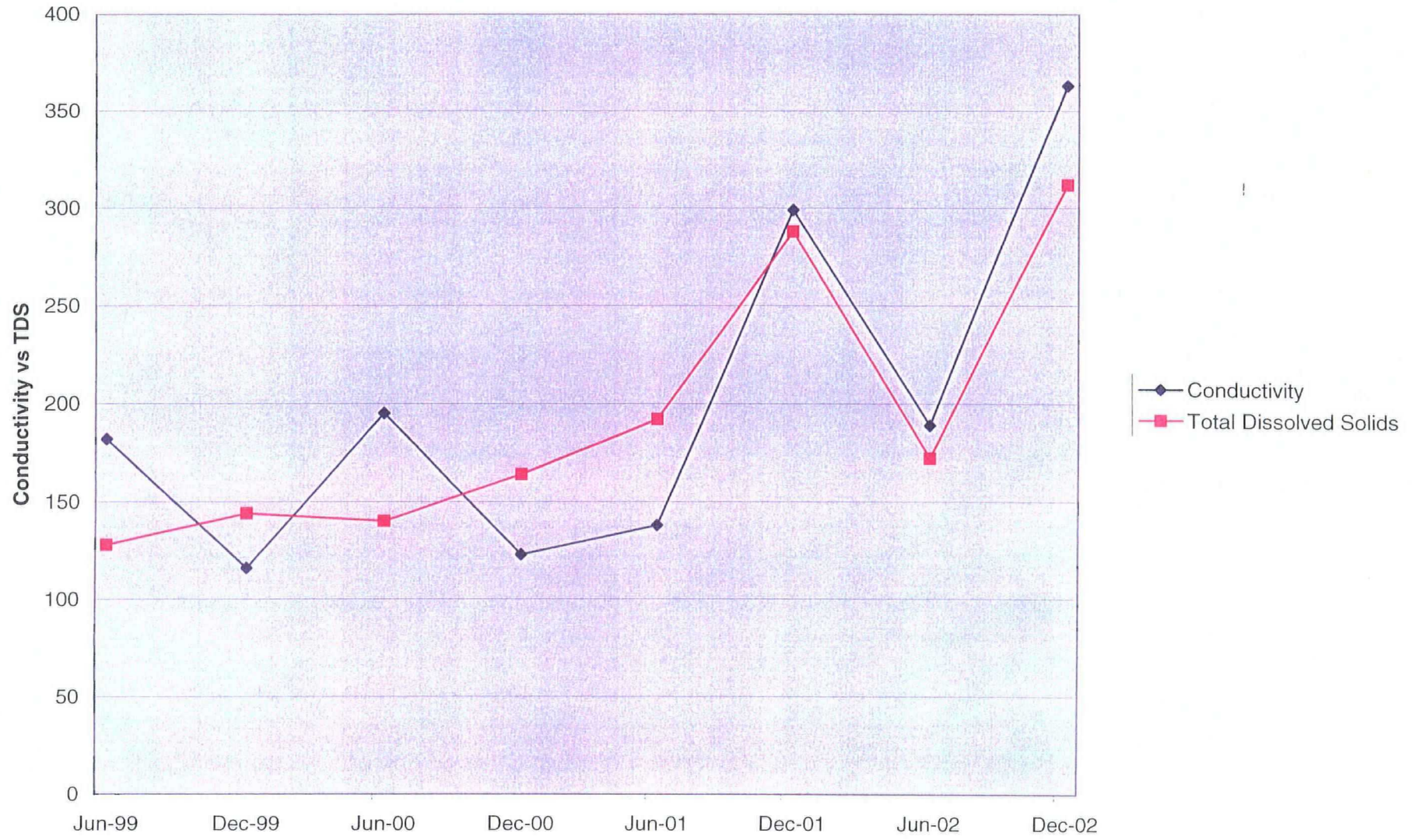


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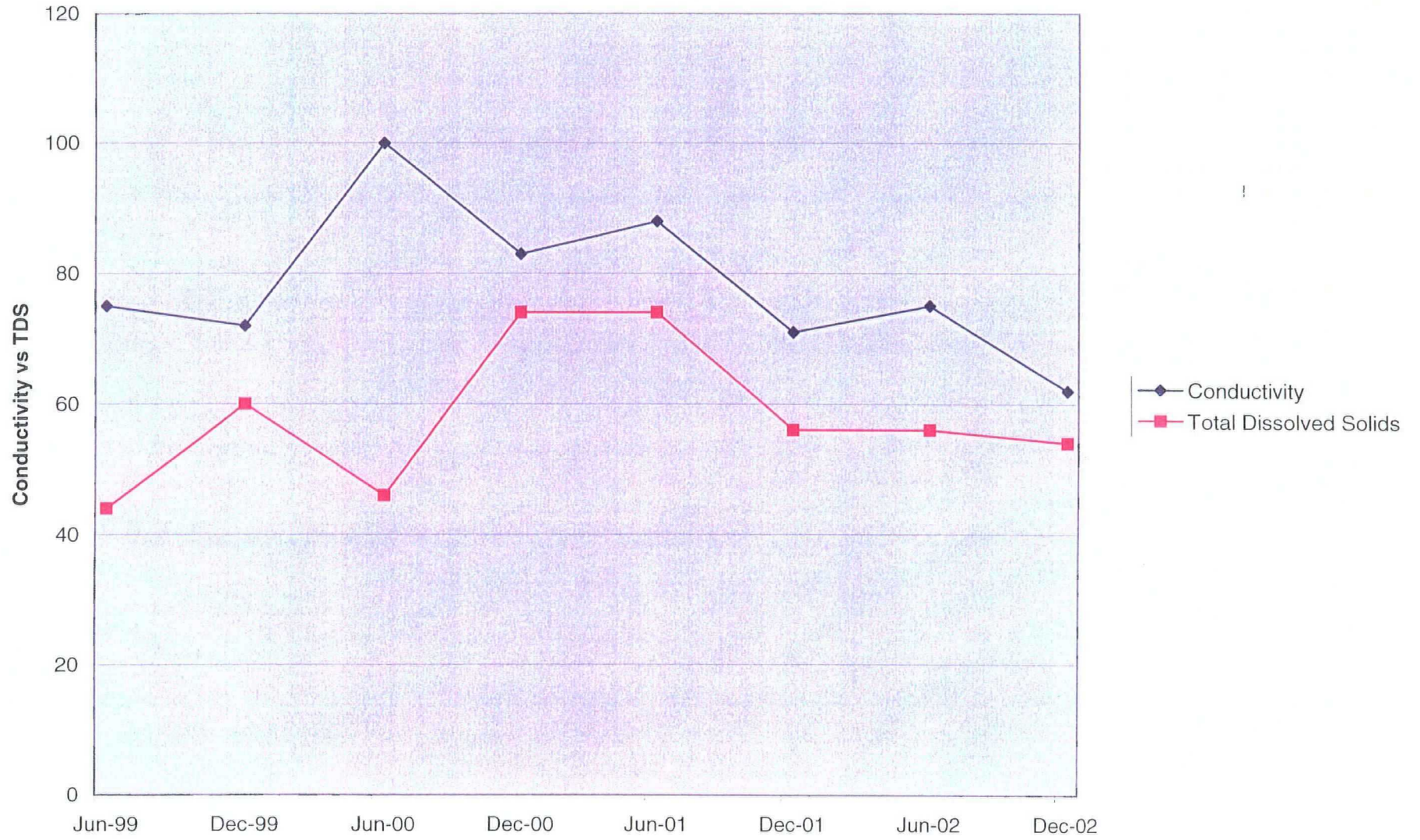




# MW-4

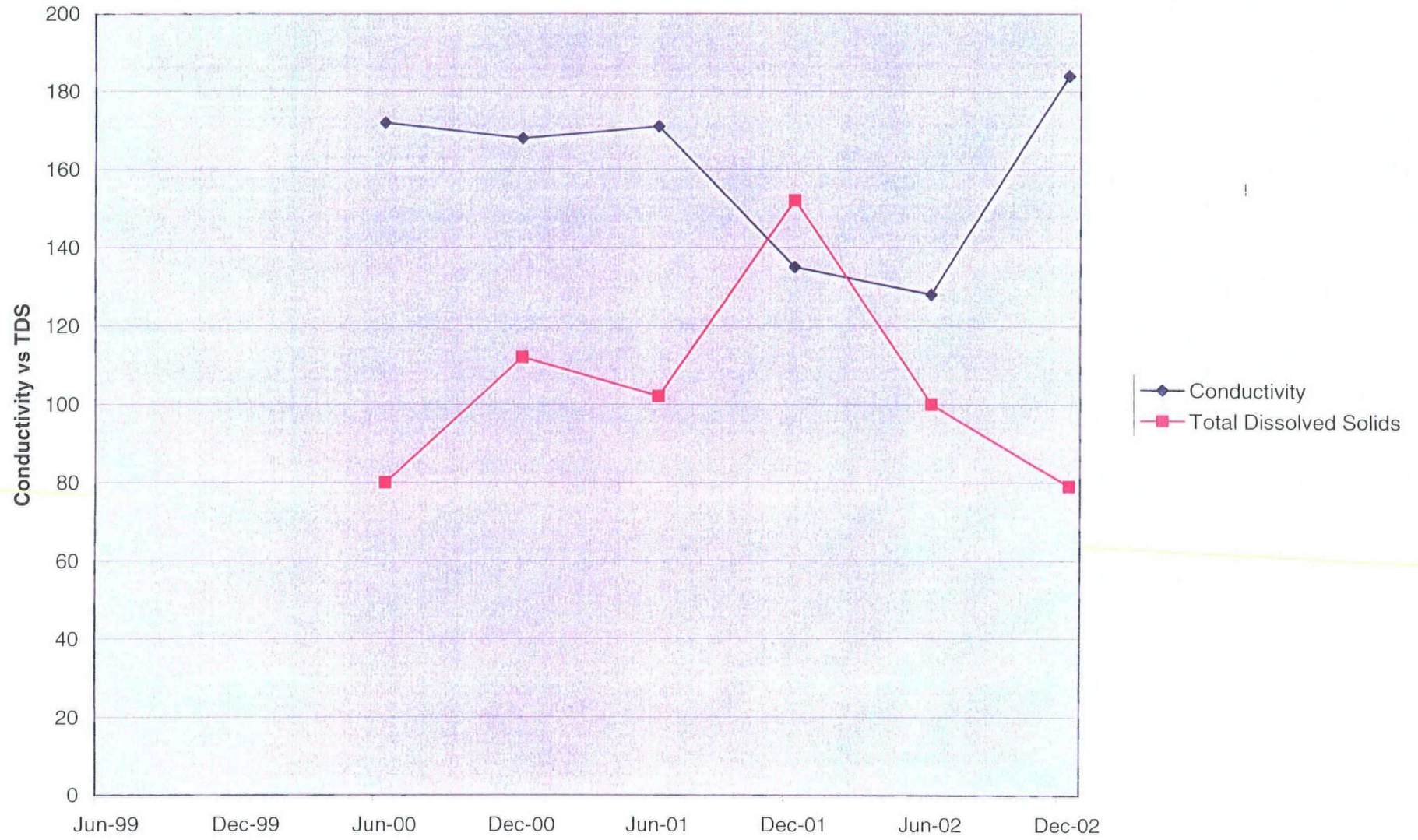


MW-5



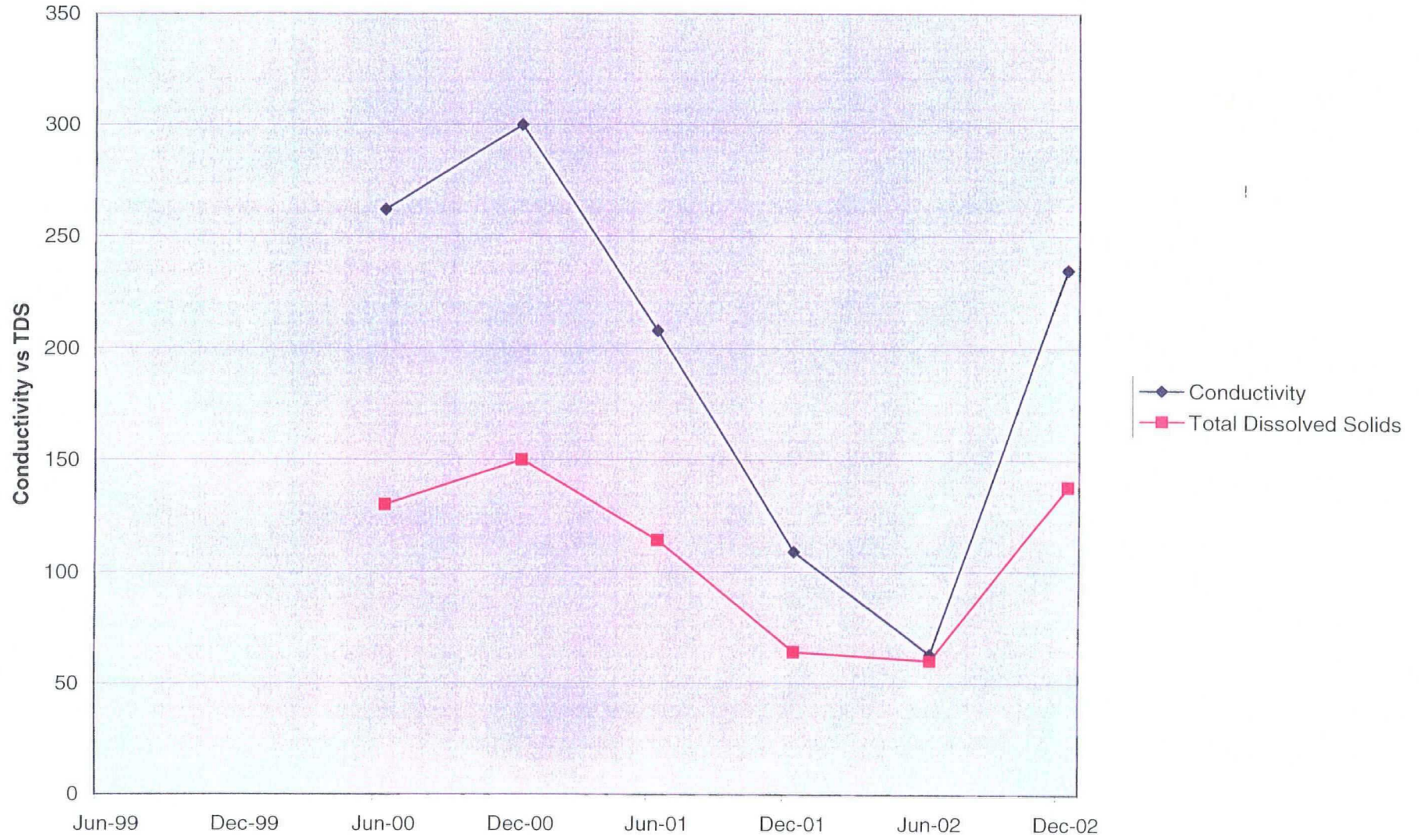


### MW-8





### MW-9



**ATTACHMENT E**  
**GROUNDWATER FLOW DIAGRAMS AND HYDROGRAPH**

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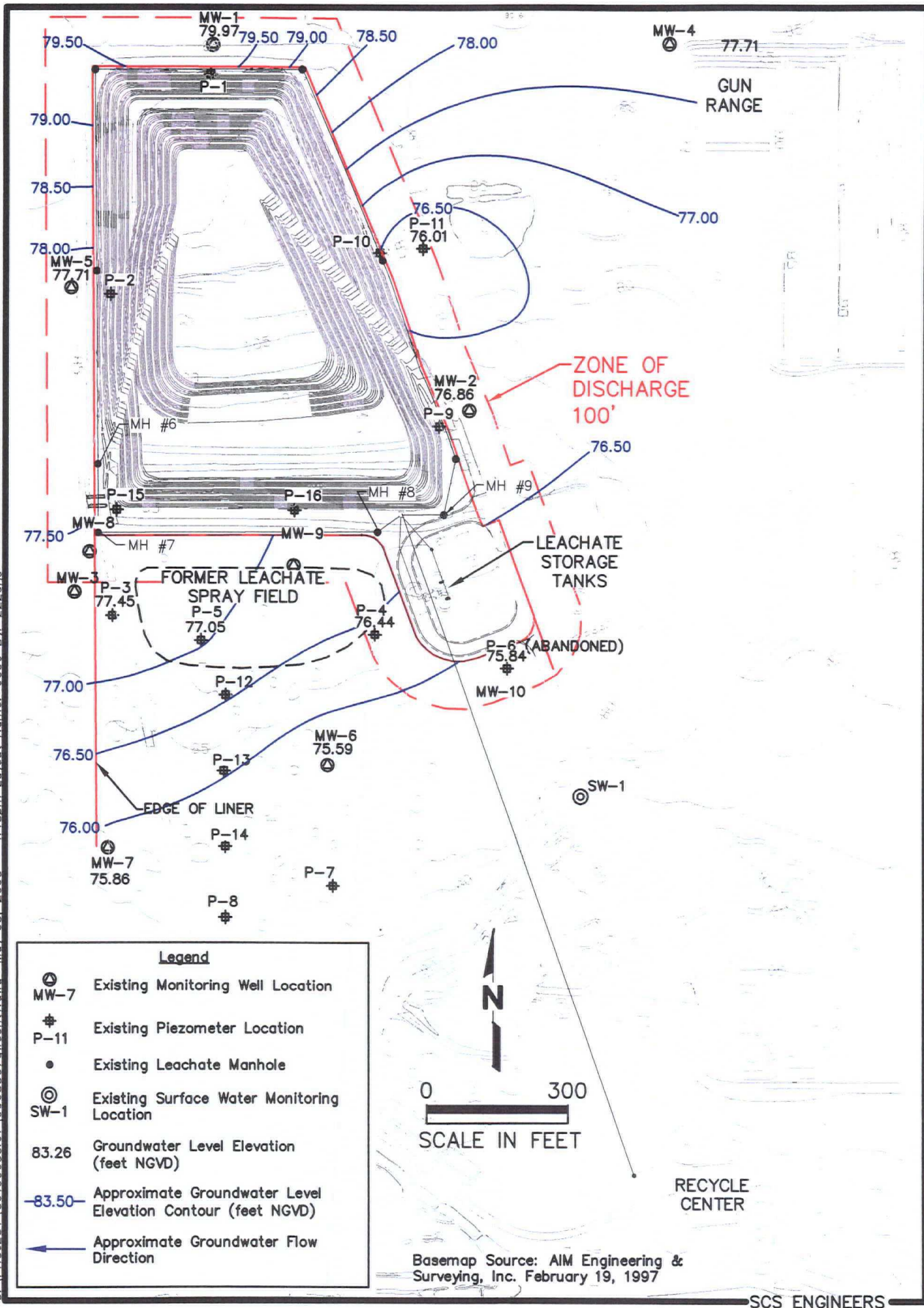


Figure E-1. Surficial Aquifer Potentiometric Map, Hardee County Solid Waste Disposal Facility June 1999



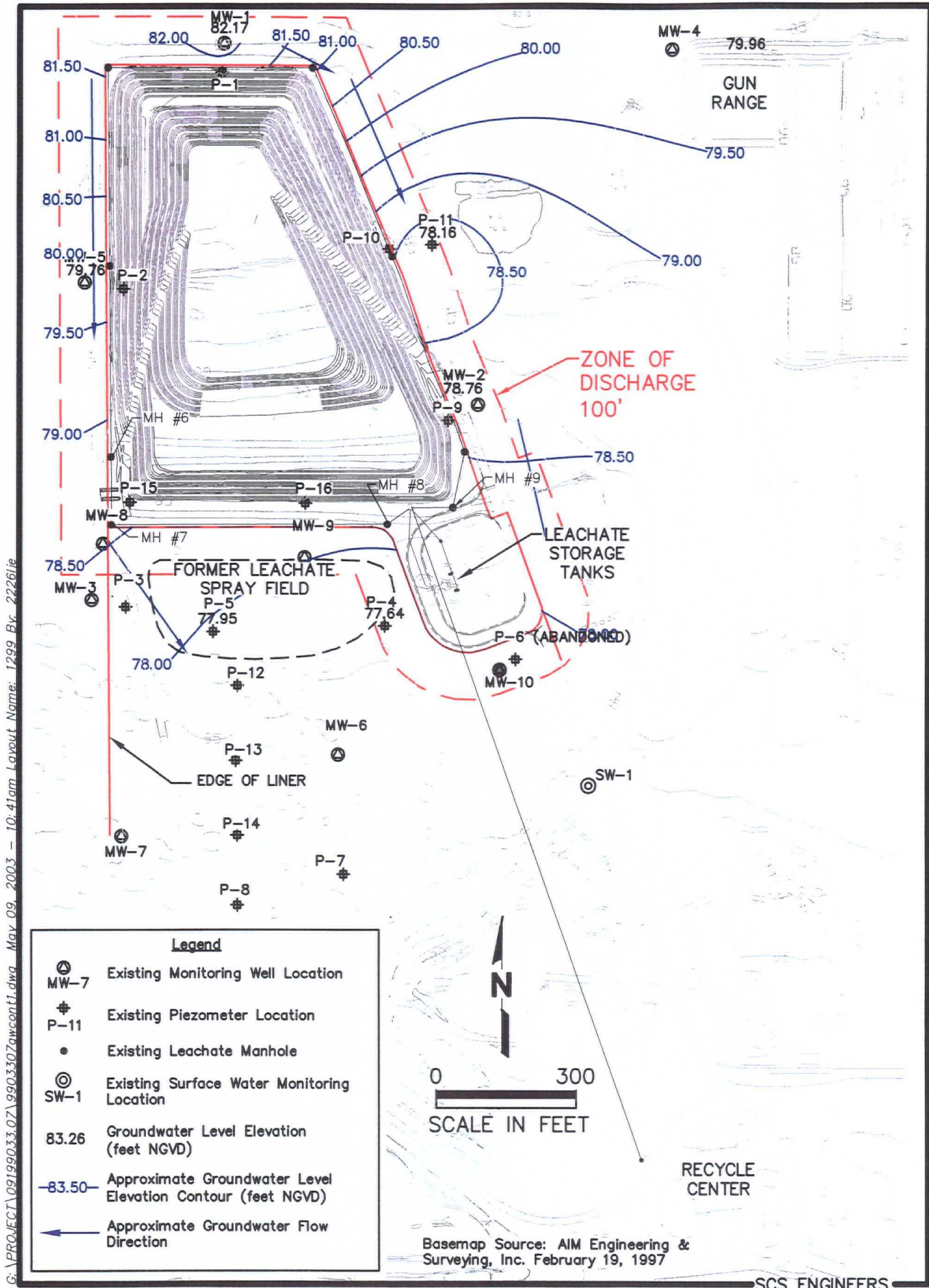
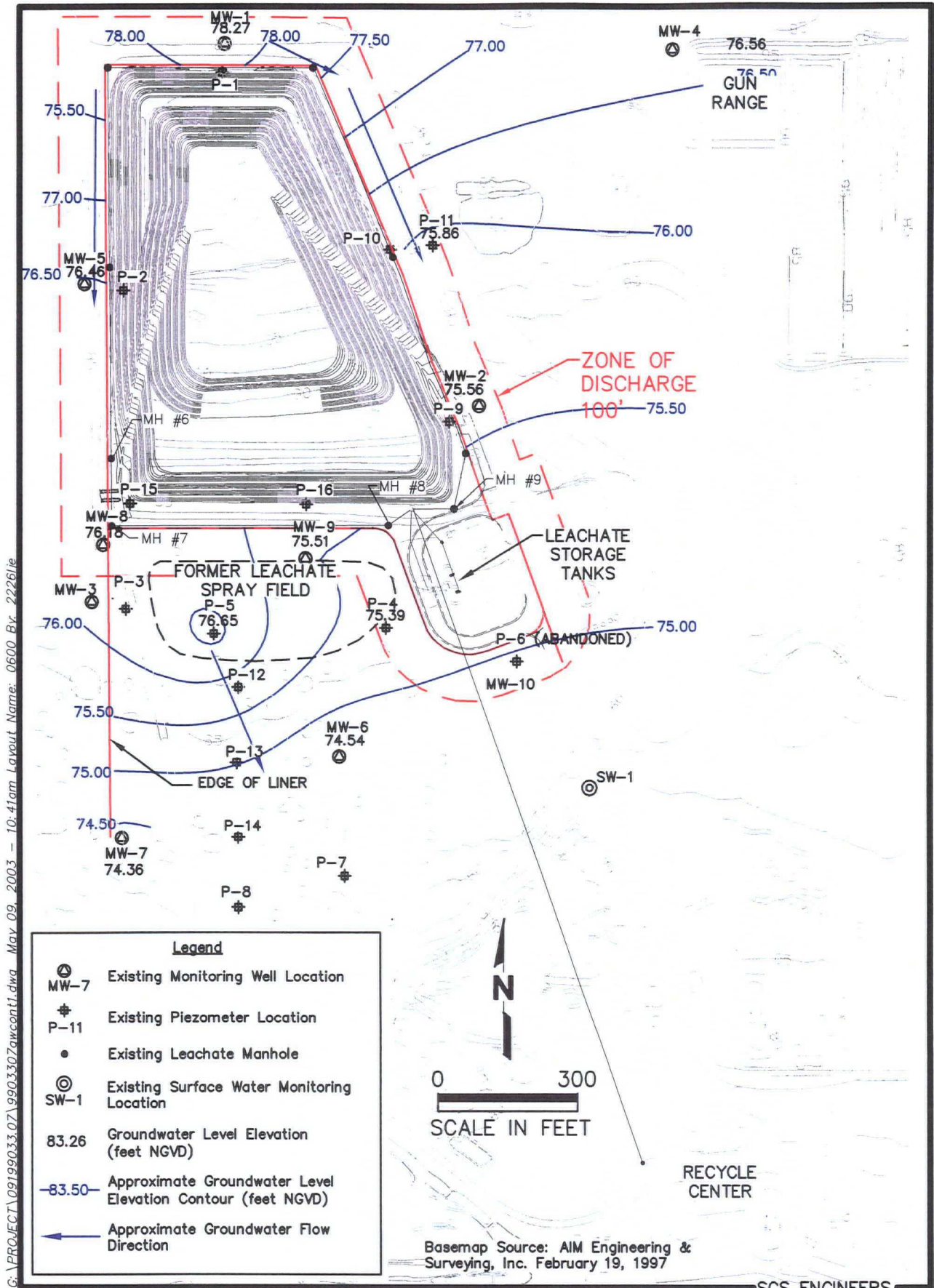


Figure E-2. Surficial Aquifer Potentiometric Map, Hardee County Solid Waste Disposal Facility December 1999

G:\PROJECT\09199033.07\9903307awcont1.dwg May 09, 2003 10:41am Layout Name: 1299 Bv: 22261ie



G:\PROJECT\09199033.07\9903307\awcont1.dwg May 09, 2003 - 10:41am Layout Name: 0600 By: 2226/ie

Basemap Source: AIM Engineering & Surveying, Inc. February 19, 1997

SCS ENGINEERS

Figure E-3. Surficial Aquifer Potentiometric Map, Hardee County Solid Waste Disposal Facility June 2000



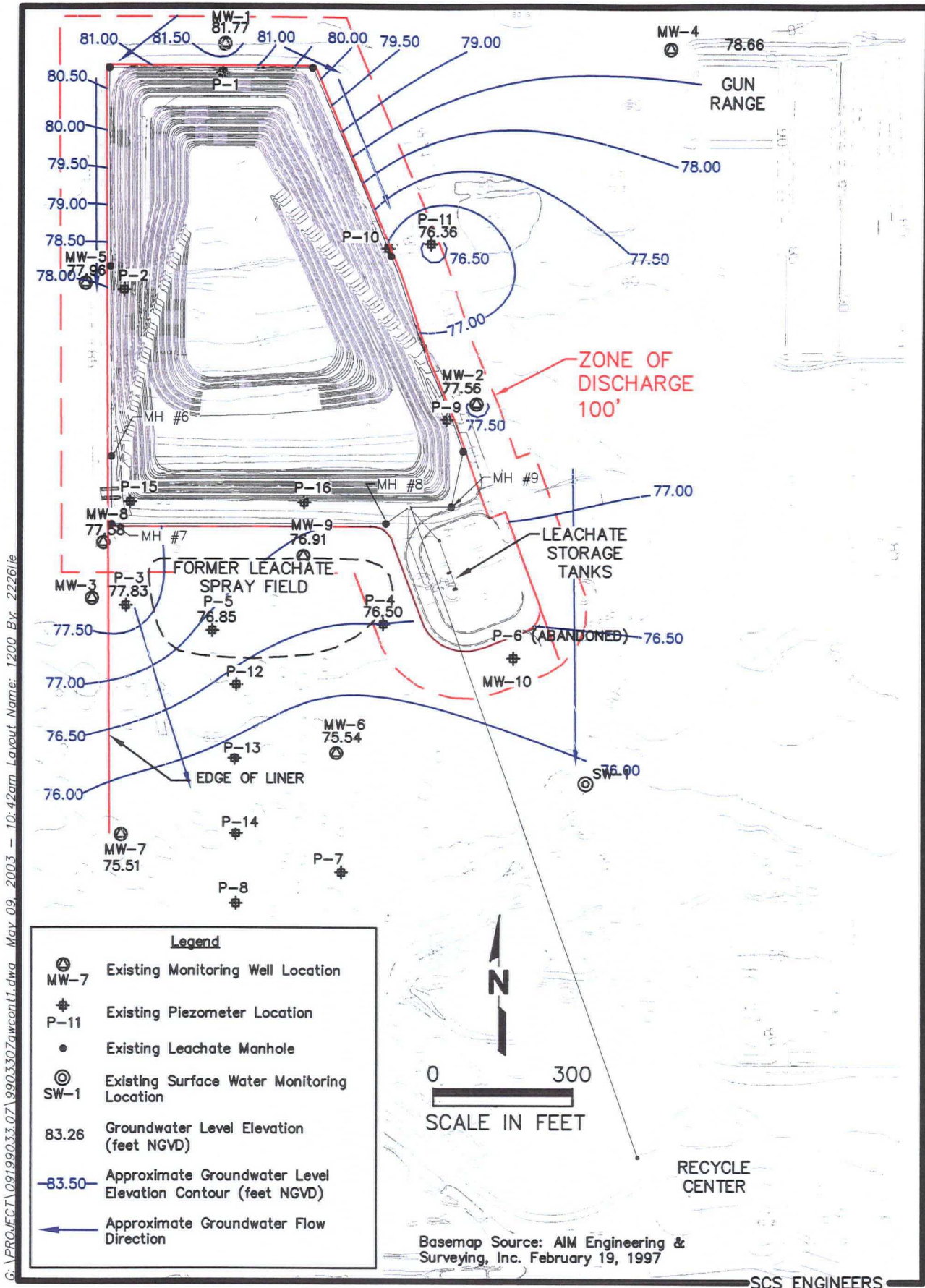
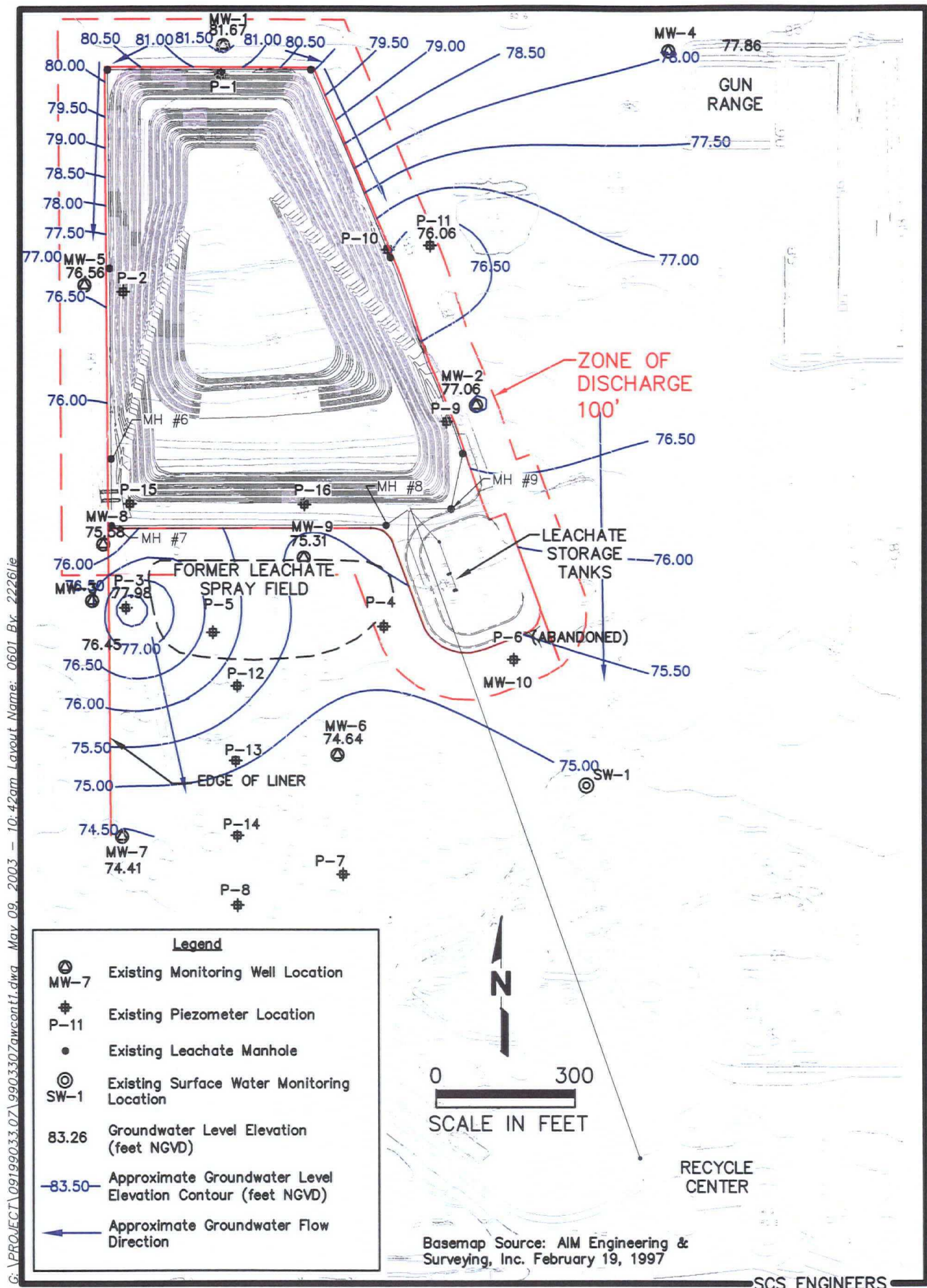


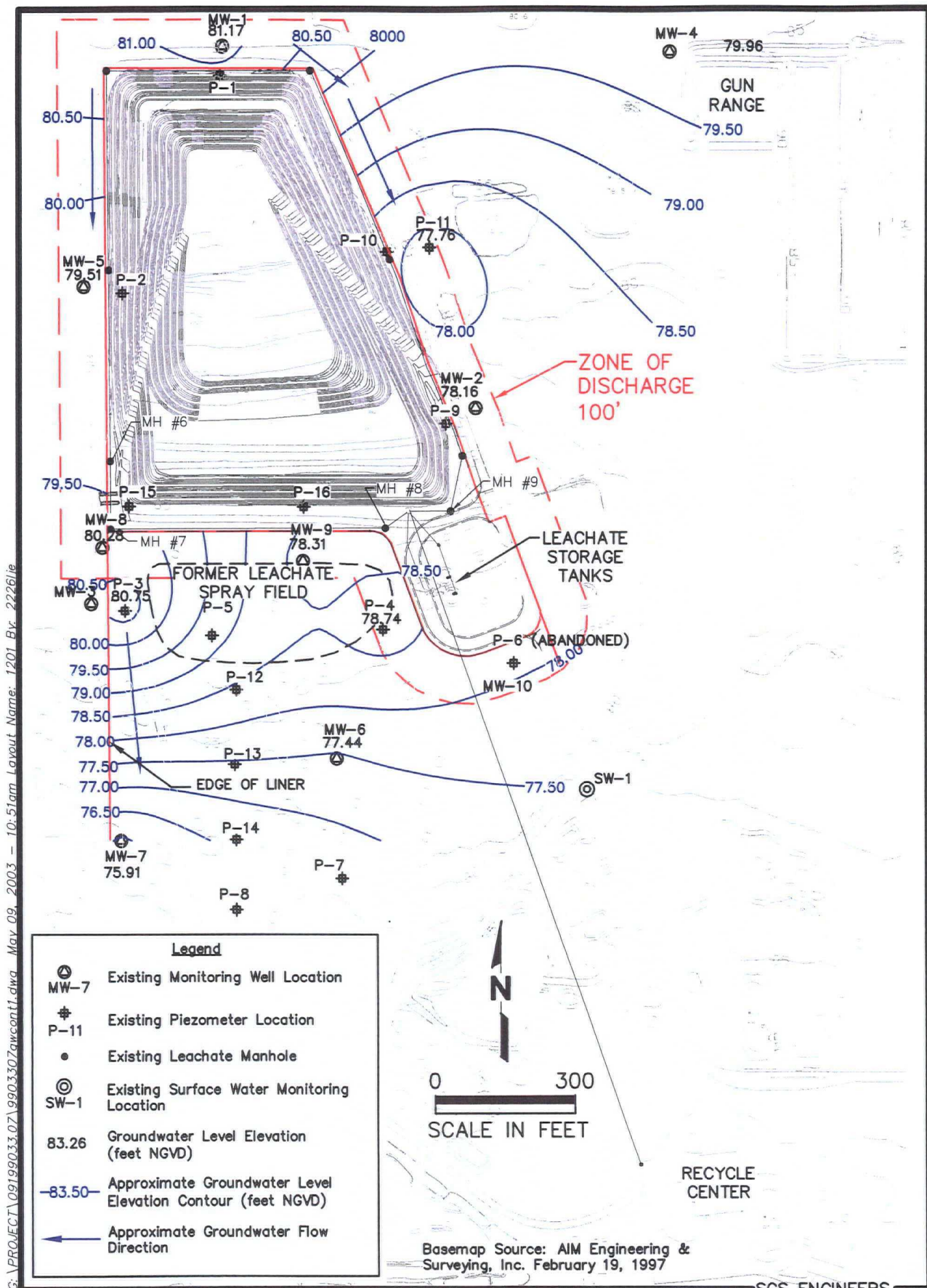
Figure E-4. Surficial Aquifer Potentiometric Map, Hardee County Solid Waste Disposal Facility December 2000



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Figure E-5. Surficial Aquifer Potentiometric Map, Hardee County Solid Waste Disposal Facility June 2001

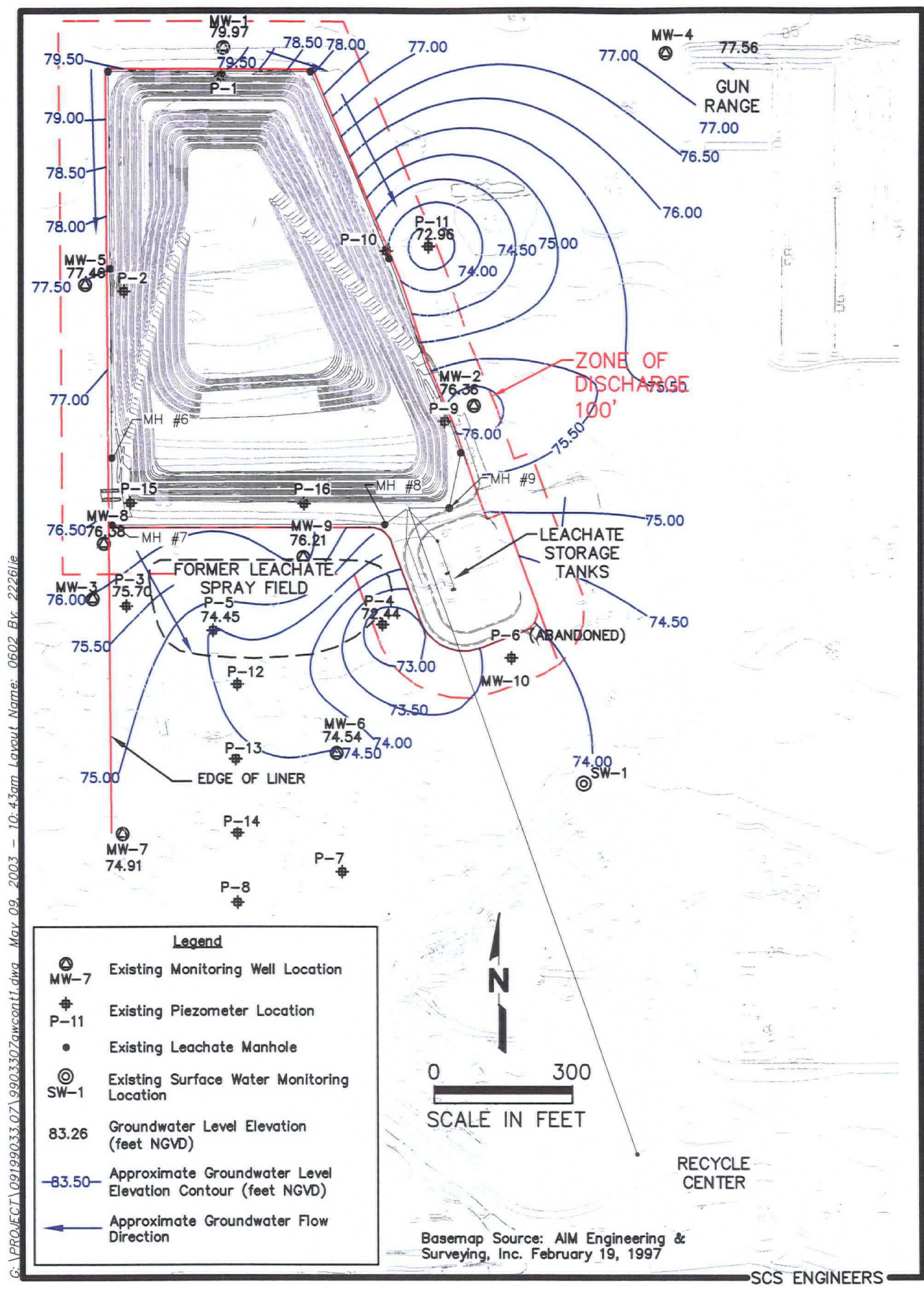




G:\PROJECT\09199033\071990330Zawcont1.dwg May 09, 2003 - 10:51am Layout Name: 1201 Br. 22261ie

Figure E-6. Surficial Aquifer Potentiometric Map, Hardee County Solid Waste Disposal Facility December 2001





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Figure E-7. Surficial Aquifer Potentiometric Map, Hardee County Solid Waste Disposal Facility June 2002

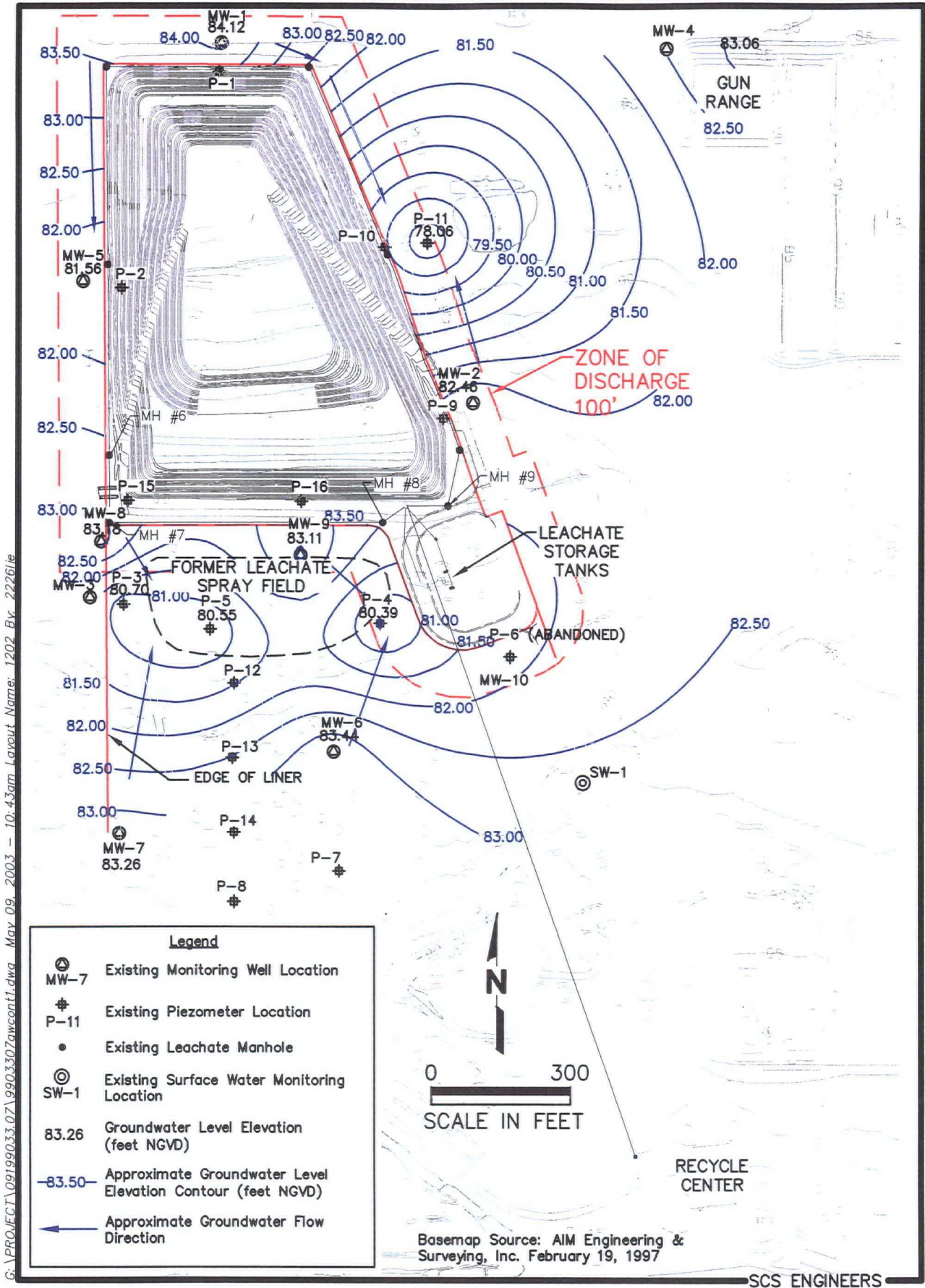


Figure E-8. Surficial Aquifer Potentiometric Map, Hardee County Solid Waste Disposal Facility December 2002



### Hardee County Hydrograph

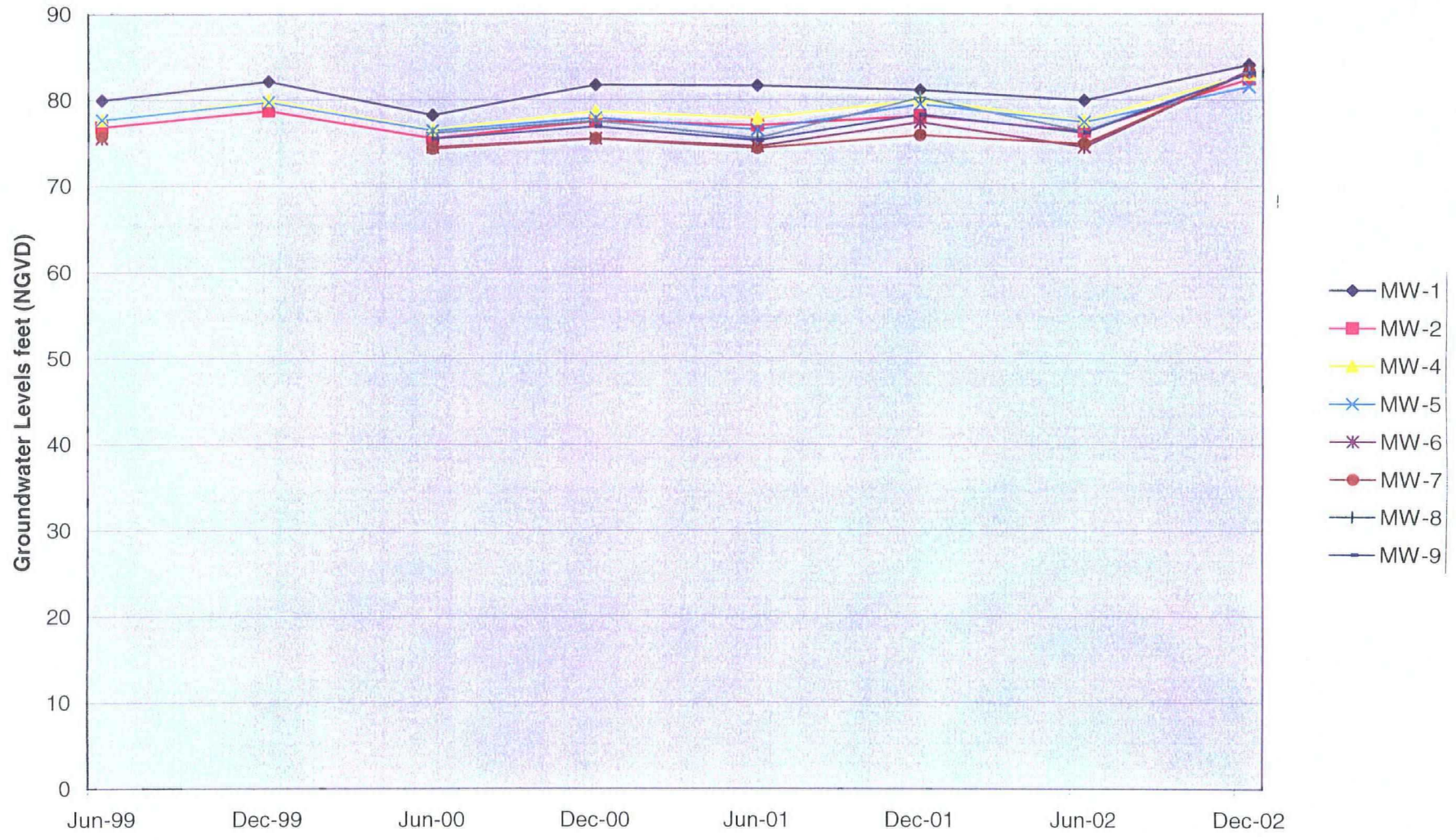
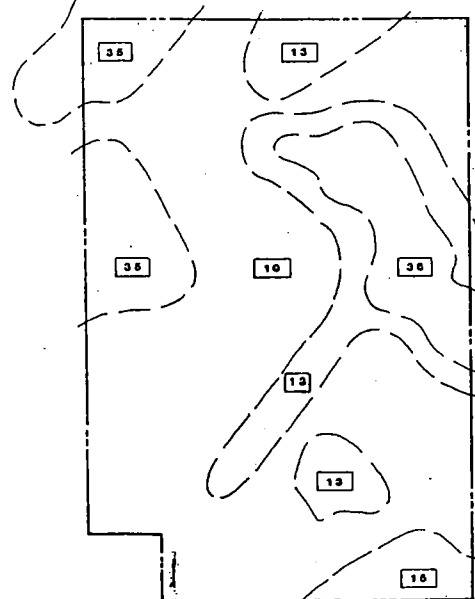


Figure E-9

**ATTACHMENT F**

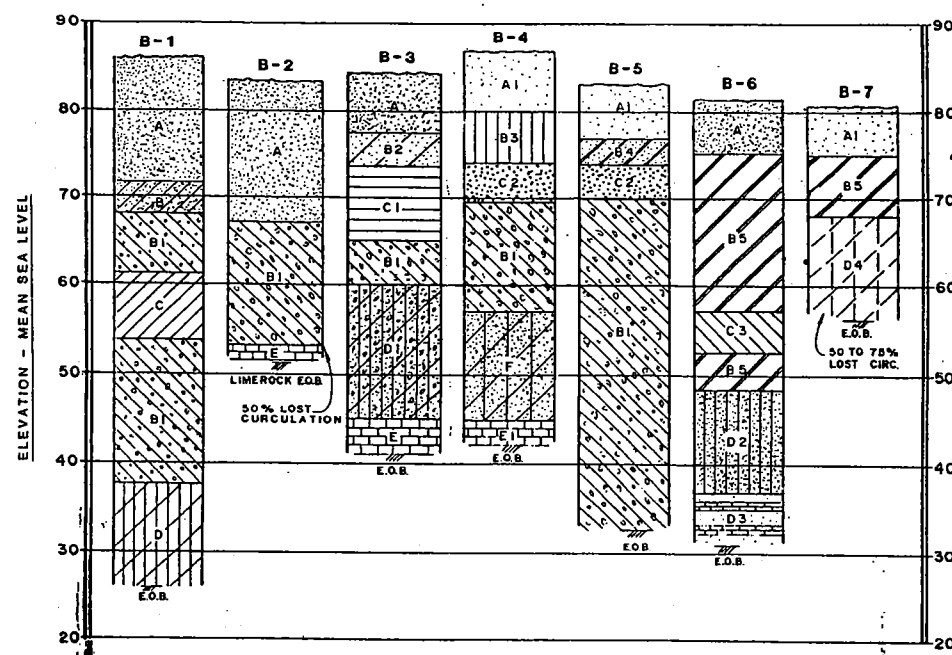
**LITHOLOGIC LOGS PREPARED BY ENVISORS INC, 1982**



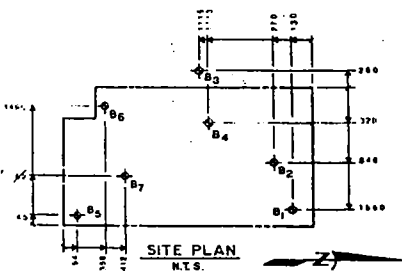
**LEGEND**  
 10 POMONA FINE SAND  
 11 FLORIDA MUCKY FINE SAND, DEPRESSIONAL  
 12 IMOKALEE FINE SAND  
 13 OLDSMAR FINE SAND  
 14 TOMOKA MUCK  
 15 SITE BOUNDARY  
 16 LIMITS OF SPECIFIC SOILS ASSOCIATION

Reference: Interim Soil Survey Report, Maps and Interpretations by U.S.D.A. Soil Conservation Service.

**SURFACE SOILS ASSOCIATIONS PLAN**

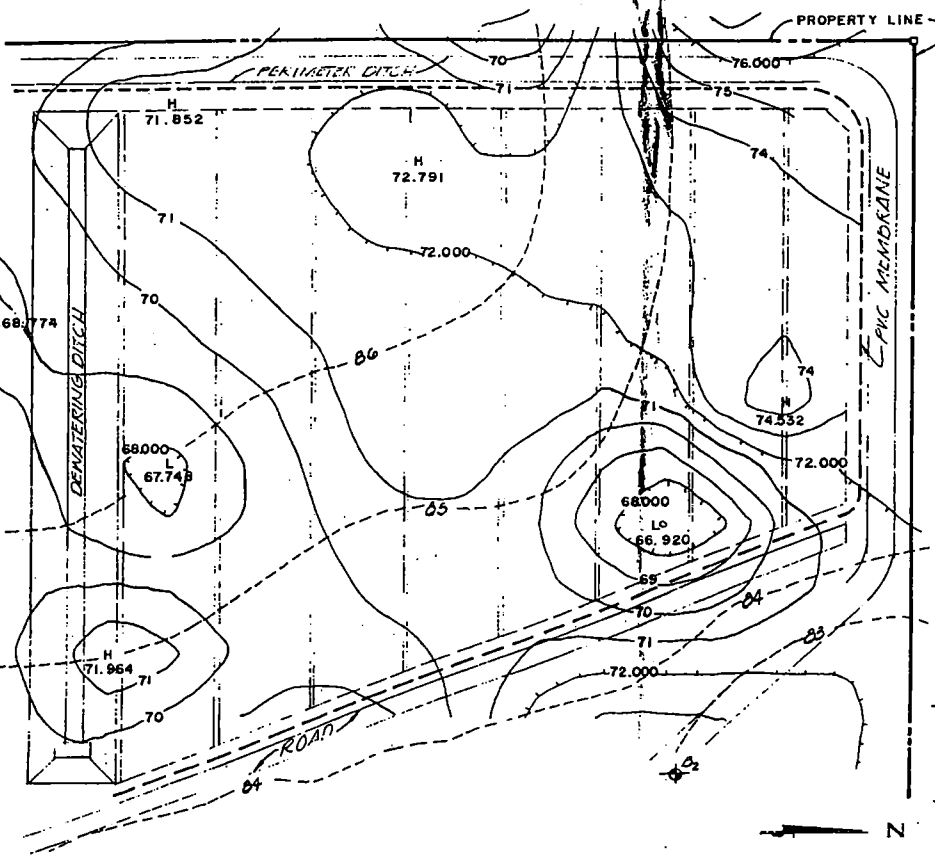


**SOIL BORING PROFILES**



**LEGEND**  
 A' GRAY & BROWN SAND  
 A1 BROWN SAND  
 B CLAYEY SAND  
 B1 GRAY-GREEN SANDY CLAY W/ PHOSPHATE  
 B2 GRAY SANDY CLAY  
 B3 HARDPAN  
 B4 GRAY CLAYEY SAND  
 B5 GRAY-GREEN SANDY CLAY  
 C HARD GRAY-GREEN CLAY  
 C1 GREEN CLAY  
 C2 GRAY SAND  
 C3 GRAY-GREEN CLAY  
 D GREEN SANDY CALCAREOUS  
 D1 GRAY-GREEN CALCAREOUS SANDY CLAY W/ PHOSPHATE  
 D2 GRAY-GREEN CALCAREOUS  
 D3 GRAY-GREEN CALCAREOUS CLAY W/ L.R. LENSES  
 D4 GRAY TO TAN CALCAREOUS SANDY CLAY  
 E GREENISH GRAY CLAYEY LIMEROCK W/ PHOSPHATE  
 E1 GREENISH GRAY LIMEROCK & SANDY CLAY  
 F YELLOW MOTTLED GRAY-GREEN SANDY CLAY

NOTE: ALL SUBSURFACE SOILS WORK CONDUCTED BY ARMAC ENGINEERING, INC., TAMPA, FLORIDA.



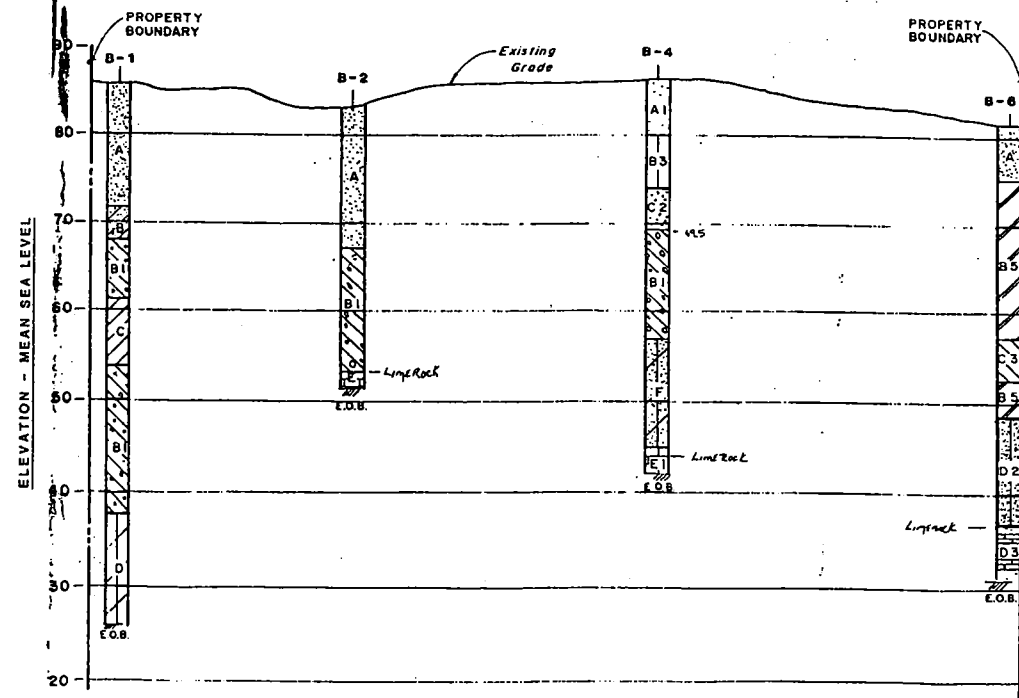
**CLAY LAYER ELEVATIONS**  
 SCALE: 1" = 100'

**NOTES**  
 1) THIS FIGURE REPRESENTS THE RESULTS OF A REFRACTION SEISMIC SURVEY OF THE NORTHWEST CORNER OF THE SITE, PERFORMED BY ARMAC ENGINEERS, INC., 8430 NORTH 40TH STREET, TAMPA, FLORIDA 33604. THIS SURVEY WAS PERFORMED IN ORDER TO ESTABLISH THE EXISTENCE OF AND ESTIMATE THE DEPTH TO THE UNDERLYING CONFINING CLAY LAYER. CORRELATION WITH KNOWN SOIL DEPTH DATA WAS ESTABLISHED BY PERFORMING THE SURVEY IN CLOSE PROXIMITY TO PREVIOUSLY PERFORMED SPT BORINGS B-2 AND B-4. CHARACTERISTIC COMPRESSIVE WAVE VELOCITIES WERE ESTABLISHED FOR BOTH THE UPPER SURFICIAL SOILS AND UNDERLYING CLAY SOILS. THESE AVERAGE COMPRESSION WAVE VELOCITIES WERE FOUND TO BE 1362 AND 4824, RESPECTIVELY. THIS HIGH VELOCITY DIFFERENTIAL WAS USED TO IDENTIFY THESE SEPARATE SOIL STRATA.

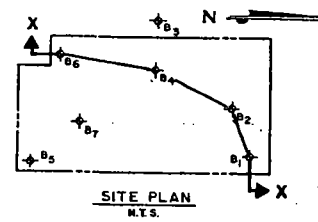
THE FIGURE SHOWS THE RESULTS OF THIS SEISMOGRAPH INVESTIGATION WHICH INDICATE THAT THE UNDERLYING COHESIVE CLAY LAYER IS ESTIMATED TO LIE AT DEPTHS RANGING FROM ABOUT 8.4 TO 18.0 FEET BELOW GROUND SURFACE (ELEVATION 67.8 TO 77.3 FEET MSL). THE COHESIVE SOIL STRATA WAS FOUND TO BE CONTINUOUS IN THE SUBJECT AREA, BUT POSSIBLE HIGH VELOCITY HARDPAN OR SURFICIAL CLAY LAYERS WERE FOUND TO EXIST AT THREE OUT OF 22 SURVEY GRID LOCATIONS. THESE NEAR-SURFACE HIGH VELOCITY SOIL LAYERS PRODUCED ANOMALOUS WAVE REVERALS PREVENTING DEEPER SOIL ANALYSIS AT THESE LOCATIONS.

2) CLAY CONTOURS AT ONE FOOT (1') INTERVALS.

**LEGEND**  
 68,000 SUBSURFACE CLAY CONTOUR W/ELEVATION  
 L LOW CLAY  
 H HIGH CLAY  
 66 GROUND CONTOUR  
 B BORING LOCATION  
 --- IMPERMEABLE PVC MEMBRANE BARRIER



**SECTION X-X**

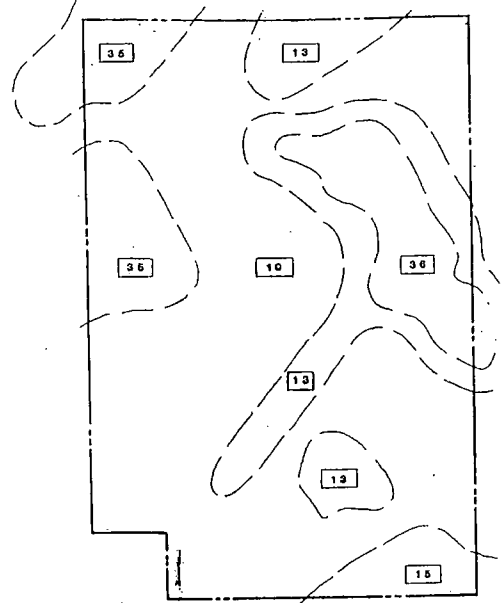


**LEGEND**  
 A GRAY & BROWN SAND  
 A1 BROWN SAND  
 B CLAYEY SAND  
 B1 GRAY-GREEN SANDY CLAY W/ PHOSPHATE  
 B2 GRAY SANDY CLAY  
 B3 HARDPAN  
 B4 GRAY CLAYEY SAND  
 B5 GRAY-GREEN SANDY CLAY  
 C HARD GRAY-GREEN CLAY  
 C1 GREEN CLAY  
 C2 GRAY SAND  
 C3 GRAY-GREEN CLAY  
 D GREEN SANDY CALCAREOUS  
 D1 GRAY-GREEN CALCAREOUS SANDY CLAY W/ PHOSPHATE  
 D2 GRAY-GREEN CALCAREOUS  
 D3 GRAY-GREEN CALCAREOUS CLAY W/ L.R. LENSES  
 D4 GRAY TO TAN CALCAREOUS SANDY CLAY  
 E GREENISH GRAY CLAYEY LIMEROCK W/ PHOSPHATE  
 E1 GREENISH GRAY LIMEROCK & SANDY CLAY  
 F YELLOW MOTTLED GRAY-GREEN SANDY CLAY

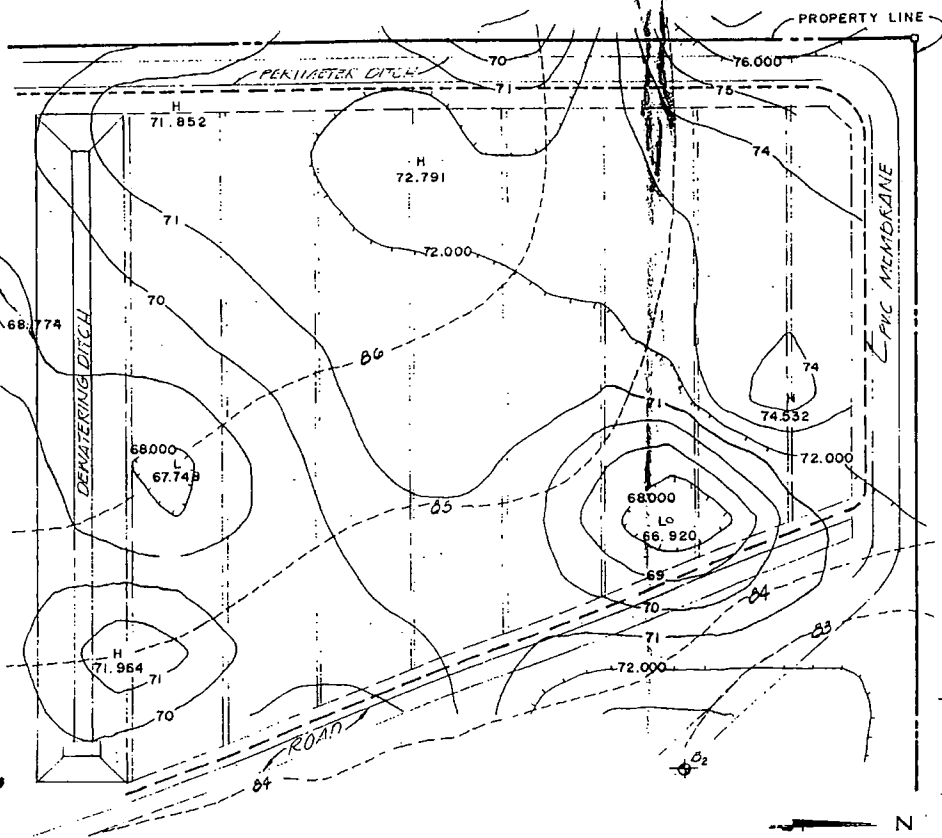
D.E.P.  
 JUN - 6 1997  
 TAMPA

**RECORD DRAWING**  
 NOTE: The information presented herein is based upon drawings, specifications, addenda, shop drawings, modifications, etc. approved by the contractor during the construction period to reflect the in-situ parameters of the improvements to be constructed.  
 This Engineer, En.isors, Inc., is not responsible for the accuracy or validity of the Record Drawing information depicted herein.

Designed	Drawn	C.S.L.	Checked	D.D.	Approved	Job No.	Date	Revision	Description
						B1014	10/82	No.	
<b>ENVIENISORS, Inc.</b> Consulting Civil & Environmental Engineers Economists, and Planners WINTER HAVEN, TAMPA, & MARGATE, FLORIDA									
HARDEE COUNTY, FLORIDA REGIONAL SANITARY LANDFILL SOILS INFORMATION									
Florida Registered Professional Engineer No. 13087									
<b>3</b>									



**SURFACE SOILS ASSOCIATIONS PLAN**



**CLAY LAYER ELEVATIONS**

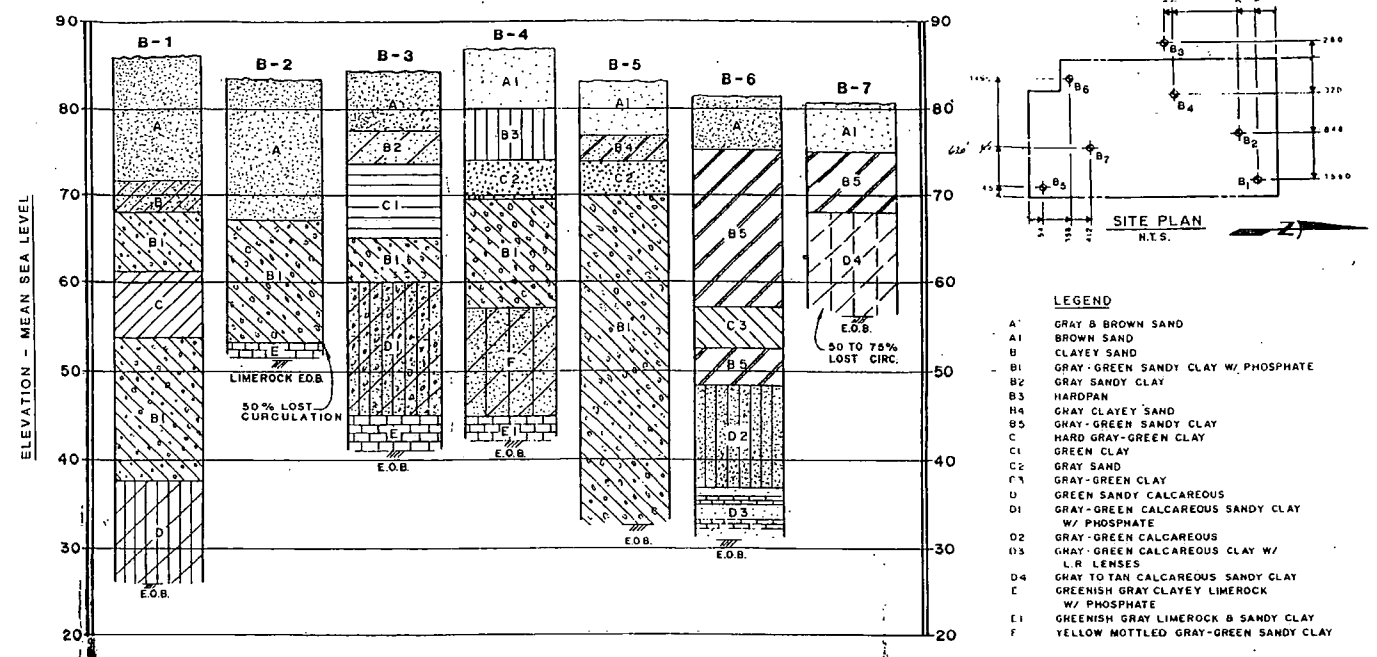
**NOTES**

- THIS FIGURE REPRESENTS THE RESULTS OF A REFRACTION SEISMIC SURVEY OF THE NORTHWEST CORNER OF THE SITE, PERFORMED BY ARMAC ENGINEERS, INC., 8430 NORTH 40TH STREET, TAMPA, FLORIDA 33604. THIS SURVEY WAS PERFORMED IN ORDER TO ESTABLISH THE EXISTENCE OF AND ESTIMATE THE DEPTH TO THE UNDERLYING CONFINING CLAY LAYER. CORRELATION WITH KNOWN SOIL DEPTH DATA WAS ESTABLISHED BY PERFORMING THE SURVEY IN CLOSE PROXIMITY TO PREVIOUSLY PERFORMED SPT BORINGS B-2 AND B-4. CHARACTERISTIC COMPRESSION WAVE VELOCITIES WERE ESTABLISHED FOR BOTH THE UPPER SURFICIAL SOILS AND UNDERLYING CLAY SOILS. THESE AVERAGE COMPRESSION WAVE VELOCITIES WERE FOUND TO BE 1362 AND 4824, RESPECTIVELY. THIS HIGH VELOCITY DIFFERENTIAL WAS USED TO IDENTIFY THESE SEPARATE SOIL STRATA.
- CLAY CONTOURS AT ONE FOOT (1') INTERVALS.

THE FIGURE SHOWS THE RESULTS OF THIS SEISMOGRAPH INVESTIGATION WHICH INDICATE THAT THE UNDERLYING COHESIVE CLAY LAYER IS ESTIMATED TO LIE AT DEPTHS RANGING FROM ABOUT 8.4 TO 18.0 FEET BELOW GROUND SURFACE (ELEVATION 67.8 TO 77.3 FEET MSL). THE COHESIVE SOIL STRATA WAS FOUND TO BE CONTINUOUS IN THE SUBJECT AREA, BUT POSSIBLE HIGH VELOCITY HARDPAN OR SURFICIAL CLAY LAYERS WERE FOUND TO EXIST AT THREE OUT OF 22 SURVEY GRID LOCATIONS. THESE NEAR-SURFACE HIGH VELOCITY SOIL LAYERS PRODUCED ANOMALOUS WAVE REVERSALS PREVENTING DEEPER SOIL ANALYSIS AT THESE LOCATIONS.

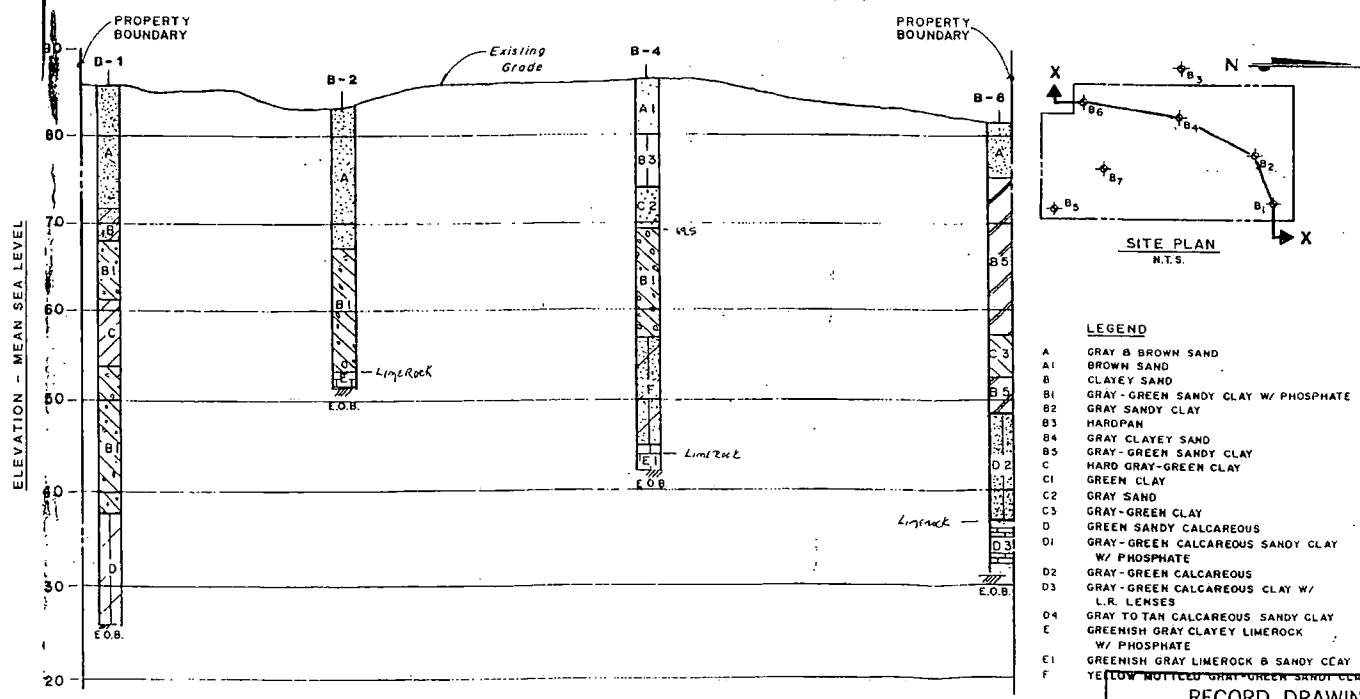
**LEGEND**

- 68,000 - SUBSURFACE CLAY CONTOUR W/ELEVATION
- L - LOW CLAY
- H - HIGH CLAY
- 66 - GROUND CONTOUR
- ⊕ - BORINGS LOCATION
- - - IMPERMEABLE PVC MEMBRANE BARRIER



**SOIL BORING PROFILES**

NOTE: ALL SUBSURFACE SOILS WORK CONDUCTED BY ARMAC ENGINEERING, INC., TAMPA, FLORIDA.



**SECTION X-X**

**LEGEND**

- A - GRAY & BROWN SAND
- A1 - BROWN SAND
- B - CLAYEY SAND
- B1 - GRAY - GREEN SANDY CLAY W/ PHOSPHATE
- B2 - GRAY SANDY CLAY
- B3 - HARDPAN
- B4 - GRAY CLAYEY SAND
- B5 - GRAY - GREEN SANDY CLAY
- C - HARD GRAY - GREEN CLAY
- C1 - GREEN CLAY
- C2 - GRAY SAND
- C3 - GRAY - GREEN CLAY
- D - GREEN SANDY CALCAREOUS
- D1 - GRAY - GREEN CALCAREOUS SANDY CLAY W/ PHOSPHATE
- D2 - GRAY - GREEN CALCAREOUS
- D3 - GRAY - GREEN CALCAREOUS CLAY W/ L.R. LENSES
- D4 - GRAY TO TAN CALCAREOUS SANDY CLAY
- E - GREENISH GRAY CLAYEY LIMEROCK
- E1 - W/ PHOSPHATE
- E1 - GREENISH GRAY LIMEROCK & SANDY CLAY
- F - YELLOW MOTTLED GRAY - GREEN SANDY CLAY

**RECORD DRAWING**

NOTE: The information presented hereon is based upon drawings, specifications, addenda, shop drawings, modifications, etc. approved by the contractor during the construction period to reflect the in-situ parameters of the improvements to be constructed.

The Engineer, Envisors, Inc., is not responsible for the accuracy or validity of the Record Drawing information depicted hereon.

Designed	C.S.L.	Checked	D. D.	Approved	D. D.	Job No.	81014	Date	10/82	No.	
						Rev. No.	1				
<p>HARDEE COUNTY, FLORIDA REGIONAL SANITARY LANDFILL</p> <p><b>SOILS INFORMATION</b></p> <p>ENVISORS, Inc. Civil &amp; Environmental Engineers Economists, and Planners WINTER HAVEN, TAMPA, &amp; MARGATE, FLORIDA</p> <p>Florida Registered Professional Engineer No. 13097</p>											
<p>REVISION DESCRIPTION</p>											
<p>SHEET NUMBER</p> <p><b>6</b></p> <p>OF 14 SHEETS</p>											

**ATTACHMENT M-2**  
**GROUNDWATER MONITORING PLAN**



**WATER QUALITY AND LEACHATE  
MONITORING PLAN  
HARDEE COUNTY LANDFILL**

**Prepared for:**

Hardee County  
Solid Waste Department  
685 Airport Road  
Wauchula, Florida  
863-773-5089

**Prepared by:**

SCS Engineers  
3012 U.S. Highway 301 North, Suite 700  
Tampa, Florida 33619  
(813) 621-0080

File No. 09199033.08  
May 16, 2003

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Figure 1 - Site Layout and Monitoring Locations

## 1.0 PROJECT DESCRIPTION

The Hardee County Landfill Facility is located east of Wauchula, Florida in Section 35 of Township 33 South, Range 25 east. The landfill is currently being used for disposal of Class I materials as well as construction debris. Waste tires and scrap metals are temporarily stored onsite.

The landfill is constructed with plastic PVC sidewall liners tied to a natural clay base on the west, north and east sides of the landfill. A dewatering ditch is located along the south side of the landfill area. This configuration serves to effectively isolate the landfill from any surrounding groundwater influences and therefore any leachate generated results from existing groundwater within the landfill and from infiltration of rainwater falling on the landfill surface. A general site plan for the Hardee County Landfill is shown on Figure 1.

## 2.0 WATER QUALITY AND LEACHATE MONITORING NETWORK

The following is a comparison between the currently permitted water quality and leachate monitoring points and the proposed monitoring points recommended as a results of the trends and observation made in the Biennial Report prepared by SCS Engineers as part of 2003 permit renewal process. A copy of the Biennial Report is contained in Attachment M-1 of this permit application. The location of the monitoring points is shown on Figure 1.

### Groundwater

The following groundwater monitoring wells are used to monitor upgradient and downgradient groundwater conditions (refer to 62-701.510(3));

Well Number	Permit Designation	Approx. Distance from Waste (ft)	Hydraulic Direction
MW-1	Background	52.00	Up gradient
MW-2	Detection	62.05	Cross gradient
MW-4	Background	861.66	Up gradient
MW-5	Detection	64.96	Cross gradient
MW-8	Detection	44.55	Down gradient
MW-9	Detection	70.17	Down gradient
MW-10*	Detection	50.00	Down gradient

\* Proposed Groundwater Monitoring Well

Monitoring wells MW-6 and MW-7 should be designated as piezometers and monitored semi-annually for water levels only.

In addition, the following Piezometers will be used to monitor groundwater outside of the waste disposal area and leachate levels within the waste disposal area;

Leachate level monitoring within the cell are accomplished using the piezometers (Piezometers P-1,P-2, P-9, P-10, P-15, and P-16) and outside groundwater water levels monitored by piezometers (P-3, P-4, P-5, P-7, P-8, P-11, P-12, P-13, P-14) and monitoring wells MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, MW-10. (P-6 was abandoned during construction of the leachate storage tanks). The water levels within the landfill cell should be lower then the outside water levels to promote inward gradient pressure against the barrier geomembrane surrounding the waste materials.

### **Surface Water**

The following surface water monitoring point will be used to monitor the quality of the surface water runoff from the facility prior to leaving the property (refer to 62-701.510(4));

The current sampling location, SW-1, should be replaced with an alternative location, SW-2. SW-2 should be located in the creek, southwest of SW-1. This location will allow for monitoring of the surface water quality at the landfill property boundary. The proposed location of SW-2 is shown on Figure 1.

### **Leachate**

The following leachate monitoring collection point is used to monitor the leachate prior to being pumped into the leachate storage tanks (refer to 62-701.510(5));

Manhole 9 should replace Manhole 1 as the leachate sampling location. Manhole 9 is located down gradient from Manhole 1 and will allow for representative characterization of the leachate composition prior to entering the pump station (Manhole No. 8). The location of Manhole 9 is shown on Figure 1.

In addition, hardness should be added to the list of leachate laboratory parameters, as it will allow the leachate results to be compared with surface water standards. Hardness is required to calculate surface water standards for various metals.

### 3.0 WATER QUALITY AND LEACHATE MONITORING PARAMETERS

#### Groundwater Parameters

Analytical parameters for groundwater should include the following:

Parameters required in current permit	Revised groundwater parameters
Specific Conductivity	Specific Conductivity
pH	pH
Dissolved Oxygen	Dissolved Oxygen
Turbidity	Turbidity
Temperature	Temperature
Total Ammonia -N	Total Ammonia -N
Chlorides	Chlorides
Mercury	Mercury
Nitrate	Nitrate
Iron	Iron
Sodium	Sodium
Total Dissolved Solids (TDS)	Total Dissolved Solids (TDS)
40 CFR part 258 Appendix I	
Color and Sheen (observation)	Color and Sheen (observation)
	EPA 8260
	Sulfate
	Magnesium
	BOD
	COD

#### Surface Water Parameters

- Field Parameters
  - Specific conductivity
  - pH
  - Dissolved oxygen
  - Turbidity
  - Temperature
  - Colors and sheens
  
- Lab Parameters
  - Zinc
  - Unionized ammonia
  - Total hardness
  - Biochemical oxygen demand (BOD<sub>5</sub>)

- Copper
- Iron
- Mercury
- Nitrate
- Total dissolved solids (TDS)
- Total organic carbon (TOC)
- Fecal coliforms
- Total phosphorus
- Chlorophyll A
- Total nitrogen
- Chemical oxygen demand (COD)
- Total suspended solids (TSS)
- 40 CFR Part 258, Appendix I

**Leachate Parameters**

Analytical parameters for leachate should include the following:

Parameters required in current permit	Revised leachate parameters
Specific Conductivity	Specific Conductivity
pH	pH
Dissolved Oxygen	Dissolved Oxygen
Bicarbonate	Bicarbonate
Total Ammonia -N	Total Ammonia -N
Chlorides	Chlorides
Mercury	Mercury
Nitrate	Nitrate
Iron	Iron
Sodium	Sodium
40 CFR part 258 Appendix I	40 CFR part 258 Appendix I
40 CFR part 258 Appendix II (annually)	40 CFR part 258 Appendix II (annually)
Color and Sheen (observation)	Color and Sheen (observation)
	Total Dissolved Solids (TDS)
	Sulfate
	Hardness

**4.0 SAMPLING METHODS**

All sampling shall be conducted following the protocols outlined in the Comprehensive Quality Assurance Plan (COMQAP) approved by the State of Florida for the company or laboratory conducting the sampling.

## **5.0 MONITORING FREQUENCY**

After the initial round of sampling, all indicator parameters for monitoring wells and leachate and surface water monitoring locations shall be sampled and analyzed on a semi-annual basis. In addition, leachate samples shall be analyzed for those parameters listed in 40 CFR Part 258, Appendix II, on an annual basis.

## **6.0 WATER QUALITY MONITORING REPORTING**

The landfill owner or operator shall report all water quality monitoring results (to include groundwater, surface water, and leachate samples) to the Florida Department of Environmental Protection (FDEP) on a semi-annual basis. The operator of the landfill shall notify the FDEP at least 14 days before the sampling is scheduled to occur so that the FDEP may collect split samples, if desired.

Reporting periods shall be established in the facility permit. The report shall include at least the following as a minimum:

1. The facility name and identification number, sample collection dates, and analysis dates;
2. All analytical results, including all peaks even if below maximum contamination levels;
3. Identification number and designation of all surface water and ground water monitoring points;
4. Applicable water quality standards;
5. Quality assurance, quality control notations;
6. Method detection limits;
7. STORET code numbers for all parameters;
8. Water levels recorded prior to evacuating wells or sample collection. Elevation reference shall include the top of the well casing and land surface at each well site at a precision of plus or minus 0.01 foot (NGVD);
9. An updated ground water table contour map, with contours at no greater than one-foot intervals, which indicates ground water elevations and flow direction and
10. A summary or trend analysis of any water quality standards or criteria that are exceeded, including elevations of parameters above background levels.



## **Biennial Review of Water Quality Reports**

A Biennial Report every two years and updated upon permit renewal, prepared, signed and sealed by a professional geologist or professional engineer with experience in hydrogeologic investigations, shall be submitted to the FDEP. The report shall summarize and interpret the water quality data and water level measurements collected during the past two years (minimum). The report shall contain, at a minimum, the following:

1. Tabular and graphical displays of the data, including hydrographs for all monitor wells;
2. Trend analyses;
3. Comparisons among shallow, middle, and deep zone wells.
4. Comparisons between upgradient and downgradient wells;
5. Correlations between related parameters such as total dissolved solids and specific conductance;
6. Discussion of erratic and/or poorly correlated data; and
7. A summary ground water table contour map and an interpretation of the quarterly ground water contour maps.

All field and laboratory records specified in Chapter 62-701.510, F.A.C., shall be made available to the Department and shall be retained for the design period of the landfill.

### **7.0 ASSESSMENT MONITORING AND CORRECTION ACTION**

A. Assessment monitoring. If indicator parameters are detected in detection wells in concentrations which are significantly above background water quality, or which are at levels above the FDEP's water quality standards or criteria specified in Chapter 62—520, F.A.C., the permittee shall resample the wells within 30 days after the sampling data is received, to confirm the data, If the data is confirmed, the permittee shall notify the FDEP in writing within 14 days of this finding. Upon notification by the FDEP, the permittee shall initiate assessment monitoring as follows:

1. Routine monitoring of all monitoring wells, surface water monitoring locations and leachate sampling locations shall continue according to the requirements of section 3.0 of this plan.
2. Within go days of initiating assessment monitoring and annually thereafter, the permittee shall sample and analyze a representative sample of the background wells and all affected detection wells for the parameters listed in 40 CFR Part 258, Appendix II. Any new parameters detected and confirmed

in the affected downgradient wells shall be added to the routine ground water monitoring parameter lists required in section 3.0 of this plan.

3. Within 90 days of initiating assessment monitoring, the permittee shall install and sample compliance monitoring wells at the compliance line of the zone of discharge and downgradient from the affected detection monitoring wells. These wells shall be installed according to the requirements of Chapter 62-701.510 (3)(d), and samples shall be analyzed for the parameters listed in section 3.0 of this plan and also 40 CFR Part 258, Appendix II.
4. Within 180 days of initiating assessment monitoring, the permittee shall submit a contamination assessment plan to the FDEP. This plan shall be designed to delineate the extent and cause of the contamination, to predict the likelihood that FDEP water quality standards will be violated outside the zone of discharge, and to evaluate methods to prevent any such violations. Upon approval by the FDEP, the permittee shall implement this plan and submit a contamination assessment report in accordance with the plan. All reasonable efforts shall be made by the permittee to prevent further degradation of water quality from the landfill activities.
5. If for two (2) consecutive sampling events the concentrations of all indicator parameters and the parameters listed in 40 CFR Part 258, Appendix II are at or below background values, the permittee, upon approval by the FDEP, may discontinue assessment monitoring and return to the routine monitoring requirements in Section 3.0 of this plan.

#### B. Corrective Actions

If the contamination assessment report indicates that water quality standards are likely to be violated outside the zone of discharge, the permittee shall, within 90 days, submit a remedial action plan to the FDEP. Upon approval, the permittee shall initiate corrective actions to prevent such violations.

2. If any contaminants are detected and confirmed in compliance wells in concentrations which exceed both background levels and FDEP water quality standards or criteria, are detected and confirmed in detection wells in concentrations which are above FDEP water quality minimum criteria, the permittee shall notify the Department within 14 days of this finding and shall initiate corrective actions. Assessment monitoring shall continue according to the requirements of this section.

**FIGURE 1**  
**SITE LAYOUT AND MONITORING LOCATIONS**



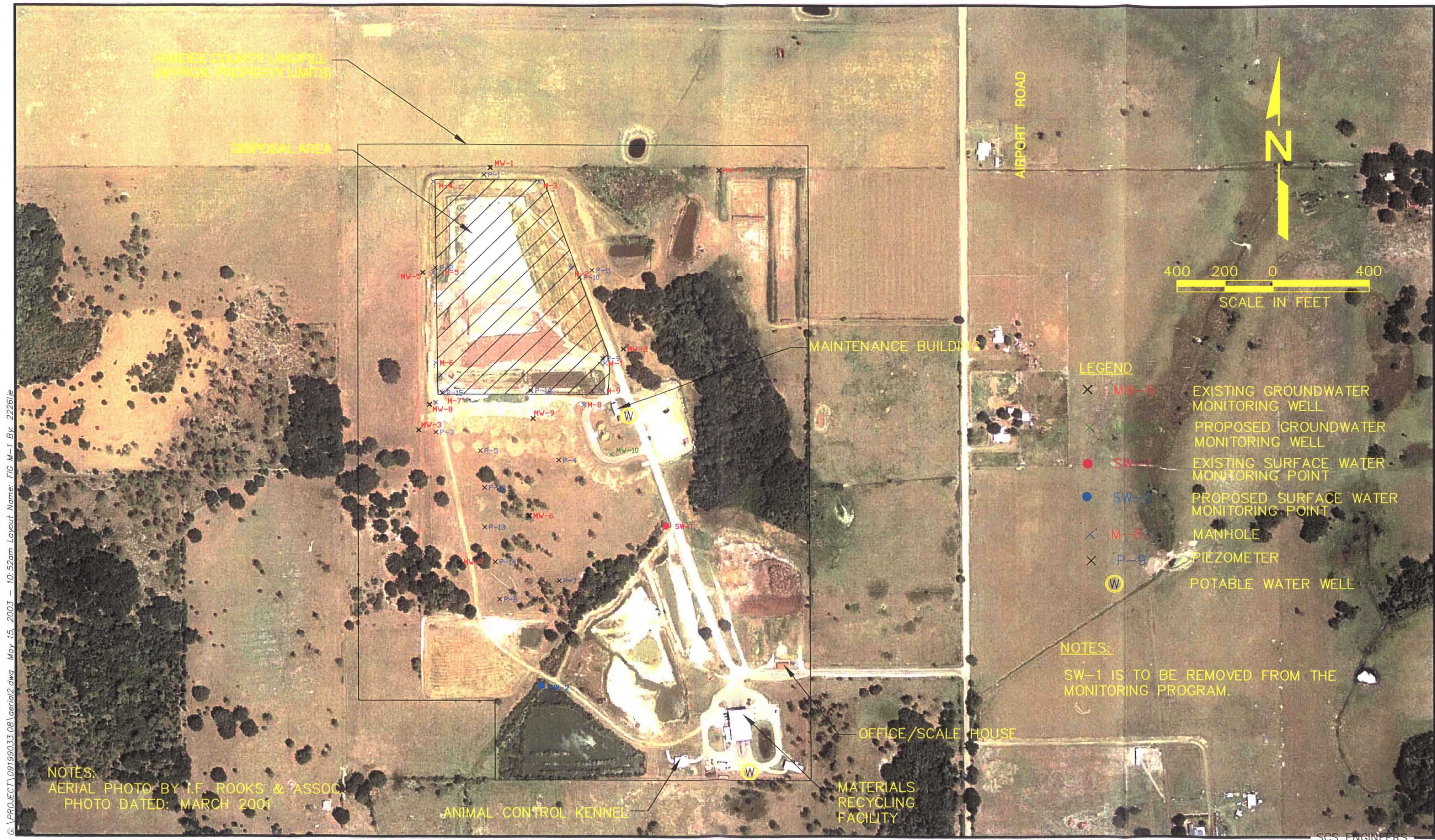


Figure M-1. Groundwater Monitoring Locations, Hardee County Landfill, Hardee County, Florida



## **SECTION N**

### **SPECIAL WASTE HANDLING REQUIREMENTS (62-701.520 F.A.C.)**

#### **N.1 PROCEDURES FOR MANAGING MOTOR VEHICLE DISPOSAL**

The Hardee County Landfill does not accept motor vehicles, therefore this section does not apply and the application has been marked "Not Applicable".

#### **N.2 PROCEDURES FOR LANDFILLING SHREDDED WASTE**

The Hardee County Landfill does not landfill shredded waste, therefore, this section does not apply and the application has been marked "Not Applicable".

#### **N.3 PROCEDURES FOR ASBESTOS WASTE DISPOSAL**

Asbestos Containing Materials (ACM) are accepted at the Hardee County Landfill under certain provision outlined by 40 CFR Part 61 (as referenced in 62-701.520(4)(a), FAC) and the Hardee County Solid Waste Department. The County has notified all known potential asbestos disposers of the required procedures which must be followed by any person desiring to dispose of ACM. Accepted asbestos material is disposed of using the procedures outlined in Appendix B of Attachment L-1.

#### **N.4 PROCEDURES FOR CONTAMINATED SOIL DISPOSAL**

The County accepts contaminated soils on the condition that they are not hazardous. It is a requirement that all incoming contaminated soils be TCLP tested first before being accepted at this facility for disposal. Depending on the known or suspected contaminant, additional analyses may be required. Records of tests and analyses are kept on file at the landfill facility. Accepted contaminated soils are disposed of in the currently active disposal cell. Disposal of contaminated soil is accomplished by adding the contaminated soil to the daily cover used for the solid waste. The location of contaminated soil can be determined based on the contaminated soil's date of arrival and the filling sequence at the landfill.

#### **N.5 BIOLOGICAL WASTES**

Biological waste includes sludges and medical waste. Sludges are not accepted at the landfill for disposal. Medical waste is not accepted at the landfill for disposal.

## **SECTION O**

### **GAS MANAGEMENT SYSTEM REQUIREMENTS**

#### **O.1 SYSTEM DESIGN**

Landfill gas that is generated is allowed to vent to atmosphere. When the final cover is constructed, a passive vent system will be installed. The vents will be designed to prevent concentrations of combustible gases from exceeding 25% of the lower explosive limit (LEL) in structures and 100% of the LEL at the property boundary.

#### **O.2 GAS MONITORING**

There are eleven gas monitoring probes located along the perimeter of the landfill, as shown on Sheet 3 of the enclosed permit drawings. These monitoring probes are sampled on a quarterly basis, with the results reported to the FDEP. In addition, the County also monitors the following structures for landfill gas:

- Maintenance Building
- Materials Recovery Facility
- Scalehouse/Administrative Offices
- Kennel

#### **O.3 GAS REMEDIATION PLAN**

This section is not applicable.

#### **O.4 LANDFILL GAS RECOVERY FACILITIES**

This section is not applicable.

## **SECTION P**

### **LANDFILL FINAL CLOSURE REQUIREMENTS**

#### **P.1 CLOSURE SCHEDULE**

It is Hardee County's intention to perform the closure of the currently permitted Class I landfill unit once it meets its designed and permitted capacity. Sheet 5 of the Permit Drawing shows the proposed final elevations of the Class I landfill after closure construction, the landfill gas system layout, and the closure cap design. According to Rule 62-701.600(2) FAC, Hardee County will perform the closure of the Class I landfill according to the following schedule:

- At least one year prior to the projected date when wastes will no longer be accepted or when all solid waste disposal units are expected to reach designed dimensions, Hardee County will provide a written notice to FDEP with a schedule for cessation of waste acceptance and the closure of the landfill.
- At least 120 days prior to the date when wastes will no longer be accepted at the landfill, Hardee County will advise users of the facility of the intent to close the landfill.
- At least 90 days before the date when wastes will no longer be accepted, Hardee County will submit an application to FDEP for final closure of the landfill.
- Within 10 days prior to the date when wastes will no longer be accepted at the landfill, Hardee County shall publish a notice of the landfill closing in the legal advertising section of a newspaper of general circulation in the County.



## **SECTION Q**

### **CLOSURE PROCEDURES**

#### **Q.1 SURVEY MONUMENTS**

Survey monuments are not required for the site because in accordance with Rule 62-701.610(2), FAC, landfill operations will be conducted which will raise final elevations greater than 20 feet above the natural land surface.

#### **Q.2 FINAL SURVEY REPORT**

A final topographic survey shall be performed after closure is complete to confirm that final contours and elevations of the facility are in accordance with the plans as approved in the permit.

#### **Q.3 CERTIFICATION OF CLOSURE CONSTRUCTION COMPLETION**

A certification of closure construction completion, signed, dated and sealed by a professional engineer will be provided to the FDEP upon completion of closure in accordance with Rule 62-701.610(4), FAC.

#### **Q.4 DECLARATION TO THE PUBLIC**

After closing operations are inspected and approved by the FDEP, a declaration to the public in the deed records in the office of Clerk of Hardee County, Florida will be published in accordance with Rule 62-701.610(5), FAC.

#### **Q.5 OFFICIAL DATE OF CLOSING**

In accordance with Rule 62-701.610(6), FAC, the FDEP will determine the official date of closing for the purpose of determining the long-term care period.

#### **Q.6 CLOSED LANDFILL AREAS**

Consultation with the FDEP is required prior to conducting activities at closed landfills in accordance with Rule 62-701.610(7), FAC.

#### **Q.7 RELOCATION OF WASTES**

Not applicable.

## **SECTION R**

### **LONG TERM CARE REQUIREMENTS**

#### **R.1 GAS COLLECTION AND MONITORING**

A passive gas collection and venting system will be constructed before closure. The gas venting system and the existing gas monitoring system will be maintained for the duration of the long-term care period as required by Rule 62-701.620(5), FAC.

#### **R.2 RIGHT OF PROPERTY ACCESS**

In accordance with Rule 62-701.620 (6), FAC, Hardee County will retain the right of entry to the landfill property for the long-term care period, after termination of solid waste operations, for inspection, monitoring and maintenance of the site.

#### **R.3 SUCCESSORS IN INTEREST**

If any person or entity, other than the County, acquires the ownership or operation of the landfill, they shall be subject to all requirements of the landfill permit and applicable regulations, including maintenance, and provide proof of financial responsibility as required by Rule 62-701.620(7), FAC.

#### **R.4 REPLACEMENT OF MONITORING DEVICES**

If a monitoring well or monitoring point cited by the permit is destroyed or becomes inoperable, Hardee County will notify the FDEP in writing. Inoperative monitoring devices shall be replaced with functioning devices within 60 days of the discovery or as required by Rule 62-701.620(9), FAC.

#### **R.5 COMPLETION OF LONG-TERM CARE**

Following completion of the long-term care period, the County will notify the FDEP that the long term care has been completed in accordance with the closure permit and that a certification to that effect, signed and sealed by a professional engineer, has been placed in the operating record.

## **SECTION S**

### **FINANCIAL RESPONSIBILITY REQUIREMENTS**

#### **S.1 COST ESTIMATES**

Each year, closure and long-term care cost estimates are prepared for the facility in accordance with Rule 62-701.630(3) and (4), FAC. In preparing the closure cost estimates, the following assumptions are made:

- The closure cost estimates include the permitted areas of the landfill.
- Construction of the closure will be performed under contract by a private contractor.
- The cost estimates are prepared for the time period during the landfill operation when the extent and manner of the landfill's operation make closing the most expensive.
- The closure cost estimate assumes a geomembrane cover system over the entire Class I disposal area.
- Long-term care costs include land surface care, landfill gas control, leachate control, groundwater and surface water monitoring, and administration.
- The current estimate of closure and post-closure costs is included in Attachment S-1.

#### **S.2 ANNUAL COST ESTIMATES**

Annual cost adjustment statements are provided to FDEP in accordance with Rule 62-701.630(4), FAC. The statement addresses closure and long-term care costs.

#### **S.3 FUNDING MECHANISMS**

The County will continue to use an escrow account for funding closure and post-closure of the landfill.

**ATTACHMENT S-1**  
**FINANCIAL ASSURANCE**



# Florida Department of Environmental Protection

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

DEP Form #	62-701.900(28)
Form Title	Financial Assurance Cost Estimate Form
Effective Date	05-27-01
DEP Application No.	(Filled by DEP)

## FINANCIAL ASSURANCE COST ESTIMATE FORM

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

Date of FDEP Approval: \_\_\_\_\_

### I. GENERAL INFORMATION:

Facility Name: Hardee County Regional Landfill WACS or GMSID #: \_\_\_\_\_  
 Permit / Application No.: 38414-002-SO Expiration Date: 11/19/2003  
 Facility Address: 685 Airport Road, Wauchula, FL 33873  
 Permittee: Hardee County  
 Mailing Address: 685 Airport Road, Wauchula, FL 33873

Latitude: 27°34'10" Longitude: 81°47'01" or UTM: \_\_\_\_\_

### Solid Waste Disposal Units Included in Estimate:

Phase / Cell	Acres	Date Unit Began Accepting Waste	Design Life of Unit From Date of Initial Receipt of Waste
Landfill	12.5	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Total Landfill Acreage included in this estimate. \_\_\_\_\_ Closure \_\_\_\_\_ Long-Term Care \_\_\_\_\_

Type of Landfill:  Class I \_\_\_\_\_ Class III \_\_\_\_\_ C&D Debris \_\_\_\_\_

### II. TYPE OF FINANCIAL ASSURANCE DOCUMENT (Check Type)

\_\_\_\_\_ Letter of Credit \* \_\_\_\_\_ Insurance Certificate  
 \_\_\_\_\_ Performance Bond \*  Escrow Account  
 \_\_\_\_\_ Guaranty Bond \* \_\_\_\_\_ Trust Fund Agreement

\*Indicates mechanisms that require use of a Standby Trust Fund Agreement

**III. ESTIMATE ADJUSTMENT**

40 CFR Part 264 Subpart H as adopted by reference in Rule 62-701.630, Florida Administrative Code sets forth the method of annual cost estimate adjustment. Cost estimates may be adjusted by using an inflation factor or by recalculating the maximum costs of closure in current dollars. Select one of the methods of cost estimate adjustment below.

(a) Inflation Factor Adjustment

Inflation adjustment using an inflation factor may only be made when a Department approved closure cost estimate exists and no changes have occurred in the facility operation which would necessitate modification to the closure plan. The inflation factor is derived from the most recent Implicit Price Deflator for Gross National Product published by the U.S. Department of Commerce in its survey of Current Business. The inflation factor is the result of dividing the latest published annual Deflator by the Deflator for the previous year. The inflation factor may also be obtained from the Solid Waste Financial Coordinator at (850)-488-0300.

This adjustment is based on the Department approved closure cost estimate dated: \_\_\_\_\_

Latest Department Approved Closure Cost Estimate:	x	Current Year Inflation Factor	=	Inflation Adjusted Closure Cost Estimate:
_____		_____		\$0.00

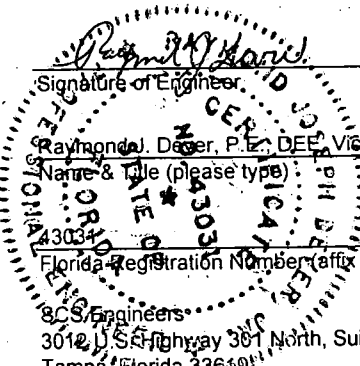
This adjustment is based on the Department approved long-term care cost estimate dated: \_\_\_\_\_

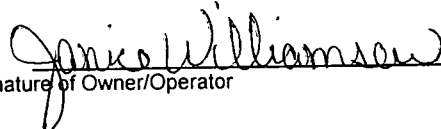
Latest Department Approved Annual Long-Term Care Cost Estimate:	x	Current Year Inflation Factor	=	Inflation Adjusted Annual Long-Term Care Cost Estimate
_____		_____		\$0.00
Number of Years of Long Term Care Remaining:			x	_____
Inflation Adjusted Long-Term Care Cost Estimate:			=	\$0.00

(b) Recalculate Estimates (see section V)

**IV. CERTIFICATION BY ENGINEER**

This is to certify that the Financial Assurance Cost Estimates pertaining to the engineering features of the this solid waste management facility have been examined by me and found to conform to engineering principals applicable to such facilities. In my professional judgement, the cost Estimates are a true, correct and complete representation of the financial liabilities for closing and long-term care of the facility and comply with the requirements of Florida Administrative Code (F.A.C.), Rule 62-701.630 and all other Department of Environmental Protection rules, and statutes of the State of Florida. It is understood that the Financial Assurance Cost Estimates shall be submitted to the Department annually, revised or adjusted as required by Rule 62-701.630(4), F.A.C.


  
 \_\_\_\_\_  
 Signature of Engineer  
 Raymond J. Dezer, P.E., D.E.E. Vice President  
 \_\_\_\_\_  
 Name & Title (please type)  
 43034  
 \_\_\_\_\_  
 Florida Registration Number (affix seal)  
 R.C.S. Engineers  
 3012 U.S. Highway 301 North, Suite 700  
 Tampa, Florida 33619  
 \_\_\_\_\_  
 Mailing Address  
 \_\_\_\_\_  
 813-621-0080  
 \_\_\_\_\_  
 Telephone Number


  
 \_\_\_\_\_  
 Signature of Owner/Operator  
 Janice Williamson, Solid Waste Director  
 \_\_\_\_\_  
 Name & Title (please type)  
 (863)773-5089  
 \_\_\_\_\_  
 Telephone Number

## V. RECALCULATE ESTIMATED CLOSING COST

For the time period in the landfill operation when the extent and manner of its operation makes closing **most expensive**.

**\*\* Third Party Estimate / Quote must be provided for each item**  
**\*\* Costs must be for a third party providing all material and labor**

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
1. Proposed Monitoring Wells (Do not include wells already in existence.)				
	EA	0.00	0.00	\$0.00
Subtotal Monitoring Wells:				\$0.00
2. Slope and Fill (bedding layer between waste and barrier layer):				
Excavation	CY	0.00	0.00	\$0.00
Placement and Spreading	CY	26,950	6.50	\$175,175.00
Compaction	CY	0.00	0.00	\$0.00
Off Site Material	CY	0.00	0.00	\$0.00
Delivery	CY	0.00	0.00	\$0.00
Subtotal Slope and Fill:				\$175,175.00
3. Cover Material (Barrier Layer):				
Off-Site Clay	CY	0.00	0.00	\$0.00
Synthetics - 40 mil	SY	88,925	3.21	\$285,449.25
Synthetics - GCL	SY	0.00	0.00	\$0.00
Synthetics - Geonet	SY	0.00	0.00	\$0.00
Synthetics - Other	SY	0.00	0.00	\$0.00
Subtotal Barrier Layer Cover:				\$285,449.25
4. Top Soil Cover:				
Off-Site Material	CY	53,895	6.50	\$350,317.50
Delivery	CY	0.00	0.00	\$0.00
Spread	CY	0.00	0.00	\$0.00
Subtotal Top Soil Cover				\$350,317.50



DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
<b>5. Vegetative Layer</b>				
Sodding	SY	<u>80,840</u>	<u>1.21</u>	<u>\$97,816.40</u>
Hydroseeding	AC	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Fertilizer	AC	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Mulch	AC	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Other	SY	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Subtotal Vegetative Layer:				<u>\$97,816.40</u>
<b>6. Stormwater Control System:</b>				
Earthwork	CY	<u>670</u>	<u>5.87</u>	<u>\$3,932.90</u>
Erosion Control	SY	<u>2,464</u>	<u>5.20</u>	<u>\$12,812.80</u>
Piping	LF	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Ditches	LF	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Berms	LF	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Gabion Baskets	SY	<u>16</u>	<u>124.80</u>	<u>\$1,996.80</u>
Other	LS	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Subtotal Stormwater Controls:				<u>\$18,742.50</u>
<b>7. Gas Controls: Passive</b>				
Wells	VF	<u>360</u>	<u>72.00</u>	<u>\$25,920.00</u>
Pipe and Fittings	LF	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Monitoring Probes	EA	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
NSPS/Title V requiremei	LS	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Subtotal Passive Gas Control:				<u>\$25,920.00</u>

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
<b>8. Gas Control: Active Extraction</b>				
Traps	EA	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Sump	EA	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Flare Assembly	EA	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Flame Arrestor	EA	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Mist Eliminator	EA	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Flow Meter	EA	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Blowers	EA	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Collection System	LF	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Other (describe)		<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Subtotal Active Gas Extraction:				<u>\$0.00</u>
<b>9. Security System</b>				
Fencing	LF	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Gate(s)	EA	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Sign(s)	EA	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Subtotal Security System:				<u>\$0.00</u>
<b>10. Engineering:</b>				
Closure Plan report	LS	<u>1.00</u>	<u>37,739.00</u>	<u>\$37,739.00</u>
Certified Engineer	LS	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
NSPS/Title V Air Permit	LS	<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Final Survey	LS	<u>1.00</u>	<u>7,430.00</u>	<u>\$7,430.00</u>
Certification of Closure	LS	<u>1.00</u>	<u>13,377.00</u>	<u>\$13,377.00</u>
Other (detail)		<u>0.00</u>	<u>0.00</u>	<u>\$0.00</u>
Subtotal Engineering:				<u>\$58,546.00</u>

11. Professional Services

	Contract Management		Quality Assurance		TOTAL
	Hours	LS	Hours	LS	
P.E. Supervisor	120	11,760.00	0	0.00	\$11,760.00
On-Site Engineer	0	0.00	0	0.00	\$0.00
Office Engineer	160	11,200.00	0	0.00	\$11,200.00
On-Site Technician	0	0.00	0	0.00	\$0.00
Administrative	32	1,280.00	0	0.00	\$1,280.00
Reimbursables	0	6,514.00	0	0.00	\$6,514.00

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
Quality Assurance Testing/Labor	LS	1	41,750.00	\$41,750.00

Subtotal Professional Services: \$72,504.00

**Subtotal of 1-11 Above: \$1,084,470.65**

12. Contingency % of Total 15%

**Closing Cost Subtotal: \$1,247,141.25**

13. Site Specific Costs (explain)

<u>Mobilization</u>	<u>\$20,000.00</u>
<u>Waste Tire Facility</u>	<u>\$0.00</u>
<u>Materials Recovery Facility</u>	<u>\$0.00</u>
<u>Special Wastes</u>	<u>\$0.00</u>
<u>Leachate Management System Modification</u>	<u>\$0.00</u>
<u>Other</u>	<u>\$0.00</u>
<u> </u>	<u>\$0.00</u>

Subtotal Site Specific Costs: \$20,000.00

**TOTAL CLOSING COSTS: \$1,267,141.25**

**VI. ANNUAL COST FOR LONG-TERM CARE**

(Check Term Length)

       5 years             20 years        X   30 years             Other

See 62-701.600(1)a.1., 62-701.620(1), 62-701.630(3)a. and 62-701.730(11)b. F.A.C. for required term length. For landfills certified closed and Department accepted, enter the remaining long-term care length as "Other" and provide years remaining.

**\*\* Third Party Estimate / Quote must be provided for each item**  
**\*\* Costs must be for a third party providing all material and labor**

**All items must be addressed.** Attach a detailed explanation for all items marked not applicable (N/A).

DESCRIPTION	Sampling Frequency (events/yr.)	Number of Wells	\$/Well/Event	\$ / Year
<b>1. Groundwater Monitoring (62-701.510(6), and (8)(a))</b>				
Monthly	12	<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
Quarterly	4	<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
Semi-Annual	2	<u>6</u>	<u>425.00</u>	<u>\$5,100.00</u>
Annual	1	<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
			Subtotal Groundwater Monitoring:	<u>\$5,100.00</u>
<b>2. Surface Water Monitoring (62-701.510(4), and (8)(b))</b>				
Monthly	12	<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
Quarterly	4	<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
Semi-Annual	2	<u>1</u>	<u>605.00</u>	<u>\$1,210.00</u>
Annual	1	<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
			Subtotal Surface Water Monitoring:	<u>\$1,210.00</u>
<b>3. Gas Monitoring</b>				
Monthly	12	<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
Quarterly	4	<u>1</u>	<u>750.00</u>	<u>\$3,000.00</u>
Semi-Annual	2	<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
Annual	1	<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
			Subtotal Gas Monitoring:	<u>\$3,000.00</u>

DESCRIPTION	Sampling Frequency (events/yr.)	Number of Wells	\$/Well/Event	\$ / Year
4. Leachate Monitoring (62-701.510(5), (6)(b) and 62-701.510(8)(c))				
Monthly	12	0	0.00	\$0.00
Quarterly	4	0	0.00	\$0.00
Semi-Annual	2	1	445.00	\$890.00
Annual	1	1	1,275.00	\$1,275.00
Other		0	0.00	\$0.00
Subtotal Leachate Monitoring:				\$2,165.00

DESCRIPTION	UNIT	QUANTITY	UNIT COST	ANNUAL COST
5. Leachate Collection/Treatment Systems Maintenance				
Maintenance				
Collection Pipes	LF	0	0.00	\$0.00
Sumps, Traps	EA	0	0.00	\$0.00
Lift Stations	EA	0	0.00	\$0.00
Cleaning	LS	0.2	4,450.00	\$890.00
Tanks	EA	0	0.00	\$0.00
Impoundments				
Liner Repair	SY	0	0.00	\$0.00
Sludge Removal	CY	0	0.00	\$0.00
Aeration Systems	CY	0	0.00	\$0.00
Floating Aerators	EA	0	0.00	\$0.00
Spray Aerators	EA	0	0.00	\$0.00
Disposal				
Off-site (Include Transportation and Disposal)	LS	1	28,028.00	\$28,028.00

6. Leachate Collection/Treatment Systems Operation

Operation		Hours	\$/Hour	Total
P.E. Supervisor	HR	0	0.00	\$0.00
On-Site Engineer	HR	0	0.00	\$0.00
Office Engineer	HR	0	0.00	\$0.00
On-site Technician	LS	0	0.00	\$0.00
Hauling Materials	LS	0	0.00	\$0.00
Subtotal Leachate Collection/Treatment System Maintenance & Operation:				\$28,918.00

7. Maintenance of Groundwater Monitoring Wells

Monitoring Wells	LS	1	180.00	\$180.00
Replacement	EA	0.2	962.00	\$192.40
Abandonment	EA	0	0.00	\$0.00
Subtotal Groundwater Monitoring Well Maintenance:				\$372.40

DESCRIPTION	UNIT	QUANTITY	UNIT COST	ANNUAL COST
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8. Gas System Maintenance

Piping, Vents	LF	0	0.00	\$0.00
Blowers	EA	0	0.00	\$0.00
Flaring Units	EA	0	0.00	\$0.00
Meters, Valves	EA	0	0.00	\$0.00
Compressors	EA	0	0.00	\$0.00
Flame Arrestors	EA	0	0.00	\$0.00
Operation	LS	1	460.00	\$460.00
Subtotal Gas System:				\$460.00

9. Landscape

Mowing	LS	1.0	12,150.00	\$12,150.00
Fertilizer	AC	0	0.00	\$0.00
Subtotal Landscape Maintenance:				\$12,150.00

DESCRIPTION	UNIT	QUANTITY	UNIT COST	ANNUAL COST
10. Erosion Control & Cover Maintenance				
Sodding	SY	<u>1210.00</u>	<u>1.18</u>	<u>\$1,427.80</u>
Regrading	AC	<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
Liner Repair	SY	<u>56</u>	<u>3.61</u>	<u>\$202.16</u>
Clay	CY	<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
Subtotal Erosion Control and Cover Maintenance:				<u>\$1,629.96</u>
11. Storm Water Management System Maintenance				
Conveyance Maintenance	LS	<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
Subtotal Storm Water System Maintenance:				<u>\$0.00</u>
12. Security System Maintenance				
Fences	LF	<u>50</u>	<u>21.53</u>	<u>\$1,076.50</u>
Gate(s)	EA	<u>0.2</u>	<u>1505.00</u>	<u>\$301.00</u>
Sign(s)	EA	<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
Subtotal Security System:				<u>\$1,377.50</u>
13. Utilities	LS	<u>1</u>	<u>500.00</u>	<u>\$500.00</u>
14. Administrative				
P.E. Supervisor	LS	<u>1</u>	<u>1568.00</u>	<u>\$1,568.00</u>
On-Site Engineer	HR	<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
Office Engineer	HR	<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
On-site Technician	LS	<u>1</u>	<u>8640.00</u>	<u>\$8,640.00</u>
Other (explain)		<u>0</u>	<u>0.00</u>	<u>\$0.00</u>
Subtotal Administrative:				<u>\$10,208.00</u>
15. Contingency	% of Total	\$67,090.86	<u>10%</u>	<u>\$6,709.09</u>
Subtotal Contingency:				<u>\$6,709.09</u>



16. Site Specific Costs (explain)

UNIT COST

<hr/>	<u>LS</u>	<u>\$0.00</u>
<hr/>	<u>LS</u>	<u>\$0.00</u>
<hr/>	<u>LS</u>	<u>\$0.00</u>

**ANNUAL LONG-TERM CARE COST (\$/Year):** \$73,799.95

**NUMBER OF YEARS OF LONG-TERM CARE** 30

**TOTAL LONG-TERM CARE COST (\$):** \$2,213,998.38

**ATTACHMENT S-1**  
**FINANCIAL ASSURANCE**

CLIENT HARDEE COUNTY	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Financial Assurance	BY LEK	DATE 3/20/03
Closing Costs/Long-Term Care	CHECKED ECC	DATE 4/16/03

**TASK**

Calculate financial assurance for closure and long-term care for Hardee County Regional Landfill

**REFERENCES**

1. 2002 RS Means Building Construction Cost Data
2. January - December 2001 FDOT Construction Contract History
3. SCS Drawings, Sheets 1 through 7  
Permit Modification  
October 2002
4. Hardee County Permit Number 384:4-002-SO

**ASSUME**

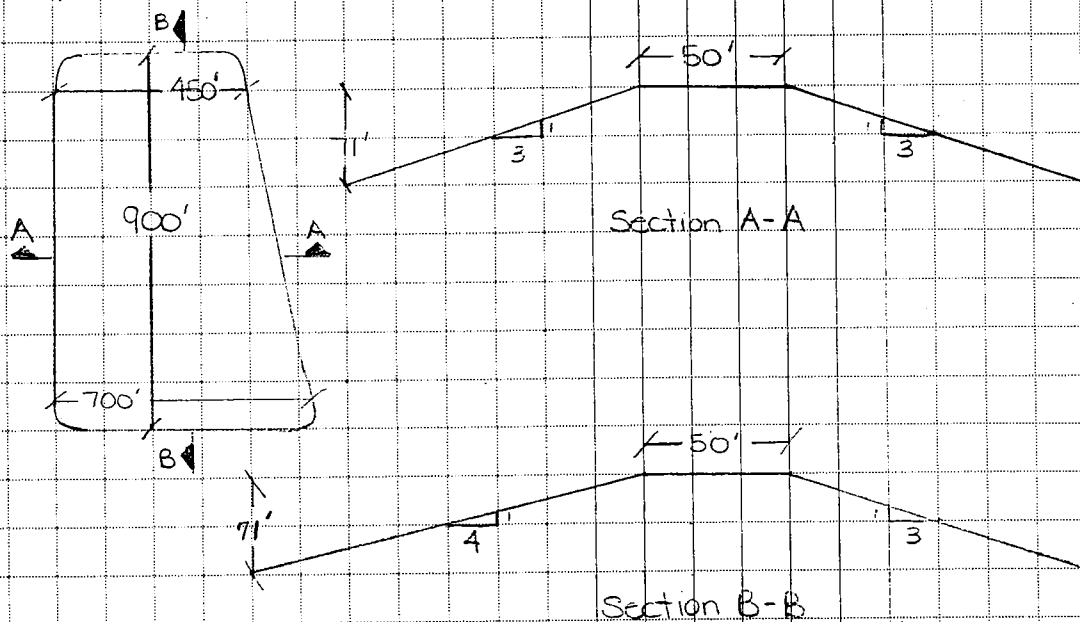
Update previous costs at a 2.7% inflation factor per year.

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Financial Assurance	BY LEK	DATE 3/20/03
Closing Costs/Long-Term Care	CHECKED ECC	DATE 4/16/03

Area Calculations

Landfill footprint = 12.5 acres  
= 544,500 sf

North, East, & West slope is 3:1  
South slope is 4:1



Width of 3:1 Slope =  $\sqrt{(71')^2 + (3 \times 71')^2} = 225 \text{ LF}$

Width of 4:1 Slope =  $\sqrt{(71')^2 + (4 \times 71')^2} = 293 \text{ LF}$

Total length of 3:1 slope = 2222 LF (via AutoCAD)

Total length of 4:1 slope = 700 LF (via AutoCAD)

Surface  
Landfill Area =  $225' \times 2222' + 293' \times 700' + 22,520 \text{ sf}$  (via AutoCAD)  
= 727,570 sf  
= 16.7 acres

Area = 727,570 sf

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Closing Costs	BY LEK	DATE 3/20/03
	CHECKED ECC	DATE 4/17/03

## 1. Monitoring Wells

No new wells are proposed; perimeter monitoring wells exist

## 2. Slope &amp; Fill

Geomembrane bedding - use 12"

$$\text{Volume of bedding} = 727,570 \text{ sf} \times \frac{12''}{12''} \times \frac{1 \text{ ft}}{27 \text{ cf}} \times \frac{1 \text{ cy}}{27 \text{ cf}} = 26,947 \text{ cy}$$

$$\boxed{\text{Bedding Quantity} = 26,950 \text{ cy}}$$

## Cost

Hardee County Sub Contractor Quote

$$= \$4.50/\text{cy}$$

Note: Cost includes mat'l & hauling to Site

Estimate a cost of \$2/cy to haul mat'l around site and compact

$$\boxed{\text{Bedding Cost} = \$6.50/\text{cy}}$$

# HARDEE COUNTY PURCHASING DEPT

205 HANCHEY ROAD  
 WAUCHULA, FL 33873  
 863/773-5014 Fax 863/773-0322

## PURCHASE ORDER: 44681

Page: 1 of 1

\*\*\*\*\* VENDOR \*\*\*\*\*  
 T & C FILL DIRT  
 456 CYPRESS STREET  
 WAUCHULA FL 33873

\*\*\*\*\* DELIVER TO \*\*\*\*\*  
 HARDEE COUNTY  
 SOLID WASTE & RECYCLE  
 685 AIRPORT ROAD  
 WAUCHULA, FL. 33873

Ordered	Due	Ship Via	FOB	Terms	Customer#
01/02/03	01/02/03			Upon Receipt	

Requisition No.	Vendor No.	Vendor Phone	Vendor Fax
50320	10186-1	863/773-9446	863/773-3599

No	Quantity	U/M	Description	Unit Price	Extended	G/L Account
1	1,000.00	YD	FILL DIRT	4.5000	4,500.00	104-534-034 0
			1,000 yd <sup>3</sup> @ 4.50 per yd <sup>3</sup>	** TOTAL **	4,500.00	

**VENDOR INSTRUCTIONS:**

- Mail Invoices to: Hardee County Clerk to BOCC  
 Accounting Dept  
 412 W Orange St Rm A-205  
 Wauchula, Fl 33873
- Invoices and Packages must bear the P.O. No. Above.
- Purchases may not exceed the total amount of this order without prior approval by the Purchasing Dept. Acceptance of this order includes acceptance of all terms, prices, delivery instructions, specifications and conditions.
- State Tax Exempt#: 15-02889-53C EIN: 59-6000632
- If you have questions, please call 863/773-5014

**SPECIAL INSTRUCTIONS:**

CONFIRMING ORDER W/TIM, DO NOT DUPLICATE.



Dec Newgent

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Closing Costs	BY IFK	DATE 3/20/03
	CHECKED ECC	DATE 4/16/03

## 3. Cover Material

Synthetic Cover - 40 mil liner

Add 10% for waste

$$\text{Liner Area} = 727,570 \text{ sf} \times 1.10 \times \frac{\text{sy}}{9 \text{ sf}} = 88,925 \text{ sy}$$

$$40 \text{ mil Liner Quantity} = 88,925 \text{ sy}$$

Cost

GSE Quote 2002

Installed Cost 40-mil VFPE liner = \$0.35/sf

Update to 2003 Cost @ 2%/yr

$$2003 \text{ Cost} = \frac{\$0.35}{\text{sf}} \times 1.02 \times \frac{9 \text{ sf}}{\text{sy}} = \$3.21/\text{sy}$$

$$40\text{-mil Liner Cost} = \$3.21/\text{sy}$$



Direct LB of  
 GSE 2002  
 Installed costs  
 (GSE, TX)

Please provide installed budget cost estimates for the following products.

Geomembrane			
Thickness (mil)	Texture	Density	Cost per square foot (dollars)
40	Smooth	VFPE	\$0.35
40	Textured	VFPE	\$0.38
60	Smooth	HDPE	\$0.42
60	Textured	HDPE	\$0.45
60	Smooth, white	HDPE	\$0.45
60	Textured, white	HDPE	\$0.48
60	Smooth, conductive	HDPE	\$0.47
60	Textured, conductive	HDPE	\$0.50
80	Smooth	HDPE	\$0.50
80	Textured	HDPE	\$0.55
100	Smooth	HDPE	\$0.60
Biplanar Geonet			
# of Textiles			Cost per square foot (dollars)
0			\$0.29
1			\$0.37
2			\$0.45
Triplanar Geonet			
# of Textiles			Cost per square foot (dollars)
0			\$0.68
1			\$0.75
2			\$0.81

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.03
SUBJECT Closing Costs	BY LEK	DATE 3/21/03
	CHECKED ECC	DATE 4/16/03

## 4. Top Soil Cover

Protective soil cover - use 24"

$$\text{Volume of cover soil} = 727,570 \text{ sf} \times \frac{24''}{12''} \times \frac{1 \text{ ft}}{27 \text{ cf}} \times \frac{\text{cy}}{27 \text{ cf}} = 53,895 \text{ cy}$$

$$\text{Cover Soil Quantity} = 53,895 \text{ cy}$$

## Cost

Hardee Quote (See No. 2)

$$\text{Cover Soil Cost} = \$6.50/\text{cy}$$

## 5. Vegetative Layer

Place sod

$$\text{Sod Area} = 727,570 \text{ sf} \times \frac{1 \text{ sy}}{9 \text{ sf}} = 80,840 \text{ sy}$$

$$\text{Sod Quantity} = 80,840 \text{ sy}$$

## Cost

FDDT Contract History 2001

Item 575 - 1-1 Bahia Sod \$1.16/sy

Update to 2003 Cost @ 2% / yr

$$2003 \text{ Cost} = \$1.16/\text{sy} \times 1.04 = \$1.21/\text{sy}$$

$$\text{Sod Cost} = \$1.21/\text{sy}$$

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION  
 ENGINEERING SUPPORT SERVICES - AKBAR.3.33  
 PAYITEM AVERAGE UNIT COST REPORT FROM 01JAN00 TO PRESENT

PAY ITEM NO.	NO. OF JOBS	AVERAGE UNIT PRICE	TOTAL QUANTITY	TOTAL AMOUNT	UNIT MEAS	ITEM DESCRIPTION
573 3	1	0.2900	1,056.00	306.24	LB	FERTILIZER (FOR HYDRO-SEEDING)
573 4	1	0.2900	10,564.00	3,063.56	LB	MULCH FIBER (FOR HYDRO-SEEDING)
575 1	102	1.3261	4,010,666.00	5,318,498.67	SY	SODDING
575 1 1	44	1.1730	1,988,631.80	2,332,602.70	SY	SODDING (BAHIA)
575 1 2	4	2.6227	10,526.00	27,606.42	SY	SODDING (CENTIPEDE)
575 1 3	17	1.2065	653,884.00	788,933.26	SY	SODDING (ARGENTINE BAHIA)
575 1 4	24	2.7425	122,247.94	335,262.11	SY	SODDING (SAINT AUGUSTINE)
575 1 5	3	1.6918	2,487.00	4,207.50	SY	SODDING (OVERLAPPED)
575 1 6	31	1.6395	1,080,548.00	1,771,588.41	SY	SODDING (BERMUDA)
577 70	30	0.9060	1,100,805.00	997,336.50	SY	SHOULDER REWORK
580173	11	3.6711	188,589.50	692,329.85	SY	BED PREPARATION & MULCHING
580301 1	24	11.5996	9,917.00	115,033.56	EA	STAKING & GUYING (TREES)
580301 2	16	21.8122	4,629.00	100,968.79	EA	STAKING & GUYING (PALMS)
580326 1	4	2.5248	5,019.50	12,673.02	SY	MULCH PINE BARK
580326 2	2	1.4478	11,530.00	16,692.70	SY	MULCH PINE NEEDLE
580326 3	2	3.5263	3,843.50	13,553.49	SY	MULCH SHREDDED CYPRUS BARK
580326 4	3	2.3327	29,544.00	68,917.66	SY	MULCH WOOD CHIP
580327 1	13	329.6467	516.00	170,097.71	EA	TREE RELOCATION (PALM)
580327 2	7	776.5458	80.00	62,123.66	EA	SMALL TREE, SHRUBS, GROUND COVER RELOCATION
580327 4	1	15.4500	132.00	2,039.40	EA	PLANTING ONLY PLANT MATERIAL PROVIDED BY OTHERS
580332 2	9	130.1273	891.00	115,943.40	EA	TREE REMOVAL (CUT AND REMOVE)
580333 1	1	4.2000	6,000.00	25,200.00	LF	CURB LANDSCAPE STEEL
580336 9	9	126.1981	324.00	40,888.20	EA	PRUNING AND TRIMMING (EXISTING TREES)
580340 1	9	2.4471	15,712.00	38,448.46	LF	TREE PROTECTION (BATTERBOARD)
580340 2	1	4.0000	850.00	3,400.00	LF	TREE PROTECTION (TRENCHING)
580401 1	1	500.0000	3.00	1,500.00	AS	BENCHMARK
580402 1	1	500.0000	4.00	2,000.00	AS	STAFF GAUGE
581 1	2	3.5702	2,670.00	9,532.50	PL	GROUND COVER (SEEDLINGS, BARE ROOT MATL, PROPAGULE)
581 2	16	4.9622	158,653.00	787,271.23	PL	GROUND COVER (10" TO 18" HEIGHT OR SPREAD)
582 2	13	6.3849	131,513.00	839,695.96	PL	SHRUBS (10" TO 18" HEIGHT OR SPREAD)
582 3	5	13.2639	5,156.00	68,388.84	PL	SHRUBS (19" TO 7' HEIGHT OR SPREAD)
582 4	1	95.0000	1,255.00	119,225.00	PL	SHRUBS (15 GAL- 8' TO 20' HEIGHT OR CLEAR TRUNK)
583 1	2	0.3000	9,475.00	2,842.50	PL	TREE (SEEDLINGS)
583 2	3	7.9244	3,404.00	26,974.74	PL	TREE (10" TO 18" HEIGHT OR SPREAD)
583 3	4	41.6703	1,422.00	59,255.22	PL	TREE (19" TO 7' HEIGHT OR SPREAD)
583 4	28	160.8288	10,313.00	1,658,627.71	PL	TREE (8' TO 20' HEIGHT OR CLEAR TRUNK)
583 5	4	432.8312	471.00	203,863.50	PL	TREE (21' OR MORE HEIGHT OR CLEAR TRUNK)
584 3	1	25.5600	5.00	127.80	PL	PALMS SINGLE TRUNK (19" TO 7' HEIGHT OR SPREAD)
584 4	15	148.8641	4,387.00	653,066.64	PL	PALMS SINGLE TRUNK (8' TO 20' HT. OR CLEAR TRUNK)
584 5	2	133.1836	256.00	34,095.00	PL	PALMS SINGLE TRUNK (21' OR MORE HT OR CLEAR TRUNK)
585 4	1	3000.0000	5.00	15,000.00	PL	PALMS CLUMP TYPE (8' TO 20' HT. OR CLEAR TRUNK)
589 1	3	56000.0000	3.00	168,000.00	LS	LANDSCAPE ESTABLISHMENT AND MAINTENANCE
590 70	17	39406.0441	17.00	669,902.75	LS	IRRIGATION SYSTEM
604 1 11	5	770.8696	23.00	17,730.00	LO	DATA COLLECTION (INTERSECTION) (TURNING MOVEMENT)
604 1 22	2	785.7143	7.00	5,500.00	LO	DATA COLLECTION (MID-BLOCK) (APPROACH)
604 2 24	2	10569.0000	2.00	21,138.00	PA	ANALYSIS & DOC (2 INTERSECTIONS) (4 TIMING PATERNS)
604 2 46	1	15000.0000	1.00	15,000.00	PA	ANALYSIS & DOC ( 4 INTERSECTION) (6 TIMING PATERNS)
604 2136	1	15000.0000	1.00	15,000.00	PA	ANALYSIS & DOC (13 INTERSECTION) (6 TIMING PATERNS)
604 3 1	1	68.0000	64.00	4,352.00	PI	TIMING IMPLEMENTATION (CONTROLLER)
604 3 2	3	1505.2632	19.00	28,600.00	PI	TIMING IMPLEMENTATION (CONTROLLER & COORD UNIT)

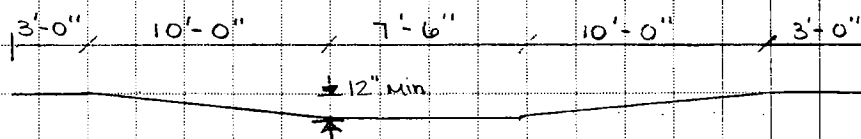
CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Closing Costs	BY LEK	DATE 3/21/03
	CHECKED ECC	DATE 4/16/03

## 6. Stormwater Control System

4 downchutes are located on the landfill w/ the following lengths:

Northeast Corner	124.0 ft
Northwest Corner	131.5 ft
Southeast Corner	131.6 ft
Southwest Corner	162.3 ft

Typical downchute section:



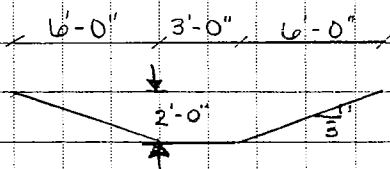
$$\begin{aligned} \text{Area} &= 17.5 \text{ sf} \\ \text{Perimeter} &= 27.5 \text{ ft} \end{aligned}$$

} Via AutoCAD

$$\begin{aligned} \text{Excavation Volume} &= \text{cross-sectional area} \times \sum \text{length} \\ &= 17.5 \text{ sf} \times (124.0' + 131.5' + 131.6' + 162.3') \\ &\quad \uparrow \text{via AutoCAD} \\ &= 9615 \text{ cf} \end{aligned}$$

1 ditch located adjacent to road w/ a length of 471.4 ft

Ditch section:



$$\begin{aligned} \text{Area} &= 18 \text{ sf} \\ \text{Perimeter} &= 15 \text{ ft} \end{aligned}$$

} Via AutoCAD

$$\begin{aligned} \text{Excavation Volume} &= \text{cross-sectional area} \times \text{length} \\ &= 18 \text{ sf} \times 471.4 \text{ ft} \\ &\quad \uparrow \text{via AutoCAD} \\ &= 8485 \text{ cf} \end{aligned}$$

$$\text{Total Excavation Volume} = (9615 \text{ cf} + 8485 \text{ cf}) \times \frac{1 \text{ cy}}{27 \text{ cf}} = 670 \text{ cy}$$

$$\text{Excavation Volume} = 670 \text{ cy}$$

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Closing Costs	BY LEK	DATE 3/26/03
	CHECKED ECC	DATE 4/16/03

### 6 Stormwater Control System (cont)

#### Cost

2002 Means Excavating

02315 900 0050 3/8 cy tractor loader/backhoe \$5.75/cy

2003 Cost = \$5.75/cy × 1.02 = \$5.87/cy

#### Erosion Control:

$$\begin{aligned} \text{Erosion Mat Area} &= \text{downchute perimeter} \times \Sigma \text{Length} + \text{ditch perimeter} \times \text{length} \\ &= (27.5 \text{ ft} \times 549.4 \text{ ft} + 15 \text{ ft} \times 471.4 \text{ ft}) \times \frac{6 \text{ y}}{9 \text{ sf}} \\ &= 2464 \text{ sy} \end{aligned}$$

$$\boxed{\text{Erosion Mat Area} = 2464 \text{ sy}}$$

#### Cost

FDOT Contract History 2001

Item 571-111 Plastic Erosion Mat \$5.00/sy

Update to 2003 Cost @ 2%/yr

$$2003 \text{ Cost} = \$5.00/\text{sy} \times 1.04 = \$5.20/\text{sy}$$

$$\boxed{\text{Erosion Mat Cost} = \$5.20/\text{sy}}$$

CLIENT Hamlee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Closing Costs	BY LEK	DATE 3/26/03
	CHECKED Ecc	DATE 4/16/03

to Stormwater Control System (cont.)

Gabion Baskets will be used to slow water & dissipate energy @ each downchute

4 Gabion Baskets Required @ 4 sy

Cost

FOOT Contract History 2001

Item 530.77A Gabion Basket (18" thick) \$120/sy

$$2003 \text{ Cost} = \frac{\$120}{\text{sy}} \times 1.04 = \$124.80/\text{sy}$$

PAY ITEM NO.	NO. OF JOBS	AVERAGE UNIT PRICE	TOTAL QUANTITY	TOTAL AMOUNT	UNIT MEAS	ITEM DESCRIPTION
550 5 3	2	89.8000	5.00	449.00	EA	FENCE PULL POST ASSEMBLY (TYPE B) (SPECIAL)
550 5 4	1	100.0000	5.00	500.00	EA	FENCE PULL POST ASSEMBLY (TYPE B) (4' HEIGHT)
550 6 1	22	94.7940	396.00	37,538.42	EA	FENCE END POST ASSEMBLY (TYPE B) (STANDARD)
550 6 3	1	100.0000	3.00	300.00	EA	FENCE END POST ASSEMBLY (TYPE B) (SPECIAL)
550 6 4	1	100.0000	4.00	400.00	EA	FENCE END POST ASSEMBLY (TYPE B) (4' HEIGHT)
550 71 1	1	597.0000	172.00	102,684.00	LF	FENCING TYPE R (FULL)
550 71 2	2	100.7959	2,822.00	284,446.00	LF	FENCING TYPE R (PARTIAL)
550 73	3	17.6610	4,810.00	84,949.40	LF	FENCING, SPECIAL
550 73 20	1	54.4500	90.00	4,900.50	LF	FENCING SPECIAL (TYPE 2)
550 74 2	6	4.5921	2,828.00	12,986.45	LF	FENCE (RESET EXIST) (TYPE B)
550 74 3	2	12.0000	1,090.00	13,080.00	LF	FENCE (RESET EXIST) (SPECIAL)
550 75162	1	400.0000	27.00	10,800.00	EA	FENCE GATE (TYPE A) (DOUBLE 8') (16' OPENING)
550 75202	1	150.0000	12.00	1,800.00	EA	FENCE GATE (TYPE A) (DOUBLE 10') (20' OPENING)
550 75302	1	365.0000	5.00	1,825.00	EA	FENCE GATE (TYPE A) (DOUBLE 15') (30' OPENING)
550 76 31	1	280.8000	1.00	280.80	EA	FENCE GATE (TYPE B) (SINGLE 3') (3' OPENING)
550 76 51	1	200.0000	1.00	200.00	EA	FENCE GATE (TYPE B) (SINGLE 5') (5' OPENING)
550 76 62	1	1347.8400	1.00	1,347.84	EA	FENCE GATE (TYPE B) (DOUBLE 6') (6' OPENING)
550 76121	2	440.0000	5.00	2,200.00	EA	FENCE GATE (TYPE B) (SINGLE 12') (12' OPENING)
550 76122	3	1163.5000	4.00	4,654.00	EA	FENCE GATE (TYPE B) (DOUBLE 6') (12' OPENING)
550 76152	1	1000.0000	1.00	1,000.00	EA	FENCE GATE (TYPE B) (DOUBL 7.5') (15' OPENING)
550 76162	3	485.0260	5.00	2,425.13	EA	FENCE GATE (TYPE B) (DOUBLE 8') (16' OPENING)
550 76201	1	500.0000	1.00	500.00	EA	FENCE GATE (TYPE B) (SINGLE 20') (20' OPENING)
550 76202	7	637.9091	22.00	14,034.00	EA	FENCE GATE (TYPE B) (DOUBLE 10') (20' OPENING)
550 76241	1	450.0000	2.00	900.00	EA	FENCE GATE (TYPE B) (SINGLE 24') (24' OPENING)
550 76242	3	1016.6667	3.00	3,050.00	EA	FENCE GATE (TYPE B) (DOUBLE 12') (24' OPENING)
550 79 16	1	1444.3700	2.00	2,888.74	EA	FENCE GATE (SLIDING) (CANTILEVER 16')
550 79 20	8	1250.6190	21.00	26,263.00	EA	FENCE GATE (SLIDING) (CANTILEVER 20')
550 79 24	4	2010.2325	8.00	16,081.86	EA	FENCE GATE (SLIDING) (CANTILEVER 24')
550 79 38	1	1400.0000	1.00	1,400.00	EA	FENCE GATE (SLIDING) (CANTILEVER 38')
555 1 1	41	11.6644	64,031.00	746,883.03	LF	DIRECTIONAL BORE (LESS THAN 6")
555 1 2	22	26.8348	11,143.00	299,020.38	LF	DIRECTIONAL BORE (6" TO < 12")
560 1	4	559.8897	6,997.20	3,917,660.22	TN	PAINT STRUCT STEEL
563 2	1	0.5000	113,440.00	56,720.00	SF	ANTI-GRAFFITI COATING
563 3	6	0.4961	625,221.00	310,198.60	SF	ANTI-GRAFFITI COATING (SACRIFICIAL)
563 4	1	0.8300	41,297.00	34,276.51	SF	ANTI-GRAFFITI COATING (NON-SACRIFICIAL)
570 1	5	0.0542	447,684.20	24,270.32	SY	SEEDING
570 2	38	0.1251	3,424,725.20	428,359.53	SY	SEED & MULCH
570 3	35	1.3926	81,741.00	113,834.03	LB	SEED GRASS (PERMANENT TYPE)
570 3 1	5	3.0216	824.00	2,489.80	LB	SEED GRASS (PERM TYPE, ARGEN BAHIA)
570 4	41	95.9002	3,421.41	328,113.85	TN	MULCH MATL
570 5	186	246.2611	786.08	193,581.92	TN	FERTILIZER
570 9	186	10.8907	82,397.90	897,371.98	MG	WATER FOR GRASS
570 10	40	1.3384	18,610.00	24,907.75	LB	SEED GRASS (QUICK-GROWING TYPE)
570 11	6	13.2281	8,781.75	116,165.76	MG	WATER FOR PLANT ESTABLISHMENT
570 12	4	105.7940	449.00	47,501.50	LB	SEED WILDFLOWER
571 1	1	2.0000	287.00	574.00	SY	PLASTIC EROSION MAT
571 1 11	3	5.2848	15,449.00	81,645.20	SY	PLASTIC EROSION MAT (TRM) (TYPE 1)
571 1 13	1	4.6200	12,209.00	56,405.58	SY	PLASTIC EROSION MAT (TRM) (TYPE 3)
573 1	1	0.2300	6,391.00	1,469.93	SY	SEEDING-HYDRO (F&I)
573 2	1	3.4500	26.00	89.70	LB	SEED GRASS (FOR HYDRO-SEEDING)



PAY ITEM NO.	NO. OF JOBS	AVERAGE UNIT PRICE	TOTAL QUANTITY	TOTAL AMOUNT	UNIT MEAS	ITEM DESCRIPTION
520 5 12	10	25.8049	5,346.00	137,952.88	LF	TRAF SEP CONC (TYPE I) (6' WIDE)
520 5 16	2	34.1132	1,669.00	56,935.00	LF	TRAF SEP CONC (TYPE I) (8.5' WIDE)
520 5 41	19	22.4768	9,435.50	212,079.47	LF	TRAF SEP CONC (TYPE IV) (4' WIDE)
520 5 42	3	18.8017	1,676.00	31,511.70	LF	TRAF SEP CONC (TYPE IV) (6' WIDE)
520 5 46	3	22.3912	6,539.00	146,415.93	LF	TRAF SEP CONC (TYPE IV) (8.5' WIDE)
520 5 51	1	120.0000	496.00	59,520.00	LF	TRAF SEP CONC (TYPE V) (4' WIDE)
520 5 85	2	34.4830	221.00	7,620.75	LF	TRAF SEP CONC (SPECIAL) (2' WIDE)
520 6	39	12.4655	103,742.30	1,293,202.62	LF	GUTTER SHLDR CONC
520 70	6	54.6318	2,386.00	130,351.52	SY	TRAFFIC SEPARATOR CONCRETE(SPECIAL)
520 70 89	17	40.4391	3,117.40	126,064.94	SY	TRAF SEP CONC (SPECIAL) (VW)
521 1	15	47.6485	69,982.00	3,334,536.04	LF	BARRIER WALL CONC
521 5 1	36	54.8011	49,788.00	2,728,438.10	LF	CONCRETE TRAFFIC RAILING BARRIER BRIDGE (32" F)
521 5 3	3	43.0024	2,357.30	101,369.50	LF	CONCRETE TRAFFIC RAILING BARRIER BRIDGE(32" DBL)
521 5 4	3	54.6336	4,895.30	267,448.00	LF	CONCRETE TRAFFIC RAILING BAR.BRDG(32" VERT FACE)
521 5 7	1	65.0000	4,200.00	273,000.00	LF	CONCRETE TRAFFIC RAILING BAR.BRDG(CORAL W/O CURB)
521 5 20	1	175.0000	196.60	34,405.00	LF	CONC TRAF RAIL BARRIER BRG(F SHAPE/S.BARRIER 8'HT)
521 6 1	6	55.5054	10,987.00	609,838.10	LF	CONCRETE PARAPET (PEDEST/BICYCLE)
521 7 1	1	210.0000	1,092.50	229,425.00	LF	CONC TRAF RAIL BARRIER(RET WALL SYS/SND WALL 8')
521 72 3	8	92.3681	6,142.00	567,325.00	LF	BARRIER WALL CONC (RIGID-SHOULDER)
521 72 4	5	584.4460	8,097.00	4,732,259.00	LF	BARRIER WALL CONC (RIGID-RETAINING)
521 72 5	7	534.8306	27,526.00	14,721,747.70	LF	BARRIER WALL CONC (RIGID-CURB & GUTTER)
521 72 6	7	57.3447	17,946.40	1,029,131.40	LF	BARRIER WALL CONC (PLAIN-SHOULDER)
521 73	8	9.6941	19,905.00	192,960.50	LF	BARRIER WALL REMOVAL (CONCRETE)
522 1	118	17.6439	393,725.70	6,946,860.82	SY	SIDEWALK CONC (4" THICK)
522 2	97	22.2972	100,831.50	2,248,259.17	SY	SIDEWALK CONC (6" THICK)
524 1 1	37	24.8418	26,129.40	649,101.80	SY	DITCH PAVT CONC (3")
524 1 2	17	45.8578	4,566.00	209,386.50	SY	DITCH PAVT CONC (4")
524 1 4	6	62.9207	593.00	37,312.00	SY	DITCH PAVT CONC (6")
524 1 19	2	18.5688	9,990.00	185,502.40	SY	DITCH PAVT CONC (3") (REINFORCED)
524 1 29	7	45.3043	21,177.00	959,408.28	SY	DITCH PAVT CONC (4") (REINFORCED)
524 2 2	14	37.4375	13,634.90	510,457.00	SY	SLOPE PAVT CONC (4")
524 2 4	1	40.0000	1,533.00	61,320.00	SY	SLOPE PAVT CONC (6")
524 2 29	1	40.0000	381.00	15,240.00	SY	SLOPE PAVT CONC (4") (REINFORCED)
525 1	1	10.0000	116.00	1,160.00	LF	CURB ASPHALTIC CONC
526 1 1	5	71.3251	1,321.00	94,220.40	SY	PAVERS, ARCHITECTURAL (ROADWAY)
526 1 2	2	38.5794	4,046.00	156,092.22	SY	PAVERS, ARCHITECTURAL (SIDEWALK)
526 71	1	46.5000	122.00	5,673.00	SY	PAVEMENT TEXTURIZING
530 1	24	374.6199	1,820.70	682,070.47	CY	RIPRAP (SAND-CEMENT)
530 3 3	25	35.4380	62,483.50	2,214,291.96	TN	RIPRAP (RUBBLE) (BANK AND SHORE)
530 3 4	36	58.8709	9,080.40	534,571.49	TN	RIPRAP (RUBBLE) (F&I) (DITCH LINING)
530 74	11	31.1072	13,656.30	424,809.72	TN	BEDDING STONE
530 76 2	1	75.0000	33.00	2,475.00	SY	GABION MAT (9" THICK)
530 77 1	1	93.0000	506.00	47,058.00	SY	GABION BASKET (12" THICK)
530 77 4	1	120.0000	406.00	48,720.00	SY	GABION BASKET (18" THICK)
530 78	9	58.9578	11,791.00	695,171.97	SY	RIPRAP (ARTICULATING BLOCK)
534 72 2	7	16.1154	850,626.00	13,708,196.67	SF	BARRIER WALL NOISE (F&I) (PERMANENT INSTALLATION)
536 1 1	96	11.8481	268,718.05	3,183,803.38	LF	GUARDRAIL (ROADWAY)
536 1 2	1	28.0000	100.00	2,800.00	LF	GUARDRAIL (BRIDGE)
536 1 3	7	17.1329	139,382.30	2,388,019.70	LF	GUARDRAIL (ROADWAY, DOUBLE FACE)
536 1 5	1	25.0000	13.00	325.00	LF	GUARDRAIL (ROADWAY, THRIE BEAM)

**02300 | Earthwork**

**2 SITE CONSTRUCTION**

02315   Excavation and Fill		CREW	DAILY OUTPUT	LABOR-HOURS	UNIT	2002 BARE COSTS				TOTAL INCL O&P	
						MAT.	LABOR	EQUIP.	TOTAL		
900	0010 EXCAVATING, TRENCH or continuous footing, common earth										900
	0020 No sheeting or dewatering included										
	0050 1' to 4' deep, 3/8 C.Y. tractor loader/backhoe	B-11C	150	.107	C.Y.		2.92	1.19	4.11	5.75	
	0060 1/2 C.Y. tractor loader/backhoe	B-11M	200	.080			2.19	1.08	3.27	4.54	
	0062 3/4 C.Y. hydraulic backhoe	B-12F	270	.059			1.75	1.69	3.44	4.50	
	0090 4' to 6' deep, 1/2 C.Y. tractor loader/backhoe	B-11M	200	.080			2.19	1.08	3.27	4.54	
	0100 5/8 C.Y. hydraulic backhoe	B-12Q	250	.064			1.89	1.57	3.46	4.58	
	0110 3/4 C.Y. hydraulic backhoe	B-12F	300	.053			1.57	1.52	3.09	4.06	
	0120 1 C.Y. hydraulic backhoe	B-12A	400	.040			1.18	1.41	2.59	3.33	
	0130 1-1/2 C.Y. hydraulic backhoe	B-12B	540	.030			.87	1.31	2.18	2.76	
	0300 1/2 C.Y. hydraulic excavator, truck mounted	B-12J	200	.080			2.36	3.68	6.04	7.60	
	0500 6' to 10' deep, 3/4 C.Y. hydraulic backhoe, 6' to 10' deep	B-12F	225	.071			2.10	2.03	4.13	5.40	
	0510 1 C.Y. hydraulic backhoe	B-12A	400	.040			1.18	1.41	2.59	3.33	
	0600 1 C.Y. hydraulic excavator, truck mounted	B-12K	400	.040			1.18	2.17	3.35	4.17	
	0610 1-1/2 C.Y. hydraulic backhoe	B-12B	600	.027			.79	1.18	1.97	2.48	
	0620 2-1/2 C.Y. hydraulic backhoe	B-12S	1,000	.016			.47	1.70	2.17	2.58	
	0900 10' to 14' deep, 3/4 C.Y. hydraulic backhoe	B-12F	200	.080			2.36	2.28	4.64	6.10	
	0910 1 C.Y. hydraulic backhoe	B-12A	360	.044			1.31	1.56	2.87	3.70	
	1000 1-1/2 C.Y. hydraulic backhoe	B-12B	540	.030			.87	1.31	2.18	2.76	
	1020 2-1/2 C.Y. hydraulic backhoe	B-12S	1,000	.016			.47	1.70	2.17	2.58	
	1030 3 C.Y. hydraulic backhoe	B-12D	1,400	.011			.34	1.50	1.84	2.16	
	1300 14' to 20' deep, 1 C.Y. hydraulic backhoe	B-12A	320	.050			1.48	1.76	3.24	4.17	
	1310 1-1/2 C.Y. hydraulic backhoe	B-12B	480	.033			.98	1.47	2.45	3.11	
	1320 2-1/2 C.Y. hydraulic backhoe	B-12S	850	.019			.56	2	2.56	3.04	
	1330 3 C.Y. hydraulic backhoe	B-12D	1,000	.016			.47	2.09	2.56	3.01	
	1400 By hand with pick and shovel 2' to 6' deep, light soil	1 Clab	8	1			23.50		23.50	36.50	
	1500 Heavy soil	"	4	2			47		47	73	
	1700 For tamping backfilled trenches, air tamp, add	A-1	100	.080			1.88	.61	2.49	3.59	
	1900 Vibrating plate, add	B-18	230	.104	↓		2.52	.24	2.76	4.19	
	2100 Trim sides and bottom for concrete pours, common earth	↓	1,500	.016	S.F.		.39	.04	.43	.64	
	2300 Hardpan	↓	600	.040	"		.96	.09	1.05	1.60	
	2400 Pier and spread footing excavation, add to above				C.Y.				30%	30%	
	3000 Backfill trench, F.E. loader, wheel mtd., 1 C.Y. bucket										
	3020 Minimal haul	B-10R	400	.030	C.Y.		.86	.54	1.40	1.90	
	3040 100' haul	↓	200	.060			1.72	1.07	2.79	3.80	
	3060 200' haul	↓	100	.120			3.43	2.14	5.57	7.60	
	3080 2-1/4 C.Y. bucket, minimum haul	B-10T	600	.020			.57	.62	1.19	1.55	
	3090 100' haul	↓	300	.040			1.14	1.23	2.37	3.10	
	3100 200' haul	↓	150	.080	↓		2.29	2.47	4.76	6.20	
	4000 For backfill with dozer, see div. 02315-120										
	4010 For compaction of backfill, see div. 02315-300										
940	0010 EXCAVATING, UTILITY TRENCH Common earth										940
	0050 Trenching with chain trencher, 12 H.P., operator walking										
	0100 4" wide trench, 12" deep	B-53	800	.010	L.F.		.30	.11	.41	.57	
	0150 18" deep	↓	750	.011			.32	.11	.43	.61	
	0200 24" deep	↓	700	.011			.34	.12	.46	.65	
	0300 6" wide trench, 12" deep	↓	650	.012			.37	.13	.50	.70	
	0350 18" deep	↓	600	.013			.40	.14	.54	.76	
	0400 24" deep	↓	550	.015			.43	.16	.59	.83	
	0450 36" deep	↓	450	.018			.53	.19	.72	1.01	
	0600 8" wide trench, 12" deep	↓	475	.017			.50	.18	.68	.96	
	0650 18" deep	↓	400	.020			.60	.22	.82	1.14	
	0700 24" deep	↓	350	.023			.68	.25	.93	1.30	
	0750 36" deep	↓	300	.027	↓		.79	.29	1.08	1.52	
	0830 Fly wheel trencher, 18" wide trench, 6' deep, light soil	B-54A	1,992	.005	C.Y.		.14	.25	.39	.49	

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Closing Costs	BY LEK	DATE 3/21/03
	CHECKED ECC	DATE 4/16/03

7. Gas Controls: Passive

Add 8 passive well. for closure.

Approximate depth of each well is 45 vF

$$\text{Well depth} = 8 \text{ wells} \times \frac{45 \text{ vF}}{\text{Well}} = 360 \text{ vF}$$

$$\text{Well depth} = 360 \text{ vF}$$

Cost

SCS Field Services Quote

\$72 vF (Price includes 30" borehole, pipe, & well)

$$\text{Passive Well Cost} = \$72/\text{vF}$$



# SCS ENGINEERS

Sheet 7A of \_\_\_\_\_

1A

Client Hardee County	Project Permit Renewal	Job No. 09199033.08
Subject Closing Costs	By LEK	Date 3/21/2003
	Checked	Date

**TASK**

Calculate and provide reasoning for Items 10 and 11 of Estimated Closing Costs

**ATTACHMENTS**

Manpower and Fee Estimate - Sheets 12a through 12d  
Includes: Manpower and Fee Estimate by Task Dollars and Reimbursables Estimate.

**NOTE**

For a 16.7-acre (surface area) closure, manpower and fee estimate is attached.  
Use 2 work months for closure. (2 work months)(4 wk/1 mo)(5 days/wk)(8 hr/day)=320 hours

**Item 10 - Engineering**

**10 a - Closure Plan Report**

<u>Manpower</u>	<u>Hours</u>	<u>Reasoning</u>
Staff Engineer	120	Design closure and write specs
Drafting	80	Complete and reproduce closure design drawings
Sr. Proj Engineer	40	Oversee Closure Design, Review Specs & Project Management
Admin	40	Word process support
Project Director	10	Check, sign, & seal

<u>Reimbursables</u>	<u>Quantity Estimate</u>
Faxes	(2 pgs/fax)(1 fax/wk)(4 wk/mo)(2 work months)(2 file copies)= 32 pages
Xerox Reproduction	(5 pgs/letter)(4 ltrs/wk)(4 wk/mo)(2 work months)(4 copies) = 640 pages
CADD Reproductions	(4 pages)(9 copies) + 12 draft copies= 48 sheets
Computer Time- CADD	CADD time from manpower = 80 hours
Computer Time- Word Process	Computer time from admin manpower = 40 hours
Licenses/Permit	\$0
Topographic Survey	\$2,500 (Preliminary) Source: Chris Xynides with DC Johnson and Associates (12/10/02) 352-588-2768 Ext. 305

**10 b - FDEP Coordination**

<u>Manpower</u>	<u>Hours</u>	<u>Reasoning</u>
Staff Engineer	20	Response to FDEP comments
Drafting	20	For changes to drawings
Sr. Proj Engineer	16	Response to FDEP comments, checking & project management
Project Director	8	Response to FDEP comments

<u>Reimbursables</u>	<u>Quantity Estimate</u>
Faxes	(2 pgs/fax)(1 fax/week)(4 wk/mo)(1 work months)(2 file copies) = 16 pgs
Xerox Reproduction	(5pgs/letter)(1 ltr/wk)(4 wk/mo)(1 work months)(4 copies) = 80 pages
CADD Reproductions	Estimate at: (3 pages)(7 copies) + 20 draft copies= 41 sheets
Computer Time- CADD	CADD time from manpower = 20 hours

**SCS ENGINEERS**

Sheet 7B of \_\_\_\_\_

Client Hardee County	Project Permit Renewal	Job No. 09199033.08
Subject Closing Costs	By LEK	Date 3/21/2003
	Checked	Date

**10 c - Bidding**

<u>Manpower</u>	<u>Hours</u>	<u>Reasoning</u>
Staff Engineer	32	Response to bidder's questions
Sr. Proj Engineer	16	Response to bidder's questions and Project Management
Project Director	8	Check, sign, seal packages
Drafting	20	Reproduce bid package drawings
Admin	16	Reproduce and assemble bid package

Reimbursables

Quantity Estimate

Faxes (2 pgs/fax)(12 faxes)(3 file copies) = 72 pgs  
 Bid package: (200 pgs)(12 bidders) = 2400 pages  
 Graphics Reproduction Bid package: (15 pgs)(12 bidders) = 180 pages  
 Word Processing Computer time from Admin manpower = 16 hours  
 Shipping (12 Bid packages)(\$20/Bid Package) = \$240

**10 d - Final Survey**

<u>Manpower</u>	<u>Hours</u>	<u>Reasoning</u>
Staff Engineer	24	Coordination with surveyor

Reimbursables

Quantity Estimate

Aerial Survey \$5,000 (Final) Source: Chris Xynides with DC Johnson and Associates (12/10/02) 352-588-2768 Ext. 305

**10 e - Construction Certification**

<u>Manpower</u>	<u>Hours</u>	<u>Reasoning</u>
Staff Engineer	120	Complete within 30 days
Drafting	20	Any redesigns/as built
Sr. Proj Engineer	12	Project management & Checking
Admin. Asst.	10	Production support
Project Director	4	Check, sign, and seal

Reimbursables

Quantity Estimate

Faxes (1 faxes/wk)(2 pgs/fax)(8 wk)(3 file copies) = 48 pages  
 Postage Certification distribution; estimate at \$50  
 Xerox Reproduction (250 pages)(8 copies) = 2000 pages  
 Graphics Reproduction As built: (15 sheets)(6 copies/sheet) = 90 sheets  
 Equipment/Supplies Binders, inserts, etc., estimate at \$400  
 Computer Time- Word Process Computer time from admin manpower = 10 hours  
 Computer Time- CADD CADD time from manpower = 20 hours

# SCS ENGINEERS

Sheet 7C of         

Client Hardee County	Project Permit Renewal	Job No. 09199033.08
Subject Closing Costs	By LEK	Date 3/21/2003
	Checked	Date

**Item 11 - Professional Services**

**11 a - Contract Management Full-time during construction**

<u>Manpower</u>	<u>Hours</u>	<u>Reasoning</u>
Sr. Proj Engineer	120	Project management
Equals PE Supervisor =	120	Use Sr. Project Engineer rate
 Staff Engineer	 160	 On site full-time
<u>Administration</u>	<u>32</u>	<u>Office assistance</u>
Equals on-site tech =	32	Use Secreterial/Clerical Rate

<u>Reimbursables</u>	<u>Quantity Estimate</u>
Rental Truck for Eng	(2 work months)(\$1050/month) = \$2,100
Cell Phone for Eng	(60 work days)(\$5/day) = \$300
Meals	30 days (1 month)
Lodging	30 days (1 month)
Faxes	(2 pgs/fax)(2 faxes/wk)(26 wks)(3 file copies) = 312 pgs
Xerox Reproduction	Meeting Minutes, letters: (10 pgs/wk)(26 wks)(3 copies) = 780 pages

**11 b - Quality Assurance During placement of fill & top soil**

To cover manpower and testing assume \$2500/acre of closure  
 $\$2500/\text{acre} \times 16.7 \text{ acres} = \$41,750$

<u>Reimbursables</u>	<u>Quantity Estimate</u>
Cell Phone for Eng	Included in Contract Management Costs
Rental Truck for Eng	Included in Contract Management Costs
Meals	30 days (1 month)
Lodging	30 days (1 month)
Equipment & Supplies	Estimate at \$1,500



**MANPOWER AND FEE ESTIMATE - ITEMS 10 AND 11, FINANCIAL ASSURANCE  
HARDEE COUNTY REGIONAL LANDFILL CLOSURE**

**Task Key**

10 a - Closure Plan Report  
10 b - FDEP Coordination  
10 c - Bidding

10 d - Final Survey  
10 e - Construction Certification

11 a - Contract Management  
11 b - CQA

Personnel						Professional Services		Total (hours)	Rate (\$)	Total (\$)
	10 a	10 b	10 c	10 d	10 e	11 a	11 b			
Project Director	10	8	8	0	4	0	0	30	140	4,200
Senior Project Professional	40	16	16	0	12	120	0	204	98	19,992
Project Professional	0	0	0	0	0	0	0	0	80	0
Staff Professional	120	20	32	24	120	160	0	476	70	33,320
Designer/Drafter	80	20	20	0	20	0	0	140	55	7,700
Technician	0	0	0	0	0	0	0	0	45	0
Administrative Assistant	40	0	16	0	10	32	0	98	40	3,920
Subtotal Labor (hours)	290	64	92	24	166	312	0	948		
Subtotal Labor (\$)	19,720	5,188	6,668	1,680	11,636	24,240	0			69,132
Reimbursables (See Table 2)	3,704	379	1,276	5,000	1,514	5,664	45,500			63,037
G&A, 15 percent reimbursables	556	57	191	750	227	850	6,825			9,456
Total reimbursables	4,260	436	1,467	5,750	1,741	6,514	52,325			72,493
<b>Subtotal, Fee Estimate</b>	<b>23,980</b>	<b>5,624</b>	<b>8,135</b>	<b>7,430</b>	<b>13,377</b>	<b>30,754</b>	<b>52,325</b>			<b>141,625</b>
	<b>Closure Plan Report</b>									
	Total = 37,739					Say ==> \$141,600				

**MANPOWER AND FEE ESTIMATE - ITEMS 10 AND 11, FINANCIAL ASSURANCE  
HARDEE COUNTY REGIONAL LANDFILL CLOSURE**

**MANPOWER AND FEE ESTIMATE (Task Amounts)**

**Task Key**

**10 a - Closure Plan Report**

**10 d - Final Survey**

**11 a - Contract Management**

**10 b - FDEP Coordination**

**10 e - Construction Certification**

**11 b - CQA**

**10 c - Bidding**

<b>Personnel</b>	<b>10 a</b>	<b>10 b</b>	<b>10 c</b>	<b>10 d</b>	<b>10 e</b>	<b>11 a</b>	<b>11 b</b>
Project Director	1,400	1,120	1,120	0	560	0	0
Senior Project Professional	3,920	1,568	1,568	0	1,176	11,760	0
Project Professional	0	0	0	0	0	0	0
Staff Professional	8,400	1,400	2,240	1,680	8,400	11,200	0
Designer/Drafter	4,400	1,100	1,100	0	1,100	0	0
Technician	0	0	0	0	0	0	0
Administrative Assistant	1,600	0	640	0	400	1,280	0
<b>Subtotal Labor (\$)</b>	<b>19,720</b>	<b>5,188</b>	<b>6,668</b>	<b>1,680</b>	<b>11,636</b>	<b>24,240</b>	<b>0</b>

**MANPOWER AND FEE ESTIMATE - ITEMS 10 AND 11, FINANCIAL ASSURANCE  
HARDEE COUNTY REGIONAL LANDFILL CLOSURE**

**REIMBURSABLES ESTIMATE (Task Amounts)**

**Task Key**

10 a - Closure Plan Report

10 d - Final Survey

11 a - Contract Management

Reimbursable

10 b - FDEP Coordination

10 e - Construction Certification

11 b - CQA

Total =

63,037

10 c - Bidding

Reimbursable	Unit Cost (\$)	Unit									Total Units	Total (\$)
			10 a	10 b	10 c	10 d	10 e	11 a	11 b			
Subconsultants, Topographic survey	1	LS	2,500			5,000					7,500	7,500
Subcontractors/Drillers	1	LS									0	0
Outside Lbr/Temp Svcs	1	LS									0	0
Laboratory Services	1	EA									0	0
Vehicle Mileage (Auto)	0.36	MI									0	0
Vehicle Mileage (Truck)	0.50	MI									0	0
Company Vehicle	50	DA									0	0
Rental Truck, Engineer	1050	MO							2		2	2,100
Rental Truck, Technician	0	MO									0	0
Parking & Tolls	1	LS									0	0
Air Fare	1	EA									0	0
Meals	25	DA							30	30	60	1,500
Lodging, Hotel	50	DA							30	30	60	3,000
Cell Phone for Engineer	5	DA							60		60	300
Faxes	3	PG	32	16	72		48		312		480	1,440
Postage & Freight	1	LS			240		50				290	290
Reproduction (Xerox)	0.1	EA	640	80	2,400		2,000		780		5,900	590
Reproduction (Graphics) CADD	3	EA	48	41	180		90				359	1,077
Equipment/Supplies	1	LS					400			1,500	1,900	1,900
Draeger Tubes	5	EA									0	0
Gas Meters	50	DA									0	0
Equipment Rental	1	LS									0	0
Computer (Word Process)	5	HR	20		8		10				38	190
Computer (CADD)	20	HR	40	10			20				70	1,400
Quality Assurance Manpower/Testing	1	LS								41,750		41,750
Licenses/Permits	1	LS	0								0	0

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Long-Term Care	BY LEK	DATE 3/21/03
	CHECKED ECC	DATE 4/16/03

## 1 Groundwater Monitoring

Monitored semi-annually for the following parameters:

### Field Parameters

Static Water Levels (prior to purging)

Specific Conductivity

pH

Dissolved Oxygen

Turbidity

Temperature

Colors & Sheens

THESE ARE COSTS INCURRED  
BY SAMPLING FIRM

### Lab Parameters

Total Ammonia - N

Chlorides

Iron

Mercury

Nitrate

Sodium

Total Dissolved Solids (TDS)

40 CFR Part 258, Appendix I

The following 6 wells are to be tested:

MW-1

MW-2

MW-4

MW-5

MW-8

MW-9

Plus 2 samples for QA/QC (ie field equipment rinse blank & field duplicate) (Short)

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Long-Term Care	BY LEK	DATE 3/21/03
	CHECKED ECC	DATE 4/16/03

## 1. Groundwater Monitoring (cont.)

Cost

Short + Environmental Laboratories (800)833-4022

Semi-Annual Groundwater Sampling \$400/sample

Sample Collection \$25/hr  
(assume 1hr/sample)

Semi-Annual Cost

$$\frac{1 \text{ hr}}{\text{sample}} \times \frac{\$25}{\text{hr}} + \frac{\$400}{\text{sample}} = \frac{\$425}{\text{sample}}$$

Estimate on Sheet 9C

## SHORT ENVIRONMENTAL LABORATORIES, INC.

10405 US 27 South

Sebring, Florida 33870

1-800-833-4022

HRS# 85344 &amp; E85458, FDEP QAP# 880516

803

~~(941) 655-4022~~

07-21-99

For: Attn: J.R. Prestridge  
 Hardee County Solid Waste Department  
 685 Airport Road  
 Wauchula, FL 33873

Dear Mr. Prestridge:

Please find below a revised fee schedule for the Hardee County Landfill:

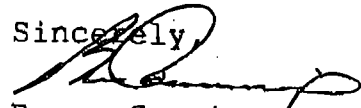
Semi-annual groundwater monitoring;	\$ 400.00/sample
Semi-annual leachate monitoring;	\$ 420.00/sample
Semi-annual surface water monitoring;	\$ 580.00/sample
Annual leachate monitoring;	\$1250.00/sample
Semi-annual water levels;	\$ 5.00/each
Quarterly methane readings;	<sup>100</sup> \$ <del>25.00</del> /sample
Sample collection / hr:	\$ 25.00/hr

We have been able to reduce some of our costs related to sampling and analysis at the landfill, therefore, we are able to extend a better discount for this project.

We appreciate the opportunity to continue providing the County with our services. Should you have any questions, please feel free to call me. Thank you.

All duplicates are paid for by Short. (per Bruce Cummings, 4/4/03, 3:30 pm)

Sincerely,

  
 Bruce Cummings  
 Laboratory Director

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Long-Term Care	BY LEK	DATE 3/21/03
	CHECKED ecc	DATE 4/14/03

## 2. Surface Water Monitoring

Monitored every 6 months for the following parameters:

### Field Parameters

Specific Conductivity  
pH  
Dissolved Oxygen  
Turbidity  
Temperature  
Color & Sheen

### Laboratory Parameters

Zinc  
Unionized Ammonia  
Total Hardness  
Biochemical Oxygen Demand  
Copper  
Iron  
Mercury  
Nitrate  
Total Dissolved Solids  
Total Organic Carbon  
Fecal Coliforms  
Total Phosphorous  
Chlorophyll A  
Total Nitrogen  
Chemical Oxygen Demand  
Total Suspended Solids  
40 CFR Part 258, Appendix I

SW-1 is the sample location



CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033 08
SUBJECT Long-Term Care	BY LEK	DATE 3/21/03
	CHECKED Ecc	DATE 4/16/03

## 2. Surface Water Monitoring (cont.)

Cost

Short Environmental Laboratories (800) 833-4022

Semi-Annual surface water monitoring \$580/sample

Sample Collection \$25/hr  
(Assume 1 hr/sample)

Semi-Annual Cost

$$\frac{1 \text{ hr}}{\text{sample}} \times \frac{\$25}{\text{hr}} + \frac{\$580}{\text{sample}} = \frac{\$605}{\text{sample}}$$

Estimate on sheet 9C

CLIENT Hirdee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Long-Term Care	BY LEK	DATE 3/21/03
	CHECKED ECC	DATE 4/16/03

### 3. Gas Monitoring

Monitored every 3 months:

Quarter 1	April 15 <sup>th</sup>
Quarter 2	July 15 <sup>th</sup>
Quarter 3	October 15 <sup>th</sup>
Quarter 4	January 15 <sup>th</sup>

Gas Probes GP-1 through GP-9 will be Monitored

#### Cost

SCS Field Services

\$ 750/quarter

8 hours of a technician's time @ \$45/hr = 8 hr × \$45/hr = \$360

GEM rental @ \$60/day = 1 day × \$60/day = \$60

2 hour of a staff engineer's time @ \$70/hr = 2 hr × \$70/hr = \$140  
(for writing report)

vehicle rental for 1 day @ \$50/day = 1 day × \$50/day = \$50

1.0 hour of a project manager's time @ \$140/hr = 1.0 × \$140/hr = \$140

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.03
SUBJECT Long-Term Care	BY LEK	DATE 3/21/03
	CHECKED Ecc	DATE 4/16/03

#### 4. Leachate Monitoring

Monitored every 6 months at Manhole 1 for the following parameters:

##### Field Parameters

Specific Conductivity  
pH  
Dissolved Oxygen  
Colors & Sheens

##### Lab Parameters

Total Ammonia - N  
Bicarbonate  
Chlorides  
Iron  
Mercury  
Nitrate  
Sodium  
Total Dissolved Solids  
40 CFR Part 258, Appendix I

Monitored annually at Manhole 1 for 40 CFR Part 258, Appendix II

Plus 2 additional samples for QA/QC (i.e. field equipment rinse & field duplicate) (Short)

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Long-Term Care.	BY LEK	DATE 3/21/03
	CHECKED ECC	DATE 4/16/03

## 4 Leachate Monitoring (cont.)

Cost

Short Environmental Laboratories (800) 833-4022

Semiannual Leachate monitoring \$420/sample

Annual Leachate Monitoring \$1250/sample

Sample Collection \$25/hr  
(Assume 1 hr/sample)

Semi-Annual Cost

$$\frac{1 \text{ hr}}{\text{sample}} \times \frac{\$25}{\text{hr}} + \frac{\$420}{\text{sample}} = \frac{\$445}{\text{sample}}$$

Annual Cost

$$\frac{1 \text{ hr}}{\text{sample}} \times \frac{\$25}{\text{hr}} + \frac{\$1250}{\text{sample}} = \frac{\$1275}{\text{sample}}$$

Estimate on Sheet 9C

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Long-Term Care	BY LEK	DATE 3/25/03
	CHECKED ECC	DATE 4/16/03

### 5 Leachate Collection/Treatment System Maintenance

Estimate that leachate generation will decrease by 75% with the closed landfill.

From 2002 Annual Leachate Water Balance Summary (see Sheet 13C)  
7,575,540 gal of leachate was generated in 2002.

$$\text{Leachate Quantity for Post Closure} = 0.25 \times 7,575,540 \text{ gal} = 1,893,890 \text{ gal}$$

$$\text{Leachate Disposal Quantity} = 1,893,890 \text{ gal}$$

#### Leachate Disposal Cost

Per agreement w/ Hardee County Landfill & the City of Wauchula

\$217.76 for first 6000 gal

\$4.49 for additional 1000 gal

& a 25% surcharge

$$\text{Cost} = \left[ \frac{\$217.76}{6000 \text{ gal}} \times 6000 \text{ gal} + \frac{\$4.49}{1000 \text{ gal}} \times (1,893,890 \text{ gal} - 6000 \text{ gal}) \right] 1.25$$

$$= \$10,868$$

#### Leachate Hauling Cost

Estimate 2 load/day @ \$5/load for truck

Estimate 1 hauler on site at 1.5 hr/load at a rate of \$15/hr

$$\text{Cost} = \frac{\$5}{\text{load}} \times \frac{2 \text{ load}}{\text{day}} \times \frac{1 \text{ day}}{\text{week}} \times \frac{52 \text{ week}}{\text{year}} + \frac{\$15}{\text{hr}} \times \frac{1.5 \text{ hr}}{\text{load}} \times \frac{2 \text{ load}}{\text{day}} \times \frac{312 \text{ day}}{\text{year}}$$

$$= \$17,160 \text{ year}$$

Clean/Inspect Leachate lines every 5 years

Quote from JetClean (see Sheet 13B)

\$4450/event

**FLORIDA JETCLEAN INC.**

P.O. 45516

**HIGH PRESSURE WATER JETTING-PIPELINE TV INSPECTION-PIPE LOCATING**37 Windward Island  
Clearwater Fl 33767TEL : 727-462-5516  
800-226-8013  
FAX : 727-442-2222**FAX/MEMORANDUM**DATE : 4/8/2003  
TO : Janice Williamson, Hardee County  
FROM : Graeme Towns  
SUBJECT : leachate Collection System Maintenance

Thank you for your inquiry.

We understand that there is approx. 3100' of 8" leachate piping and on this basis, we quote as follows:

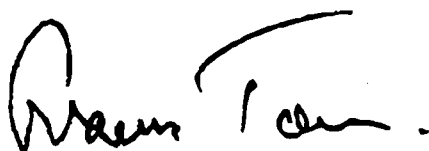
To jetclean and video inspect the above pipes:

\$4450.00

subject to:

- An adequate no charge on site water supply
- Water/debris/silt generated by any cleaning will be flushed through to pump station. No debris pumping/removal included in this bid..
- 2 wheel drive vehicle access within 10'-15' of each cleanout
- Continuity of access allowing work to be carried out on a single mobilization
- Exposed and opened cleanouts at ground level
- Standby time chargeable at \$100.00 per hour should delays not of our making delay progress e.g. bad weather, access problems, high leachate flow levels etc.
- Current technology limitations may preclude the use of tractor video systems (range 1000') in 8" lines restricted to cleanout access. If a push video system has to be used, we will be limited to a maximum 500' from each point of entry.
- Our equipment and procedures fully meet OSHA and DEP requirements. In particular our video inspection equipment is certified Class 1, Division 1, Groups C & D (i.e. explosion proof). This is required in methane piping per OSHA.
- All pricing subject to both jetting and video work being carried out by this company.
- Pricing is unrelated to actual or achieved footages but on the number of setups required and the time we anticipate being on site.
- Payment : net 30 days -

Regards,



2002 ANNUAL LEACHATE WATER BALANCE SUMMARY

hauled

MONTH	RAINFALL (inches)	TOTAL LEACHATE COLLECTED	GALLONS STORED IN TANKS (NET DIFFERENCE)	TOTAL LEACHATE TREATED	BALANCE
JANUARY, 2002	2.10	310,335	72,991	236,385	959
FEBRUARY, 2002	8.50	511,504	2,255	509,850	-601
MARCH, 2002	0.00	313,148	24,384	347,625	-10,093
APRIL, 2002	4.40	467,979	21,710	447,300	-1,031
MAY, 2002	2.80	653,515	19,874	665,980	7,409
JUNE, 2002	12.00	706,041	19,401	670,950	15,690
JULY, 2002	13.70	1,365,697	419	1,121,506	244,610
AUGUST, 2002	3.60	721,328	50,548	795,200	-23,324
SEPTEMBER, 2002	10.00	718,690	37,649	680,890	151
OCTOBER, 2002	5.00	823,036	54,114	874,720	2,430
NOVEMBER, 2002	6.85	603,039	55,110	575,050	-27,121
DECEMBER, 2002	4.90	381,228	43,365	469,420	-44,828
TOTAL FOR 2002	73.85	7,575,540	401,820	7,394,876	164,252



# SCS ENGINEERS

CLIENT Hardee	PROJECT Permit Renewal	JOB NO 09199033.08
SUBJECT Long - Term Care	BY LEK	DATE 3/25/03
	CHECKED ECC	DATE 4/16/03

6. Leachate Collection/Treatment System Operation

Accounted for in Administrative cost & Leachate System operation

CLIENT Hardee	PROJECT Permit Renewal	JOB NO 09199033.08
SUBJECT Long-Term Care	BY LEK	DATE 3/25/03
	CHECKED ECC	DATE 4/16/03

## 7. Maintenance of Groundwater Monitoring Wells

Assume 1 wellhead needs redevelopment per year

4 hours of a technicians time @ \$45/hr = 4 hr × \$45/hr = \$180

Replace 1 well every five years

Cost to install 1 groundwater monitoring well = \$925

Source: Universal Engineering Sciences (Sheet 15B & C)  
November 5, 2001

2003 Cost =  $\frac{\$925}{\text{well}} \times 1.04 = \$962/\text{well}/5 \text{ years}$

UNIVERSAL ENGINEERING SCIENCES, INC.

WORK AUTHORIZATION / PROPOSAL ACCEPTANCE FORM

Universal Engineering Sciences, Inc. (UES) is pleased to provide the services described below. The purpose of this document is to describe the terms under which the services will be provided and to obtain formal authorization.

PROJECT NAME: West River Road C & D Landfill
PROJECT LOCATION: Palatka, FL
CLIENT NAME: SCS Engineers - Ms. Sheila Carpenter Date: November 5, 2001
CLIENT ADDRESS: 3012 US Highway 301 N., Suite 700 Tampa, Florida 33619 Phone No.: 813-621-0080 Fax No.: 813-623-6757

- Install one (1), 2 inch diameter Type II groundwater monitoring well (CW-4A) to a depth of 15 feet in accordance with section 3.2.2 Proposed Well Construction of the Facility Groundwater Monitoring Plan.
- Develop the well by pumping
- Provide a water tight well cap, protective cover with lock and a 2'x2'x4" concrete well pad
- Well screen will be 10' long with 0.010" openings and a 20-30 Silica Sand Pack
- Abandon CW-4 and BW-1

Estimated Fee \$1,025.00 (See Attached Fee Extension)

UES Proposal No. 2001J-707

- II. Contract Documents. The following documents form part of this Agreement and are incorporated herein by referral:
A. UES General Conditions.
B. UES Proposal Dated: November 5, 2001
C. Plans, reports, specifications and other documents provided by the Client prior to this Agreement date.
D. Other exhibits marked and described as follows:

In the event of any inconsistency or conflict among the Contract Documents, the provision in the Contract Document first listed above shall govern.

III. Authority to proceed and for payment (To be completed by Client)

If the invoice is to be mailed for approval to someone other than the account charged, please indicate where below:

Firm: Social Security Number or Federal Identification No.:
Address:
Attention: Title:

IN WITNESS WHEREOF, the parties have caused this agreement to be executed by their duly authorized representatives

CLIENT BY (Signature) TYPED NAME TITLE DATE
UNIVERSAL ENGINEERING SCIENCES BY (Signature) Lewis E. Hay, P.E. Chief Engineer November 5, 2001

RETURN EXECUTED COPIES TO
UNIVERSAL ENGINEERING SCIENCES
5561 FLORIDA MINING BOULEVARD SOUTH, JACKSONVILLE, FLORIDA 32257-3648
TELEPHONE: 904-296-0757 / FAX: 904-296-0748



FEE EXTENSION

West River Road C & D Landfill  
Palatka; Florida

UES Proposal No. 2001J-707  
November 5, 2001

Item	No. of Units	Unit	Cost Per Unit	Estimated Fee
Install CW - 4 A	1	each	\$925.00	\$925.00
Abandon CW - 4 and BW - 1	2	each	\$50.00	\$100.00
<b>Total Estimate :</b>				<b>\$1,025.00</b>



CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Long-Term Care	BY LEK	DATE 3/25/03
	CHECKED ECC	DATE 4/16/03

## 8. Gas System Maintenance

Estimate that one well need repaired every year.

Cost

SCS Field Services

Requires 1 day of a technicians time @ \$45/hr = 8 hr x \$45 = \$360  
hr

Mat'l to repair well = \$100

Repair Cost = \$460

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Long-Term Care	BY LEK	DATE 3/24/03
	CHECKED ECC	DATE 4/16/03

9. Landscape

Mowing 6 times per year

$$\text{Mowing Area} = 16.7 \text{ acres} \times 6 = 100 \text{ acres}$$

$$\text{Mowing Area} = 100 \text{ acres}$$

Cost

Per Janice Williamson & Hardee County Public Works

$$\underline{\$12,150} \text{ -to mow 6 times a year}$$

Year

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Long-Term Care	BY LEK	DATE 3/24/03
	CHECKED ECC	DATE 4/16/03

## 10. Erosion Control &amp; Cover Maintenance

Estimate 0.25 acre erosion washout w/ 500sf (56sy) geosynthetic liner

## • Sod Cost

FOOT 2001 Cost for Bahia Sod

Item 575-11 \$1.13/sy

$$2003 \text{ Cost} = \$1.13/\text{sy} \times 1.04 = \$1.18/\text{sy}$$

$$\frac{0.25 \text{ acre} \times 43,560 \text{ sf}}{\text{acre}} \times \frac{\text{sy}}{9 \text{ sf}} = 1210 \text{ sy}$$

## • Geosynthetic Repair

Use 125% of installed cost

40-mil installed cost = \$3.21/sy (see Closing Costs Sheet 2A)

$$\frac{\$3.21}{\text{sy}} \times 1.125 = \$3.61/\text{sy}$$

• Regrading will be done by on-site technician (see Administrative Item 14)

CLIENT Hardee.	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Long-Term Care	BY LEK	DATE 3/24/03
	CHECKED ECC	DATE 4/16/03

11. Stormwater Management System Maintenance

The maintenance of the stormwater management system has been covered under Items 9 & 10 of the long-term care plan. These two items address any mowing or earthwork required to maintain the stormwater conveyances.



CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 0910903308
SUBJECT Long-Term Care	BY LEK	DATE 3/24/03
	CHECKED ECC	DATE 4/16/03

## 12. Security System Maintenance

Estimate 50 LF of fence requires repair or replacement

## Cost

FOOT Contract History 2001

Item 550-2-7 8' Type B Fence \$20.70/LF

$$2003 \text{ Cost} = \$20.70/\text{LF} \times 1.04 = \$21.53/\text{LF}$$

Replace 1 gate every 5 years

## Cost

2002 RS Means Site Work & Landscape Data

02820 528 5070 Gate 8' high, 20' opening \$1475/gate

$$2003 \text{ Cost} = \$1475/\text{gate} \times 1.02 = \$1505/\text{gate} / 5 \text{ years}$$

**02800 | Site Improvements and Amenities**

**2 SITE CONSTRUCTION**

	<b>02820   Fences &amp; Gates</b>	CREW	DAILY OUTPUT	LABOR HOURS	UNIT	2002 BARE COSTS				TOTAL INCL O&P
						MAT.	LABOR	EQUIP.	TOTAL	
500	0200 Galv. steel, 12 ga., 2" x 4" mesh, posts 5' O.C., 3' high	B-80	300	.107	L.F.	1.62	2.75	1.87	6.24	8.00
	0300 5' high	↓	300	.107	↓	2.16	2.75	1.87	6.78	8.60
	0400 14 ga., 1" x 2" mesh, 3' high	↓	300	.107	↓	1.73	2.75	1.87	6.35	8.10
	0500 5' high	↓	300	.107	↓	2.38	2.75	1.87	7	8.90
	1000 Kennel fencing, 1-1/2" mesh, 6' long, 3'-6" wide, 6'-2" high	2 Clab	4	4	Ea.	270	94		364	440
	1050 12' long	↓	4	4	↓	325	94		419	500
	1200 Top covers, 1-1/2" mesh, 6' long	↓	15	1.067	↓	55	25		80	99.50
	1250 12' long	↓	12	1.333	↓	88	31.50		119.50	145
	1300 For kennel doors, see division 08344-350									
	4500 Security fence, prison grade, set in concrete, 12' high	B-80	25	1.280	L.F.	22	33	22.50	77.50	99.50
	4600 16' high	↓	20	1.600	↓	26.50	41	28	95.50	124
	5300 Tubular picket, steel, 6' sections, 1-9/16" posts, 4' high	↓	300	.107	↓	16.80	2.75	1.87	21.42	24.50
	5400 2" posts, 5' high	↓	240	.133	↓	23.50	3.43	2.33	29.26	33.50
	5600 2" posts, 6' high	↓	200	.160	↓	26.50	4.12	2.80	33.42	38.50
	5700 Staggered picket 1-9/16" posts, 4' high	↓	300	.107	↓	15.15	2.75	1.87	19.77	23
	5800 2" posts, 5' high	↓	240	.133	↓	25	3.43	2.33	30.76	35.50
	5900 2" posts, 6' high	↓	200	.160	↓	26	4.12	2.80	32.92	38
	6200 Gates, 4' high, 3' wide	B-1	10	2.400	Ea.	146	58		204	251
	6300 5' high, 3' wide	↓	10	2.400	↓	189	58		247	298
	6400 6' high, 3' wide	↓	10	2.400	↓	195	58		253	305
	6500 4' wide	↓	10	2.400	↓	227	58		285	340
528	0010 <b>FENCE, CHAIN LINK INDUSTRIAL</b> , schedule 40									
	0020 3 strands barb wire, 2" post @ 10' O.C., set in concrete, 6' H									
	0200 9 ga. wire, galv. steel	B-80	240	.133	L.F.	7.80	3.43	2.33	13.56	16.40
	0300 Aluminized steel	↓	240	.133	↓	10.05	3.43	2.33	15.81	18.80
	0500 6 ga. wire, galv. steel	↓	240	.133	↓	12.65	3.43	2.33	18.41	21.50
	0600 Aluminized steel	↓	240	.133	↓	14.50	3.43	2.33	20.26	24
	0800 6 ga. wire, 6' high but omit barbed wire, galv. steel	↓	250	.128	↓	12.25	3.30	2.24	17.79	21
	0900 Aluminized steel	↓	250	.128	↓	17.15	3.30	2.24	22.69	26.50
	0920 8' H, 6 ga. wire, 2-1/2" line post, galv. steel	↓	180	.178	↓	19.95	4.58	3.11	27.64	32.50
	0940 Aluminized steel	↓	180	.178	↓	24.50	4.58	3.11	32.19	37.50
	1400 Gate for 6' high fence, 1-5/8" frame, 3' wide, galv. steel	↓	10	3.200	Ea.	98.50	82.50	56	237	297
	1500 Aluminized steel	↓	10	3.200	"	120	82.50	56	258.50	320
	2000 5'-0" high fence, 9 ga., no barbed wire, 2" line post,									
	2010 10' O.C., 1-5/8" top rail									
	2100 Galvanized steel	B-80	300	.107	L.F.	6.50	2.75	1.87	11.12	13.40
	2200 Aluminized steel	↓	300	.107	"	7.85	2.75	1.87	12.47	14.80
	2400 Gate, 4' wide, 5' high, 2" frame, galv. steel	↓	10	3.200	Ea.	108	82.50	56	246.50	310
	2500 Aluminized steel	↓	10	3.200	"	119	82.50	56	257.50	320
	3100 Overhead slide gate, chain link, 6' high, to 18' wide	↓	38	.842	L.F.	97	21.50	14.75	133.25	157
	3105 8' high	↓	30	1.067	↓	97	27.50	18.70	143.20	170
	3108 10' high	↓	24	1.333	↓	81	34.50	23.50	139	167
	3110 Cantilever type	↓	48	.667	↓	41	17.15	11.65	69.80	84.50
	3120 8' high	↓	24	1.333	↓	59.50	34.50	23.50	117.50	144
	3130 10' high	↓	18	1.778	↓	70.50	46	31	147.50	182
	5000 Double swing gates, incl. posts & hardware									
	5010 5' high, 12' opening	B-80	3.40	9.412	Opng.	290	242	165	697	870
	5020 20' opening	↓	2.80	11.429	↓	395	294	200	889	1,100
	5060 6' high, 12' opening	↓	3.20	10	↓	490	258	175	923	1,125
	5070 20' opening	↓	2.60	12.308	↓	675	315	216	1,206	1,475
	5080 8' high, 12' opening	↓	2.13	15.002	↓	760	385	263	1,408	1,725
	5090 20' opening	↓	1.45	22.069	↓	1,000	570	385	1,955	2,400
	5100 10' high, 12' opening	↓	1.31	24.427	↓	865	630	430	1,925	2,375
	5110 20' opening	↓	1.03	31.068	↓	1,300	800	545	2,645	3,250
	5120 12' high, 12' opening	↓	1.05	30.476	↓	1,275	785	535	2,595	3,175

# SCS ENGINEERS

SHEET 21A OF \_\_\_\_\_

CLIENT Hardee	PROJECT Permit Renewal	JOB NO. 09199033.08
SUBJECT Long-Term Care	BY LEK	DATE 3/24/03
	CHECKED ECC	DATE 4/16/03

## 13. Utilities

Estimate at \$500/year for leachate pumps & other electrical requirements

**Lindsey Eldridge**

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**From:** Williamson, Janice  
[janice.williamson@hardeecounty.net]

**Sent:** Friday, April 11, 2003 10:01 AM

**To:** lkennelly@scsengineers.com

**Subject:** Requested Information

Good Morning Lindsey:

The Accounting Department has estimated an average of \$500 per year for utilities, for the leachate pumps and loading station.

Thanks and have a great weekend.  
Janice

Sheet 21B

CLIENT Harder	PROJECT Permit Renewal	JOB NO. 02199033.03
SUBJECT Long-Term Care	BY LEK	DATE 3/24/03
	CHECKED ECC	DATE 7/16/03

1A Administrative

P.E. Supervisor - Quarterly Site Visit @ \$98/hr

$$\frac{4 \text{ hrs}}{\text{visit}} \times \frac{4 \text{ visits}}{\text{yr}} \times \frac{\$98}{\text{hr}} = \$1568/\text{yr}$$

On-Site Technician - 2 days/month @ \$45/hr

$$\frac{8 \text{ hr}}{\text{day}} \times \frac{2 \text{ day}}{\text{month}} \times \frac{12 \text{ month}}{\text{yr}} \times \frac{\$45}{\text{hr}} = \$8640/\text{yr}$$