Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

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

September 6, 2000

RE: Citrus County Central Landfill Financial Assurance Cost Estimates
Permit Nos: 126601-002-SF, Closed 60-acre Class 1
SO09-274381, Active 80-acre Class 1
GMS 4009C00086

Dear Ms. Metcalfe:

This letter is to acknowledge receipt of the inflation-adjusted cost estimates, prepared by Citrus Co. Dept. of Public Works dated August 28, 2000 (received August 31, 2000), for closing and long-term care of the Citrus County Landfill (active 80-acres and closed 60-acres). The cost estimates received August 31, 2000, (total for closing $2,756,702 and $159,997.50/year x 30 years = $4,799,925 total for long-term care), are **APPROVED for 2000**. The next annual update (revised or inflation-adjusted estimates) is due no later than September 1, 2001.

A copy of these estimates will be forwarded to Mr. Fred Wick, Solid Waste Section, FDEP, 2600 Blair Stone Road, Tallahassee, Florida 32399-2407. Please work with him directly to assess the facility's compliance with the funding mechanism requirements of Rule 62-701.630, F.A.C. If you have any questions, you may contact me at (813) 744-6100 ext. 375.

Sincerely,

Stephanie Petro

Stephanie Petro
Environmental Specialist I
Solid Waste Compliance/Enforcement
Southwest District

cc: Kenneth E. Saunders, Jr., Director, Public Works Department
Richard Wm. Wesch, Esq., Interim County Administrator
Sarah Koser, Finance Director, Clerk's Office
Fred Wick, FDEP, Tallahassee, w/attachment
Robert Butera, P.E., FDEP Tampa
Susan Pelz, P. E., FDEP Tampa
Kim Ford, P.E., FDEP Tampa

8 24 '00

8 24 '00

CITRUS CO. CENTRAL LF 8/24/00
CITRUS COUNTY S PETRO

CITRUS CO. CENTRAL LF 8/24/00
CITRUS COUNTY S PETRO

IC #5
22 MAR 00
8 24 '00

8 24 '00

8 24 '00

CITRUS CO. CENTRAL LF 8/24/00
CITRUS COUNTY S PETRO

CITRUS CO. CENTRAL LF 8/24/00
CITRUS COUNTY S PETRO

CITRUS CO. CENTRAL LF 8/24/00
CITRUS COUNTY S PETRO

SA
1.5.00
Cayuga
York
8 24 '00

8 24 '00

CITRUS CO. CENTRAL LF 8/24/00
CITRUS COUNTY S PETRO

CITRUS CO. CENTRAL LF 8/24/00
CITRUS COUNTY S PETRO

CITRUS CO. CENTRAL LF 8/24/00
CITRUS COUNTY S PETRO

SA
1.S.OS
OY
8 24 '00

8 24 '00

8 24 '00

CITRUS CO. CENTRAL LF
CITRUS COUNTY

8/24/00
S PETRO

CITRUS CO. CENTRAL LF
CITRUS COUNTY

8/24/00
S PETRO

CITRUS CO. CENTRAL LF
CITRUS COUNTY

8/24/00
S PETRO

HOT TOPIC - SOLID WASTE - AUGUST

Citrus County Central Landfill:

On July 28, 2000, the DEP Solid Waste Section - SWD was notified that the Citrus County's Central landfill liner had torn and the cause was being investigated. On August 2nd, DEP received additional information and report with results of the investigation. The investigation concludes that the liner has stress cracks caused by inadequate resin from the manufacturing process combined with oxidation of the carbon black caused from prolonged UV exposure, temperature differences, and liner stress. On August 24th, DEP District and Tallahassee staff visited the site and met with the County and their consultants to discuss corrective actions. Possible alternatives are to repair and cover the exposed liner with waste, or cut out the old liner and replace it, or a combination of replacement and covering. The steep sideslopes cause greater concern for stability of liner replacement, and less concern for potential leakage. The liner problem has been observed on exposed areas, primarily in the upper 20 feet of the sideslopes and is not anticipated to be a problem in lower previously filled areas.

Due to concern with failure of landfill liners resulting from extended UV exposure, the Department is proposing a rule revision to F.A.C. 62-701 in conjunction with numerous recommended proposed rule changes, including the maximum time a landfill liner can be exposed to ultra-violet light prior to disposal. These rule revisions are anticipated to be proposed to the ERC in August.

INTEROFFICE MEMORANDUM

Sensitivity: COMPANY CONFIDENTIAL

Date: 28-Aug-2000 03:26pm
From: Kim Ford TPA
FORD_K
Dept: Southwest District Office
Tel No: 813/620-6100

To: Robert Butera TPA (BUTERA_R)

Subject: hot topic - citrus liner

HOT TOPIC

Citrus County Central Landfill:

On July 28, 2000 the Dep Solid Waste Section – SWD was notified that the Citrus County's landfill liner was torn and the cause being investigated. On August 2nd, DEP received additional information and report with results of the investigation. The investigation concludes that the liner has stress cracks caused by inadequate resin from manufacturing combined with UV exposure, temperature differences, and liner stress. On August 24th, DEP staff visited the site and met with the County and consultants to discuss corrective actions. Possible alternatives are repair and cover the exposed liner with waste, or cut out old liner and replace it, or a combination of replacement and covering. The steep sideslopes cause greater concern for stability of liner replacement, and less concern for potential leakage. The liner problem has been observed only on exposed areas, primarily in the upper 20 feet of the sideslopes and is not expected to be a problem in lower previously filled areas.

LONG-TERM PERFORMANCE TESTS OF GEOMEMBRANES AND THEIR RELATIONSHIP TO GEOMEMBRANE WARRANTY ISSUES

Robert E. Mackey, P.E.
S2L, Incorporated
Maitland, Florida

Y. Grace Hsuan, Ph. D.
Geosynthetic Institute
Drexel University
Folsom, Pennsylvania

ABSTRACT

This paper describes, from an engineer's perspective, specification GRI-GM13, "Testing Properties, Testing Frequency and Recommended Warranty of High Density Polyethylene (HDPE) Geomembranes". GRI-GM13 was developed as a manufacturer quality control specification; it defines test method, minimum requirement value and testing frequency. The uniqueness of this specification is a detailed description of long-term performance tests. Three different tests are specifically designated to address the antioxidant package, which is the essential contributor regarding the durability and long-term performance of HDPE geomembranes. A discussion relative to the relationship between antioxidant-directed testing and long-term geomembrane performance is provided in this paper.

The paper also summarizes the objectives of GRI-GM13 in regard to the geomembrane material warranty issue. Past history of the geomembrane warranty is detailed along with current reasons why geomembrane manufacturers are attempting to reduce the length of the geomembrane warranty. In light of the new test methods for determining long-term performance of geomembranes, the future need for a geomembrane warranty is discussed.

INTRODUCTION

High density polyethylene (HDPE) geomembranes have been used as liquid and gas barriers in geoenvironmental applications for more than 20 years. Over the years, HDPE geomembranes have been used in the liner system design for municipal solid waste landfills. Very little was known about HDPE geomembranes in their initial use in the landfill environment, other than HDPE was more resistant to chemicals than other polymers used for liners in the waste containment field. Testing of geomembranes was in its infancy. There was no practical test to evaluate the long-term performance of the geomembrane material. Warranties were given primarily to show the manufacturer's commitment to their product.

The only *generic* specification that was available to aid engineers was published in 1983 by the National Sanitation Foundation (NSF) as Standard No. 54. The standard provided a list of tests together with their corresponding minimum values. Although four revisions were carried out in the intervening years, the standard still lagged behind the state-of-practice of the HDPE geomembrane industry. For example, only smooth HDPE geomembranes were listed, and many of the specified test methods did not reflect current practice. Some of the tests were even generally considered irrelevant or inappropriate for currently manufactured HDPE material. Most importantly, the long-term performance of the material was never addressed. For a number of interrelated issues, NSF decided to withdraw from the geosynthetic industry by terminating the publication of Standard No.54 as of the end of 1997.

Considering the above situation, a completely new HDPE specification was needed. In 1996, a technical task group was formed within GRI consisting of HDPE resin suppliers and geomembrane manufacturers. (GRI is a sub-organization of the Geosynthetic Institute (GSI).) The group decided that the purpose of the specification was to be directed at manufacturing quality control (MQC) of HDPE geomembranes. This infers that if an owner or specifier has unique or extenuating circumstances for a particular project, modifications in the form of a project specification can be made. However, such changes should be communicated to the manufacturer.

The new specification covers both smooth and textured HDPE geomembranes. However, it does not include properties that are related to installation, such as field construction and seaming procedures, seam testing and strength, seam sampling frequency, etc. The specification also presents a recommended warranty, which is based upon the geomembrane material itself, and not the installation. In addition to basic physical and mechanical

properties of geomembranes, long-term performance properties are specified. Tests considered to be outdated or irrelevant to MQC are not included. The majority of the required properties are evaluated by test methods established by the ASTM D35 Geosynthetics Committee. In cases where no ASTM standards are available, GRI test methods are used. The minimum physical, mechanical, and chemical properties are listed.

This paper explains the GRI-GM13 Specification, its rationale and background, and its uniqueness with respect to the earlier specification, i.e. NSF Standard No.54. This is particularly the case for tests that are oriented toward evaluation of the long-term performance of the geomembranes. The paper also summarizes a recent study about estimated life-expectancy of a HDPE geomembrane (Hsuan and Koerner, 1998). With the ability to estimate geomembrane life expectancy, an assessment of HDPE warranty requirements is performed.

BRIEF HISTORY OF NSF NO. 54

The National Sanitation Foundation (NSF) is a not-for-profit organization devoted to research, education and service. Its mission is to provide clients and the general public with objective, high quality, timely third-party services at acceptable costs. These services include the development of consensus standards. NSF's development of consensus standards for flexible membrane liners (FML) started in January of 1978 with a meeting of lining industry, regulatory and user representatives. The development of NSF International Standard No. 54 on Flexible Membrane Liners was motivated by a growing national interest in containment of hazardous materials and covered a wide range FML materials. First published in 1983, NSF Standard No. 54 was the first and only *generic* specification available to design engineers. The standards set for each FML were based on key tests, which characterized the minimum quality of that particular FML chemical composition.

The funding for the NSF No. 54 was based primarily on membership dues paid to the NSF organization. Over the years, the FML industry decreased its membership in NSF. Without sufficient funding, NSF was forced to stop its support of Standard No. 54 and production of further publications. Since NSF no longer supports Standard No. 54 for Flexible Membrane Liners, a new specification must be established to provide basic properties for design engineers in the waste containment industry. Thus GRI-GM13 was developed.

WARRANTY ISSUE – PAST HISTORY

The issue of material warranties accompanying a geomembrane specification is somewhat adopted from the roofing industry. Roofing membranes used in flat roofs are usually directly exposed to the environments. As such, UV light, coupled with high temperature, must be accommodated. These two factors are arguably the most aggressive actions in the degradation of polymeric materials. Clearly, a 20-year warranty on a roofing membrane (and by logical extension to exposed geomembranes in applications like uncovered reservoir liners, canal liners, and floating covers) is a most worthwhile pursuit. The vast majority of geomembranes used in waste containment applications (i.e. landfills), however, are covered and backfilled. Twenty (20) year warranties do not even begin to challenge the potential lifetime durability for HDPE geomembranes.

The geomembrane warranties offer little benefit to the purchaser. As currently written, the purchaser of the geomembrane must uncover the geomembrane at his own expense. If, and only if, the manufacturer determines the geomembrane material has deteriorated, the manufacturer will pay the travel cost of the manufacturer's representative and install a new geomembrane on a "prorated basis". The purchaser must pay for uncovering the geomembrane and the installed prorated geomembrane. The geomembrane manufacturer is not responsible for any damage caused by the failure of the geomembrane. Although some prior litigation has held the manufacturer/installer financially responsible, the language of the current warranty clearly limits the liability of the geomembrane manufacturer.

Federal regulations require publicly traded companies (e.g. geomembrane manufacturers) to be audited to determine the value of the company, and thus the estimated value of their outstanding stock. Accountants and attorneys estimate the future liability associated with the 20-year warranty and require sufficient insurance or bonding to cover these warranties and protect the stockowners. In the early years of the geomembrane industry, when the industry was small and profits high, the insurance and/or bonding requirements were not substantial. Over time the industry grew, competition within the industry drove profit margins down, and the number of outstanding warranties rapidly accumulated. Insurance and/or bonding requirements for the publicly traded manufacturers became a significant annual expenditure.

Privately owned geomembrane manufacturers are not subject to the same federal requirements, including insurance and/or bonding requirements. This results in a non-equitable competition within the geomembrane industry. A reduction in the life of geomembrane warranties is the method used by the publicly traded manufacturers to reduce the cost for insurance and/or bonding of their outstanding warranties.

Although the warranties have limited value to the landfill owner, the reduction in life of the geomembrane warranties

has generated a high level of concern with landfill owners, design engineers and regulators. If of no other value, the warranties have provided some level of "comfort" for landfill owners and politicians. The warranties have been used to help sell the geomembrane and landfill technology to the public. The public has been reassured that the environment will be protected because the main barrier, "the geomembrane", has a warranty.

What is needed in lieu of a warranty is the ability to test the geomembrane for endurance properties, and then the correlation of these test results to estimated long-term performance of the geomembrane. Due to advances in the geosynthetic field, there are now formalized test methods capable of testing geomembrane endurance properties. These new test methods evaluate the resin within the finished geomembrane manufactured product for certain qualities that promote resistance to stress cracking and protection of the HDPE resin. With these new test methods, long-term performance of the geomembrane can be estimated. GRI-GM13 sets standards that address this critical issue.

DESCRIPTION OF GRI-GM13

The specification covers HDPE geomembranes with a formulated sheet density of 0.940 g/ml, or greater, in the thickness range of 0.75 mm to 3.0 mm. Tables 1 and 2 are the actual specification tables with test methods, limiting values, and testing frequencies. Table 1 is for smooth HDPE geomembranes, and Table 2 is for single-sided and double-sided textured HDPE geomembranes. The respective specifications for each geomembrane type are presented according to seven different sheet thicknesses. The minimum testing frequencies are also defined for each required property. Most of the testing frequencies are on a per weight of geomembrane basis in units of kilograms. The reason for using kilograms instead of number of rolls is to achieve a consistent value between different sheet thicknesses and sheet widths. There are nine notes in each of the tables to further clarify the test conditions and specific requirements.

Please note that as a MQC standard, GRI-GM13 does not address installation issues such as peel and shear testing of the geomembrane seam. The design engineer is required to address this issue within the project specifications and the construction quality assurance (CQA) plan. The design engineer is required to set minimum peel and shear test requirements based on the specific design for which the geomembrane will be used.

DISCUSSION OF TEST METHODS INCLUDED IN THE SPECIFICATION

There are many unique test methods and procedures that have been incorporated in this specification. In addition, inappropriate tests are excluded from this specification. The reasons behind these decisions are presented in this section.

Excluded Tests

There are as many as sixteen tests that are occasionally included in HDPE specifications, which are omitted from this standard because they are either irrelevant, or inappropriate for use in routine MQC testing. In this section, these tests are presented together with the reason for excluding them. The tests that are *irrelevant* to the quality control of HDPE geomembranes are as follows:

- Volatile Loss
- Water Absorption
- Water Vapor Transmission
- Dimensional Stability
- Coefficient of Linear Expansion
- Resistance to Soil Burial
- Hydrostatic Resistance
- Tensile Impact
- Brittleness Temperature
- Various Toxicity Tests

The tests that were considered to be *not appropriate* as routine MQC tests are as follows:

- Ozone Resistance
- Modulus of Elasticity
- Wide Width Tensile
- Multi-axial Tension
- Field Seam Strengths (Shear and Peel) – As stated in the previous section, the GRI-GM13 specification is for MQC of the manufactured sheet. It does not include any field installation related requirements.

Revised Tests

There are several tests that are considered relevant in an HDPE specification, but need to be *updated and revised* to the current ASTM standards. They are as follows:

- Environmental Stress Crack Resistance (ESCR) – Many HDPE geomembrane specifications have ESCR evaluated according to ASTM D 1693, the bent strip test. This test has many disadvantages; such as undefined testing stresses, stress relaxation, and a large standard deviation. Subsequently, a new stress crack resistance test, the notched constant tensile load (NCTL) test according to ASTM D 5397, was developed and adopted by the industry (Hsuan, et al. 1993). In this specification, the abbreviated version of the NCTL test, the single point-NCTL test (SP-NCTL) (ASTM D 5397-Appendix), is specified to assess the material's ESCR behavior.
- Puncture Resistance – The test generally used to assess puncture resistance of HDPE geomembranes has been Federal Testing Material Standard (FTMS 101, Method 2065). Use of this method has waned since federal agencies are encouraging the use of

TABLE 1 - HIGH DENSITY POLYETHYLENE (HDPE) GEOMEMBRANE – SMOOTH
(revised in September, 1998)

Property	Test Method	Test Value							Testing Frequency (minimum)
		0.75 mm	1.00 mm	1.25 mm	1.50 mm	2.00 mm	2.50 mm	3.00 mm	
Thickness, (min. ave.) • lowest individual of 10 values	D 5199	nom. (mm) -10%	nom. (mm) -10%	nom. (mm) -10%	nom. (mm) -10%	nom. (mm) -10%	nom. (mm) -10%	nom. (mm) -10%	per roll
Density (min.)	D 1505/D792	0.940 g/ml	0.940 g/ml	0.940 g/ml	0.940 g/ml	0.940 g/ml	0.940 g/ml	0.940 g/ml	90,000 kg
Tensile Properties *(1)* (min. ave.)	D 638 Type IV								9,000 kg
• yield stress		11 kN/m	15 kN/m	18 kN/m	22 kN/m	29 kN/m	37 kN/m	44 kN/m	
• break stress		20 kN/m	27 kN/m	33 kN/m	40 kN/m	53 kN/m	67 kN/m	80 kN/m	
• yield elongation		12%	12%	12%	12%	12%	12%	12%	
• break elongation		700%	700%	700%	700%	700%	700%	700%	
Tear Resistance (min. ave.)	D 1004	93 N	125 N	156 N	187 N	249 N	311 N	374 N	20,000 kg
Puncture Resistance (min. ave.)	D 4833	240 N	320 N	400 N	480 N	640 N	800 N	960 N	20,000 kg
Stress Crack Resistance *(2)*	D 5397 (App.)	200 hr.	200 hr.	200 hr.	200 hr.	200 hr.	200 hr.	200 hr.	per GRI-GM10
Carbon Black Content (range)	D 1603 *(3)*	2.0 - 3.0%	2.0 - 3.0%	2.0 - 3.0%	2.0 - 3.0%	2.0 - 3.0%	2.0 - 3.0%	2.0 - 3.0%	9,000 kg
Carbon Black Dispersion	D 5596	note *(4)*	note *(4)*	note *(4)*	note *(4)*	note *(4)*	note *(4)*	note *(4)*	20,000 kg
Oxidative Induction Time (OIT) (min. ave.) *(5)*									90,000 kg
(a) Standard OIT	D 3895	100 min.	100 min.	100 min.	100 min.	100 min.	100 min.	100 min.	
—or—									
(b) High Pressure OIT	D 5885	400 min.	400 min.	400 min.	400 min.	400 min.	400 min.	400 min.	
Oven Aging at 85°C *(5), (6)*	D 5721								per each formulation
(a) Standard OIT (min. ave.) - % retained after 90 days	D 3895	55%	55%	55%	55%	55%	55%	55%	
— or —									
(b) High Pressure OIT (min. ave.) - % retained after 90 days	D 5885	80%	80%	80%	80%	80%	80%	80%	
UV Resistance *(7)*	GM 11								per each formulation
(a) Standard OIT (min. ave.)	D 3895	N.R. *(8)*	N.R. *(8)*	N.R. *(8)*	N.R. *(8)*	N.R. *(8)*	N.R. *(8)*	N.R. *(8)*	
— or —									
(b) High Pressure OIT (min. ave.) - % retained after 1600 hrs *(9)*	D 5885	50%	50%	50%	50%	50%	50%	50%	

(1) Machine direction (MD) and cross machine direction (XMD) average values should be on the basis of 5 test specimens each direction.
Yield elongation is calculated using a gage length of 33 mm
Break elongation is calculated using a gage length of 50 mm
(2) The yield stress used to calculate the applied load for the SP-NCTL test should be the manufacturer's mean value via MQC testing.
(3) Other methods such as D 4218 (muffle furnace) or microwave methods are acceptable if an appropriate correlation to D1603 (tube furnace) can be established.
(4) Carbon black dispersion for 10 different views:
• all 10 in Categories 1 or 2
(5) The manufacturer has the option to select either one of the OIT methods listed to evaluate the antioxidant content in the geomembrane.
(6) It is also recommended to evaluate samples at 30 and 60 days to compare with the 90 day response.
(7) The condition of the test should be 20 hr. UV cycle at 75°C followed by 4 hr. condensation at 60°C.
(8) Not recommended since the high temperature of the Std-OIT test produces an unrealistic result for some of the antioxidants in the UV exposed samples.
(9) UV resistance is based on percent retained value regardless of the original HP-OIT value.

TABLE 2 - HIGH DENSITY POLYETHYLENE (HDPE) GEOMEMBRANE – TEXTURED
(revised in September, 1998)

Property	Test Method	Test Value							Testing Frequency (minimum)
		0.75 mm	1.00 mm	1.25 mm	1.50 mm	2.00 mm	2.50 mm	3.00 mm	
Thickness (min. ave.) • lowest individual for 8 out of 10 values • lowest individual for any of the 10 values	D 5994	nom. (-5%) -10% -15%	nom. (-5%) -10% -15%	nom. (-5%) -10% -15%	nom. (-5%) -10% -15%	nom. (-5%) -10% -15%	nom. (-5%) -10% -15%	nom. (-5%) -10% -15%	per roll
Asperity Height (min. ave.)	GM 12	0.25 mm	0.25 mm	0.25 mm	0.25 mm	0.25 mm	0.25 mm	0.25 mm	every 2nd roll
Density (min. ave.)	D1505/D792	0.940 g/ml	0.940 g/ml	0.940 g/ml	0.940 g/ml	0.940 g/ml	0.940 g/ml	0.940 g/ml	90,000 kg
Tensile Properties (min. ave.) *(1)* • yield stress • break stress • yield elongation • break elongation	D 638 Type IV	 11 kN/m 8 kN/m 12% 100%	 15 kN/m 11 kN/m 12% 100%	 18 kN/m 13 kN/m 12% 100%	 22 kN/m 16 kN/m 12% 100%	 29 kN/m 21 kN/m 12% 100%	 37 kN/m 26 kN/m 12% 100%	 44 kN/m 32 kN/m 12% 100%	9,000 kg
Tear Resistance (min. ave.)	D 1004	93 N	125 N	156 N	187 N	249 N	311 N	374 N	20,000 kg
Puncture Resistance (min. ave.)	D 4833	200 N	267 N	334 N	400 N	534 N	667 N	801 N	20,000 kg
Stress Crack Resistance *(2)*	D 5397 (App.)	200 hr.	200 hr.	200 hr.	200 hr.	200 hr.	200 hr.	200 hr.	per GRI GM10
Carbon Black Content (range)	D 1603 *(3)*	2.0 - 3.0%	2.0 - 3.0%	2.0 - 3.0%	2.0 - 3.0%	2.0 - 3.0%	2.0 - 3.0%	2.0 - 3.0%	9,000 kg
Carbon Black Dispersion	D 5596	note *(4)*	note *(4)*	note *(4)*	note *(4)*	note *(4)*	note *(4)*	note *(4)*	20,000 kg
Oxidative Induction Time (OIT) (min. ave.) *(5)* (a) Standard OIT — or — (b) High Pressure OIT	 D 3895 D 5885	 100 min. 400 min.	 100 min. 400 min.	 100 min. 400 min.	 100 min. 400 min.	 100 min. 400 min.	 100 min. 400 min.	 100 min. 400 min.	90,000 kg
Oven Aging at 85°C *(5), (6)* (a) Standard OIT (min. ave.) - % retained after 90 days — or — (b) High Pressure OIT (min. ave.) - % retained after 90 days	D 5721 D 3895 D 5885	 55% 80%	 55% 80%	 55% 80%	 55% 80%	 55% 80%	 55% 80%	 55% 80%	per each formulation
UV Resistance *(7)* (a) Standard OIT — or — (b) High Pressure OIT (min. ave.) - % retained after 1600 hrs *(9)*	GM11 D 3895 D 5885	 N.R. *(8)* 50%	 N.R. *(8)* 50%	 N.R. *(8)* 50%	 N.R. *(8)* 50%	 N.R. *(8)* 50%	 N.R. *(8)* 50%	 N.R. *(8)* 50%	per each formulation

(1) Machine direction (MD) and cross machine direction (XMD) average values should be on the basis of 5 test specimens each direction.
Yield elongation is calculated using a gage length of 33 mm
Break elongation is calculated using a gage length of 50 mm

(2) The SP-NCTL test is not appropriate for testing geomembranes with textured or irregular rough surfaces. Test should be conducted on smooth edges of textured rolls or on smooth sheets made from the same formulation as being used for the textured sheet materials.
The yield stress used to calculate the applied load for the SP-NCTL test should be the manufacturer's mean value via MQC testing.

(3) Other methods such as D 4218 (muffle furnace) or microwave methods are acceptable if an appropriate correlation to D1603 (tube furnace) can be established.

(4) Carbon black dispersion for 10 different views:
• all 10 in Categories 1 or 2

(5) The manufacturer has the option to select either one of the OIT methods listed to evaluate the antioxidant content in the geomembrane.

(6) It is also recommended to evaluate samples at 30 and 60 days to compare with the 90 day response.

(7) The condition of the test should be 20 hr. UV cycle at 75°C followed by 4 hr. condensation at 60°C.

(8) Not recommended since the high temperature of the Std-OIT test produces an unrealistic result for some of the antioxidants in the UV exposed samples.

(9) UV resistance is based on percent retained value regardless of the original HP-OIT value.

consensus standards. ASTM D 4833 is the replacement test for the evaluation of the puncture resistance of HDPE geomembranes.

- Carbon Black Dispersion – This property has traditionally been evaluated using ASTM D 1765 for "Carbon Black Used in Rubber Products." However, the type and amount of carbon black used in rubber products are very different than those used in geosynthetics. The function of carbon black in rubber is for reinforcement as well as ultraviolet resistance, and the amount of carbon black content can be as high as 30%. Since HPDE geomembrane has a carbon black content of 2 to 3 percent, the applicability of this test to the geosynthetic products is questionable. Recently, a new carbon black dispersion test was developed to evaluate geosynthetic products. It uses microtome sections viewed under a transmission light microscope at 100 magnification, and compares this image with reference images. This replacement test is ASTM D 5596, which is required in the GRI-GM13 specification.

New Tests

Several tests are included in this specification because they are essential in the context of current manufacturing processes, or to assess the durability of the material. The following *new tests* have been incorporated into the specification:

- Core Thickness of Textured Sheet – A new test, ASTM D 5994, was adopted to measure the core thickness of textured HDPE geomembranes. The test uses a pair of tapered gage points to probe into the valley of the texturing in order to measure the core thickness.
- Asperity Height of Textured Sheet – For ensuring that there is a minimum roughness on the surface of textured HDPE geomembranes, an asperity height is measured. An index test, GRI-GM12, was developed to measure the height of textured profile using a depth gauge.
- Oxidative Induction Time (OIT) – Both the standard (Std-OIT, ASTM D 3895) and high pressure (HP-OIT, ASTM D 5885) tests are included in the specification. The purpose of including two OIT tests is to provide options for manufacturers to choose the appropriate test to evaluate their specific antioxidant package. Since some of the antioxidant packages have an evaporation temperature lower than 200°C, the Std-OIT test is not the suitable method. For those antioxidant packages, the HP-OIT test is the proper method (Hsuan and Guan, 1997).
- Oven Aging – The purpose of oven aging is to challenge the long-term thermal oxidation behavior of the HDPE geomembrane. The incubation procedure is conducted according to ASTM D 5721 in forced air ovens at 85°C for 90 days. Since the initial part of the lifetime of HDPE geomembranes is governed by the antioxidant package, use of oven aging coupled with OIT measurements provides insight into the long-term performance of antioxidant package. This directly reflects on the duration of the geomembrane (Hsuan and Koerner, 1998).
- Ultraviolet (UV) Resistance – For HDPE geomembranes that are exposed to sunlight during their service life, UV resistance is a major property that must be evaluated. The exposure procedure used to assess UV resistance is conducted according to GRI-GM11 using an UV-fluorescent weatherometer. The exposure is for 1600 hours, with alternating 20 hours of UV at 75°C followed by 4 hour condensation at 60 °C. Similar to oven aging, the stability of the antioxidant package is assessed using the OIT test. However, only the HP-OIT test should be used. A detailed discussion will be presented later in this paper.

SPECIFICATIONS THAT FOCUS ON ENDURANCE PROPERTIES

This category includes carbon black content and dispersion, stress cracking resistance, OIT, oven aging, and UV resistance. The majority of the properties in this category are new with respect to previous specifications. They are essential in assuring the long-term performance of the geomembrane. These new specifications are detailed below.

Stress Cracking Resistance

The HDPE geomembrane is used as a barrier layer in the landfill because of its excellent resistance to a wide range of chemicals. This resistance is due to its relatively high crystallinity. In fact, polyethylene is often classified as a "semi-crystalline" material. The shortfall of a semi-crystalline polymer is the susceptibility of stress cracking. The cracking phenomenon is a brittle failure with no elongation. The crack propagates through the geomembrane at a rate based on the depth and shape of the defect, load, and polymer properties. The crack growth rate that is accelerated by some chemicals is known as environmental stress cracking (Thomas and Woods, 1993). A stress crack failure usually occurs at a defect in the geomembrane (e.g. craze) under a load lower than its yield stress. The ability of the polymer to resist stress cracking directly relates to the endurance of the geomembrane.

ASTM D 5397 "Standard Test Method of evaluation of Stress Crack Resistance of Polyolefin Geomembranes Using Notched Tensile Load Test" was developed to evaluate the stress crack resistance of the geomembrane. This test method consists of subjecting a dumbbell shaped test specimen (taken from the geomembrane sample) to a constant tensile load in the presence of a surface-active agent and at elevated temperature. The specimen is

notched to induce a stress point (Figure 1) prior to placement in a surfactant bath @ constant temperature of 15°C. The tensile load is usually set at 30 percent of the room temperature yield stress of the geomembrane. The stress crack resistance is determined by recording the time required for a crack to form and propagate through the ligament of the specimen. Factors that affect stress crack resistance of the polymer include crystallinity, molecular weight, polymer additive package, and process history (ASTM D 5397).

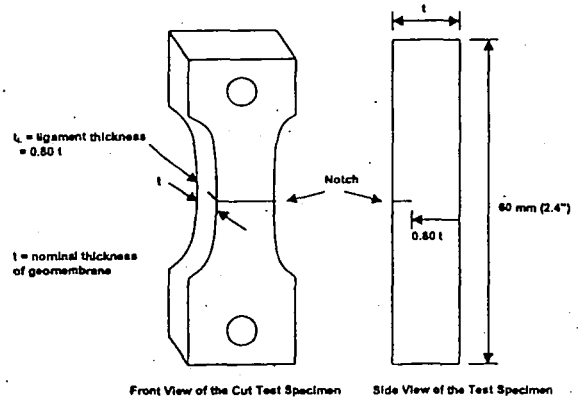


FIGURE 1. SPECIMEN FOR SP-NCTL TEST (ASTM D 5397)

The ability of the polymer resins to resist stress cracking has greatly improved over the past several years. There are polymers available that have stress crack resistance greater than what is noted in GRI-GM13. However, there may be a "trade-off" that should be considered. In polymers, the increase in one property often results in the decrease of another property. Geomembrane manufacturers have defined specifications for their HDPE resin to allow for optimum manufacturing productivity as well as to meet the required properties. Specifying a higher requirement for stress crack resistance can cause significant problems for the geomembrane manufacturers, since the ability to quickly switch resin for an individual project may induce processing difficulties.

It should be noted that this standard does not guarantee against stress crack failure in the geomembrane. Stress crack failures usually occur within or near geomembrane seams (Hsuan, 1998). A quality geomembrane installation is essential in protecting against stress crack failure. The following are the main causes of stress crack failures:

- Nicks in the geomembrane during installation,
- Uneven heat and pressure during the hot wedge welding process,
- Over grinding prior to extrudant seaming,
- Not placing extrudant over abrasions to the geomembrane, and
- Unclean area of the seam prior to the seaming process, which cause defects or stress points within the seam.

To alleviate this failure mechanism, good CQC and CQA is required during geomembrane installation. However, GRI-GM13 MQC specification only ensures that the geomembrane being delivered to the landfill site has met the stress crack resistance standard.

Oxidation Induction Time Tests

The oxidation induction time (OIT) test is used to assess the antioxidant compounds in the HDPE geomembrane. The common HDPE geomembrane formulations consist of 96 to 97.5% polyethylene (PE) resin, 2 to 3% carbon black, and up to 0.5% antioxidants. Antioxidants are used in the geomembrane formulation to prevent polymer oxidation during manufacturing and to preserve long-term service life of the geomembrane.

The HDPE used in geomembranes will "age" over time. This aging occurs by physical aging and chemical aging. The physical aging is related to its semicrystalline structure in which the polymer is continually attempting to find equilibrium. This process is slow and involves changes in the crystallinity of the geomembrane. This physical aging does not break the primary (covalent) bonds of the polymer. Chemical aging is a degradation process of the polymer in which the covalent bonds are broken. This process eventually leads to a degradation of engineering properties for the geomembrane.

Antioxidants prevent polymer degradation, i.e. chemical aging, by reacting with free radicals or prevent the formation of free radicals. Figure 2 denotes the decomposition cycle of the HDPE geomembrane, where RH represents the HDPE polymer chain and the symbol (·) represents free radicals, which are highly reactive molecules. Aided by energy or catalyst residues in the polymer, the polymer reacts with oxygen to form a hydroperoxide (ROOH) compound, as indicated in reaction equations (1) – (3).

$$RH \rightarrow R\cdot + H\cdot \quad (1)$$

$$R\cdot + O_2 \rightarrow ROO\cdot \quad (2)$$

$$ROO\cdot + RH \rightarrow ROOH + R\cdot \quad (3)$$

As oxidation continues, additional ROOH molecules are produced until their concentration reaches a critical level. Once this level is reached, ROOH will start to decompose and dramatically increase the amount of free radicals, as indicated in reaction equations (4) – (6).

$$ROOH \rightarrow RO\cdot + \cdot OH \quad \text{(aided by energy)} \quad (4)$$

$$RO\cdot + RH \rightarrow ROH + R\cdot \quad (5)$$

$$OH\cdot + RH \rightarrow H_2O + R\cdot \quad (6)$$

OIT tests measure amount of antioxidants remaining in the geomembrane

The energy required for the reactions (1) and (4) is supplied by UV radiation and/or heat. The greater the UV radiation and/or heat, the more accelerated the production of free radicals.

antioxidant interrupts oxidation at (a), (b), (c) & (d)

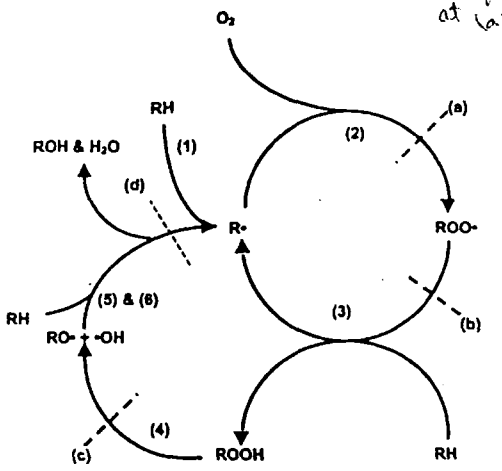


FIGURE 2. OXIDATION CYCLES IN POLYETHYLENE (GRASSIE AND SCOTT, 1985)

Figure 3 shows the stages of chemical aging in which the antioxidants are depleted over time, as indicated by (A). Once the antioxidants are depleted, hydroperoxide (ROOH) is produced without a noticeable deterioration of the geomembrane's engineering properties, as indicated by (B). After the ROOH decomposes and a significant amount of free radicals are generated, these free radicals attack the polymer chain by breaking the carbon – carbon bond. The molecular weight of the polymer declines and, along with it, the physical and mechanical properties of the polymer, as indicated by (C).

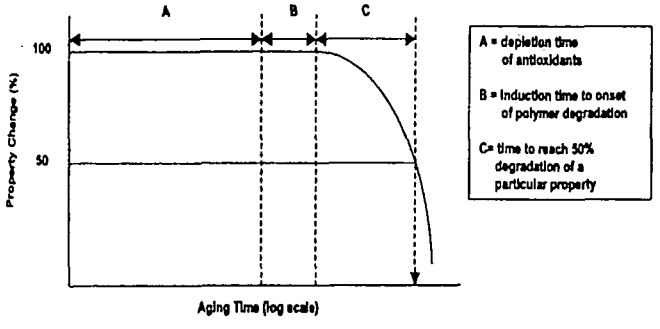


FIGURE 3. THREE CONCEPTUAL STAGES IN CHEMICAL AGING OF HDPE GEOMEMBRANE (HSUAN AND KOERNER, 1998)

The purpose of the antioxidants is to interrupt the oxidation cycle that causes the decomposition of the polymer. The antioxidant is designed to interrupt specific oxidative reaction (a), (b), (c) and (d), as noted in Figure 2.

There are basically two categories of antioxidants: primary and secondary. Primary antioxidants stabilize the polymer by trapping or deactivating the free radical species after they are formed. Some primary antioxidants function by donating electrons, at location (a), (b) and (d) in Figure 2. The electrons react with free radicals ROO·, RO·, and ·OH, converting them to ROOH, ROH, and H_2O, respectively. Other primary antioxidants are electron acceptors, location (a) in Figure 2. They convert alkyl free radicals (R·) to form a stable polymer.

Secondary antioxidants are designed to decompose hydroperoxides (ROOH), preventing them from becoming free radicals, (location (c) in Figure 2). The chemical reactions change the ROOH to a stable alcohol (ROH).

To ensure long-term endurance, a manufacturer will use both primary and secondary antioxidants. Two different OIT tests are used to measure the amount of antioxidant remaining in the geomembrane: Standard OIT (Std-OIT) tests and high pressure OIT (HP-OIT) tests. Two different OIT tests are required because certain antioxidant packages are not suitable to be evaluated by Std-OIT (Thomas and Acelet, 1993; Hsuan and Guan, 1997). Table 3 denotes the difference between the Std-OIT and HP-OIT tests.

The major difference between the two OIT tests is oxygen pressure and isothermal temperature. For the Std-OIT test, a relative low pressure and high temperature are used. For the HP-OIT test, a relatively high pressure and low temperature are utilized. The differences create a dilemma insofar as the selection of a preferred test method for OIT. GRI-GM13 states the minimum time requirement for either test. The geomembrane manufacturer must meet at least one (1) requirement from either test; Std-OIT = 100 min. or HP-OIT = 400 min.

Oven Aging OIT

The OIT value discussed above is designed as an index test to verify the existence of the amount of antioxidant. In itself, it does not reflect on long-term performance of the antioxidant insofar as the lifetime of the geomembrane. A performance challenge to the antioxidant package is required to ensure the durability of the geomembrane. For assessing the thermal-oxidation of the antioxidants, forced air oven aging provides a simple and consistent incubation environment, although it is recognized that such an environment does not simulate true field conditions. The temperature of the oven is elevated to 85°C in order to shorten the testing duration. Incubated samples are retrieved after 90 days for OIT measurement. The percent-retained value cannot be less than 55% for Std-OIT or 80% for HP-OIT testing.

Ask Bob: What do we mean by "index test"?

TABLE 3. DIFFERENCE BETWEEN THE STANDARD AND HIGH PRESSURE OIT TESTS (HSUAN AND KOERNER, 1998)

Test	Advantages	Disadvantages
Std-OIT (200°C, 35 kPa)	• Short testing time (<200 min) • Simple to operate • High sensitivity (i.e. can detect very short OIT values)	• High testing temperature may bias the test results for certain types of antioxidants
HP-OIT (150°C, 3500 kPa)	• Able to distinguish different types of antioxidants • Lower testing temperatures relates closer to service conditions	• Long testing time (>300 min) • Special testing cell and set-up required • Less sensitive results, particularly for short OIT values

Ultraviolet Resistance OIT

For exposed geomembranes, the material's UV resistance is a critical property that must be assessed for long-term endurance. In order to assess this property, the geomembrane specimen is placed in an UV-fluorescent weatherometer to simulate UV degradation. This instrument is simple to use, small in size, requires little maintenance and is relatively inexpensive. The incubation condition requires a 20-hour "UV-on" @ 75°C, then "UV-off" for 4 hours @ 60°C with condensation. The incubation duration of the exposure is 1600 hours elapsed machine time. The results indicate that the Std-OIT gives an extremely low percent of retained values. In contrast, the HP-OIT retained values are more consistent. It is suspected that antioxidants may have their structure altered under UV exposure, subsequently becoming more sensitive to the high testing temperature used in the Std-OIT test. As a result, only the HP-OIT test is recommended to assess the UV resistance of the geomembrane. The average HP-OIT retained value is set at 50% retained.

BASIS OF LISTED STANDARD VALUES

GRI developed a detailed database from different laboratories as a first step in setting the minimum standards in GRI-GM13. The database was developed according to defined test methods and parameters. For example, the Oven Aging and Std-OIT test data were evaluated to determine the appropriate testing period (e.g. 90 days), oven temperature (e.g. 85°C), and percent retained (e.g. 55%). GRI developed recommended material properties to be tested, test methods and minimum standards. However since GRI-GM13 is a MQC specification, the geomembrane manufacturers had the greatest input in its development, including the establishment of minimum standards.

SPECIFICATION DEVELOPMENT

The GRI-GM13 specification and GRI test methods were approved by a consensus of Geosynthetic Institute (GSI) members, which represent the foremost leaders within the geosynthetic and waste containment industry. This specification represents the accumulation of four years of effort by GRI and its members. Its development comprised of numerous drafts, meetings, agreements, disagreements, and significant professional growth by the participating individuals, organizations and companies. The objectives set and accomplished by GRI resulted in a new and higher level of testing requirements for geomembranes. For the first time, the minimum standards noted in this specification challenge long-term endurance properties of the geomembrane that are essential for continued use of this material by the waste containment industry. These long-term endurance properties and their respective minimum values reflect the current emphasis of the waste containment field and impact the current view on geomembrane warranties.

CORRELATION OF ENDURANCE PROPERTIES TO LONG-TERM PERFORMANCE

Carbon Black Content

The test is performed according to ASTM D 1603, with a specified range from 2 to 3%. The 3% carbon black value is the maximum opacity level above which no significant improvement in ultraviolet resistance occurs, Accorsi. and Romero (1995).

The use of 2 to 3 percent carbon black dispersed throughout the geomembrane will protect the HDPE polymer from UV radiation and its detrimental impact on the polymer. Carbon black does not deplete over time and aids in the long-term performance of the geomembrane.

Carbon Black Dispersion

Carbon black is added to HDPE resin to act as an ultraviolet (UV) radiation stabilizer. Carbon black absorbs the harmful UV radiation and dissipates the energy into heat, thus prolonging the outdoor life of the HDPE polymer. The UV energy breaks the carbon-carbon bonds in the HDPE resin to form free radicals. The resultant free radicals react with oxygen (air) to form a peroxy radical which will attack other polymeric molecules and initiate a chain of degradation processes. Without carbon black protection, the photodegradation causes discoloration, formation of cracks, brittleness and ultimately failure of the geomembrane. Carbon black must also be well dispersed to a very high level in the polymer matrix to protect it from photodegradation. The optimum properties of carbon black in the geomembrane are small particle size for maximum UV absorption and high level of dispersion (Haddad and Gunning, 1995).

The long-term impact to the HDPE polymer comes from the heat collected by the "black" geomembrane and exposure to air (i.e. oxygen). Once a geomembrane is covered by soil, the UV radiation/heat and oxygen have little impact on the HDPE polymer.

Stress Crack Resistance

The geomembrane research community (i.e. universities, manufacturers, etc.) has yet to develop a relationship between stress crack resistance and long-term performance of the geomembrane. Past case studies of geomembrane failures have shown that improper installation methods have been the major cause of cracking or fractures of the geomembrane sheet. The geomembrane industry recognizes the need to adhere to good installation procedures in order to inhibit the development of stress points within the geomembrane. Setting a minimum standard for stress crack resistance greatly assists in the long-term performance of the geomembrane and minimizes the possibility that a crack will be develop due to the HDPE polymer.

Stress crack failures in the geomembrane can usually be directly traced to installation flaws ***and*** subjecting the geomembrane to a sustained load over time. The design engineer should design to limit stress on the geomembrane and, as stated in the previous text, promote a good CQA program for the geomembrane installation.

OIT Tests

Arguably, one of the biggest questions within the waste containment industry has been, "How long will a liner system last?" To design engineers and regulators, the HDPE geomembrane formulation has been the unknown factor in the ability to answer this question. The use of the OIT test can allow researchers to start exploring this issue.

Hsuan and Koerner (1998) performed a study in which geomembrane samples were stored at various elevated temperatures and incubated over a twenty-four month period. The incubation device simulated a landfill by keeping a head of water (not leachate) and compression loaded sand layer over the geomembrane and dry sand below. Geomembrane samples were retrieved after predetermined lengths of time and subjected to various tests to track their behavior over the incubation period. Particular attention was placed on the two OIT tests (Std-OIT and HP-OIT) to determine the reduction of the antioxidant within the geomembrane over time. The study investigated a single geomembrane, and therefore its particular antioxidant package. Thus, this study was applicable only to that particular geomembrane and its formulation. However a reference point was established.

The study showed a depletion of the antioxidant over time without a reduction in geomembrane properties such as density, melt index, and yield strength. The geomembrane properties dropped only after the OIT test results reached zero. The study also showed the rate of antioxidant depletion was related to the geomembrane service temperature.

Hsuan and Koerner utilized an Arrhenius extrapolation methodology to determine the time required to deplete the antioxidant for a temperature more representative of the base of a landfill. The service temperature of 20°C was used to demonstrate the extrapolation calculation. Based on this study and the extrapolated calculation, the estimated time of depletion is 200 years and 215 years using the Std-OIT and HP-OIT tests, respectively (Hsuan and Koerner, 1998). The initial Std-OIT test and HP-OIT test results had values of 80.5 min and 210 min., respectfully. These test results are less than the property requirements for Std-OIT and HP-OIT listed in GRI-GM13, and thus a conservative estimate of longevity.

The above study results do not reflect the estimated time of geomembrane deterioration or failure. Once the antioxidants are depleted, the polymer must generate sufficient hydroperoxide (ROOH) to start the decomposition of the polymer chain. The study results reflect only the test design environment. The above study results would likely be impacted if testing were performed within an actual landfill environment.

A review of the study parameters can allow the design engineer to assess factors that may increase or decrease antioxidant usage in the geomembrane. Any increase or decrease of antioxidant usage would directly relate to the long-term performance of the geomembrane. For example, unlike the oven aging test, the incubation device minimized oxygen contact with the geomembrane. In the study, the ability of the oxygen to diffuse into the water

over the geomembrane was directly limited by solubility of oxygen in the water at high temperatures. In the anaerobic environment of most solid waste landfills, free available oxygen would not be present in any significant degree. The lack of available oxygen in a landfill environment would inhibit the oxidation of the polymer, and thereby increase the antioxidant depletion period. Other factors that might decrease contact of oxygen or oxidative compounds are the accumulation of film or colloidal material over the geomembrane. The underside of the geomembrane, not exposed to leachate, may or may not be exposed to air to a significant degree. The amount of air exposure would be based on the proximity of the geomembrane to the land surface, type of soils underlying the geomembrane, and local climatic conditions that would promote air intrusion into the soil matrix (e.g. net change in barometric pressure).

Municipal solid waste leachate may contain compounds other than oxygen that could deplete the antioxidant package over time. Further studies are required to determine the compounds in the leachate and the concentrations of these compounds that could deplete the antioxidant package in the geomembrane. It is doubtful that adapting the above study to promote antioxidant usage by using landfill leachate and elevated temperatures could correlate to a true landfill environment. This is due to the dynamic nature of the leachate. The increased temperatures of the above study would probably significantly change the chemical and microbiological composition of the leachate.

ENGINEERING PERSPECTIVE OF GRI-GM13

As stated previously, GRI-GM13 is a manufacturer quality control (MQC) specification. Most of the testing frequencies of each required property are based on the geomembrane weight in kilograms, and not the area of geomembrane sheet production. The reason for using kilograms instead of number of rolls is to achieve a consistent value between different sheet thicknesses and sheet width. There are nine notes in each of the tables to further clarify the test conditions and specific requirements (See Tables 1 and 2). The use of kilograms of resin to quantify geomembrane production is a common practice for geomembrane manufacturers. However to a design engineer developing project specifications, GRI-GM13 may be considered "non-engineer" friendly. Table 4 shows the conversion of the test frequencies from kilograms to the estimated area based on nominal thickness of the geomembrane.

Based on the nominal thickness of the geomembrane, GRI-GM13 requires fewer tests per unit area for the thinner geomembranes versus the thicker geomembranes. For the endurance properties that relate directly to the long-term performance of the geomembranes due to its resin formulation (i.e. OIT) using weight quantities to determine testing frequencies appears to be logical. However for the mechanical properties, the use of weight quantities to determine testing frequencies instead of unit area is opposite to prior standard testing frequencies set by engineers. This is particularly true for the thinner geomembranes where slight changes in the geomembrane may have a significant impact on the mechanical properties of the geomembrane sheet. The design engineer would rather have the same testing frequency for each thickness of geomembrane. Design engineers may hope that this issue would be addressed during future revisions of GRI-GM13. Until this issue is addressed, the design engineer should (as a minimum) require MQC documentation of all test results just prior, during and just after the production of the geomembrane rolls delivered to the project site.

The design engineer should review GRI-GM13 for the minimum specifications for the listed properties and determine their applicability and appropriateness to their project. The testing frequencies should also be determined for their applicability to the project. The required minimum standards and testing frequencies should then be noted in the project's technical specifications and/or CQA document. Please note that the minimum standards and testing frequencies listed in GRI-GM13 are what the geomembrane manufacturers have agreed upon. Additional testing requirements or increased minimum standards may result in an increased cost of the geomembrane.

Design engineers should also be aware that their projects require a specific performance standard that are not included in GRI-GM13. There is no restriction from specifying any other required test to determine the HDPE geomembrane applicability to the project.

There is an impact on the manufacturer by increasing the "minimum" standards specified in GRI-GM13. The geomembrane manufacturers wanted an uniformed MQC specification due to the recent history of design engineers developing geomembrane specifications with a variety of minimum standards. The geomembrane manufacturers were being required to perform tests on the geomembrane based on individual project testing frequency requirements and with various minimum property requirements. This leads to spending significant labor and cost to meet requirements for each individual project. A unified specification could decrease the variation in minimum testing and minimum property requirements and assist in standardizing project technical specifications for the waste containment industry.

TABLE 4 – TESTING FREQUENCIES FOR HIGH DENSITY POLYETHYLENE (HDPE) GEOMEMBRANE

Property	Test Frequency						
	0.75 mm (30 mil)	1.0 mm (40 mil)	1.25 mm (50 mil)	1.50 mm (60 mil)	2.00 mm (80 mil)	2.50 mm (100 mil)	3.00 mm (120 mil)
Thickness	per roll	per roll	per roll	per roll	per roll	per roll	per roll
Tensile Properties and Carbon Black Content	9,000 kg 12,800 m^2 138,000 ft^2 3.2 acres	9,000 kg 9,500 m^2 103,000 ft^2 2.4 acres	9,000 kg 7,700 m^2 82,800 ft^2 1.9 acres	9,000 kg 6,400 m^2 69,000 ft^2 1.6 acres	9,000 kg 5,500 m^2 59,100 ft^2 1.4 acres	9,000 kg 3,800 m^2 51,800 ft^2 1.2 acres	9,000 kg 3,200 m^2 34,500 ft^2 0.8 acres
Tear Resistance, Puncture Resistance, and Carbon Black Dispersion	20,000 kg 28,000 m^2 460,000 ft^2 10.6 acres	20,000 kg 21,000 m^2 345,000 ft^2 8.0 acres	20,000 kg 16,800 m^2 276,000 ft^2 6.4 acres	20,000 kg 14,000 m^2 230,000 ft^2 5.3 acres	20,000 kg 10,500 m^2 173,000 ft^2 4.0 acres	20,000 kg 8,400 m^2 138,000 ft^2 3.2 acres	20,000 kg 7,000 m^2 115,000 ft^2 2.7 acres
Stress Crack Resistance	per GRI-GM10	per GRI-GM10	per GRI-GM10	per GRI-GM10	per GRI-GM10	per GRI-GM10	per GRI-GM10
Density and Oxidative Induction Time (OIT)	90,000 kg 128,000 m^2 1,380,000 ft^2 31.6 acres	90,000 kg 95,000 m^2 1,024,000 ft^2 23.5 acres	90,000 kg 76,800 m^2 828,000 ft^2 19.0 acres	90,000 kg 64,000 m^2 690,000 ft^2 15.8 acres	90,000 kg 54,900 m^2 591,000 ft^2 13.5 acres	90,000 kg 38,400 m^2 518,000 ft^2 11.9 acres	90,000 kg 32,000 m^2 345,000 ft^2 7.9 acres
Oven Aging at 85°C and UV Resistance	per formulation	per formulation	per formulation	per formulation	per formulation	per formulation	per formulation

WARRANTY ISSUE – CURRENT RECOMMENDATION

As part of GRI's development of GRI-GM13 minimum standards for specified test properties, the manufacturers also hope to standardize the geomembrane warranty language and warranty period. The new standard includes a five-year material warranty period after the geomembrane installation. There was significant discussion on this matter within GSI, as there currently is throughout the entire waste containment industry. Through this discussion, several issues became apparent, which are summarized as follows:

1. Design engineers and owner/operators want greater responsibility assumed by the geomembrane manufacturers for the products they produce. However, it would be difficult, if not impossible, for the manufacturers to obtain insurance or bonding for the level of protection desired by the design engineers and owner/operators. As noted in the initial portion of this paper, the warranty language limits the responsibility of the manufacturers. The owner/operators might have better legal standing with no warranty than a warranty using the current language.

2. The geomembrane manufacturers are willing to fund the additional testing cost to perform these new endurance property tests on a regular basis if a five-year material warranty becomes standard in the industry. Any requirement for a longer material warranty would then allow the manufacturer to add an additional cost to the purchase price of the geomembrane to cover the additional warranty period. However, it was also noted that the manufacturers would need to perform these same tests on a regular basis as a quality assurance (QA) check of the resin from their resin supplier(s). These QA test results would simply be supplied to the purchaser of the geomembrane. There was some question as to whether the manufacturers are actually incurring additional testing cost on behalf of the geomembrane purchaser.

3. It was recognized that the current 20-year material warranty does not come close to life expectancy of the geomembrane, estimated at over 200 years. An expression that was stated many times and clearly indicates the view of HDPE resin manufacturers and geomembrane manufacturers is as follows:

   "In the ground is a ***great*** place to put a geomembrane."

   Review of the previous text indicates the basis for this expression. The geomembrane is subject to deterioration over time in the presence of UV radiation, heat and oxygen. Burying a geomembrane in the ground greatly reduces the impact of these detrimental elements and greatly increases the life expectancy of the HDPE resin.

The five-year warranty period was considered to be a fair compromise between the manufacturers and the design engineers and owner/operators. It was also noted that GRI-GM13 would probably not be accepted by the waste containment industry without a warranty period. In order to obtain the manufacturers standardized goals for geomembrane specifications, the geomembrane manufacturers acknowledged that a material warranty is needed.

It should be recognized that the minimum standards of endurance properties reflect only the manufacturer's objective for long-term performance. The long-term performance of the "installed" HDPE geomembrane can be compromised by an inadequate geomembrane installation. For example, requiring stress crack resistance resin be used in the manufacturing of the geomembrane is only beneficial if an adequate geomembrane installation is performed. A poor geomembrane installation would probably increase the number and magnitude of stress points on the surface of the geomembrane sheet and/or along a seam, thereby reducing long-term performance of the geomembrane installation. It would be far better to increase the installation warranty. An increased installation warranty would place greater emphasis on both the construction quality control (CQC) and construction quality assurance (CQA) organizations and personnel.

SUMMARY

Warranties were necessary in the early development years of the geomembrane industry. HDPE geomembranes were recognized for their resistance to a large number of chemical compounds. However, little was known about the long-term performance of the HDPE geomembrane. New test methods have been developed to allow the design engineers to evaluate endurance properties of HDPE geomembranes. Based on an OIT study of HDPE geomembrane, the long-term performance of the geomembrane will probably exceed 200 years. This estimated life expectancy greatly exceeds the current 20-year warranty requirements.

Over the last few years, technical specifications have been written to include these new endurance property tests. However, the minimum requirements for these properties have varied from one technical specification to another. With NSF no longer supporting Standard No. 54, a new consensus standard was needed by the waste containment industry. GRI-GM13 represents this new standard that could greatly impact future landfill liner design specifications and construction quality assurance plans. All

design engineers should be aware of this specification and its testing requirements for evaluating HDPE geomembranes.

Along with this new standard is a five-year material warranty. The five-year warranty is considered a fair compromise between the requirements of the design engineer and owner/operators and the insurance costs on the part of the manufacturer. Based on the OIT study by Hsuan and Koerner, 1998, the design engineers and owners/operators should review the necessity of a warranty for the geomembrane. A greater emphasis should be directed toward good designs and proper construction methods in order to attain substantial long-term performance of the geomembrane.

ACKNOWLEDGMENTS

The technical support for this paper was based primarily on two published papers (Hsuan, 1999, Hsuan and Koerner, 1998) and the effort of GSI to develop a new HDPE geomembrane MQC standard specification. A new HDPE geomembrane standard was badly needed by the waste containment industry. GRI and its member organizations took the lead in developing a new MQC specification.

REFERENCES

ASTM D 638, "Standard Test Method for Tensile Properties of Plastics," Annual Book of ASTM Standards, Vol. 8.01.

ASTM D 792, "Standard Test Method for Density and Specific Gravity (Relative Density) of Plastics by Displacement," Annual Book of ASTM Standards, Vol. 8.01.

ASTM D 1004, "Standard Test Method for Initial Tear Resistance of Plastic Films and Sheeting," Annual Book of ASTM Standards, Vol. 8.01.

ASTM D 1505, "Standard Test Method for Density of Plastics by the Density-Gradient Technique," Annual Book of ASTM Standards, Vol. 8.01.

ASTM D 1603, "Standard Test Method for Carbon Black in Olefin Plastics," Annual Book of ASTM Standards, Vol. 8.02.

ASTM D 1693, "Standard Test Method for Environmental Stress-Cracking of Ethylene Plastics," Annual Book of ASTM Standards, Vol. 8.03.

ASTM D 1765, "Standard Classification System for Carbon Blacks Used in Rubber Products," Annual Book of ASTM Standards, Vol. 9.01.

ASTM D 3895, "Standard Test Method for Oxidative-Induction Time of Polyolefins by Differential Scanning Calorimetry," Annual Book of ASTM Standards, Vol. 8.02.

ASTM D 4218, "Standard Test Method for Determination of Carbon Black Content in Polyethylene Compounds by Muffle Furnace Technique," Annual Book of ASTM Standards, Vol. 8.02.

ASTM D 4833, "Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products," Annual Book of ASTM Standards, Vol. 4.09.

ASTM D 5199, "Standard Test Method for Measuring Nominal Thickness of Geotextiles and Geomembranes," Annual Book of ASTM Standards, Vol. 4.09.

ASTM D 5397, "Standard Test Method of Evaluation of Stress Crack Resistance of Polyolefin Geomembranes Using Notched Tensile Load Test," Annual Book of ASTM Standards, Vol. 04.09.

ASTM D 5596, "Standard Test Method for Microscopic Evaluation of the Dispersion of Carbon Black in Polyolefin Geosynthetics," Annual Book of ASTM Standards, Vol. 4.08.

ASTM D 5721, "Standard Practice for Air-Oven Aging of Polyolefin Geomembranes," Annual Book of ASTM Standards, Vol. 4.08.

ASTM D 5885, "Standard Test Method for Oxidative Induction Time of Polyolefin Geosynthetics by High-Pressure Differential Scanning Calorimetry," Annual Book of ASTM Standards, Vol. 4.08.

ASTM D 5994, "Standard Test Method for Measuring Core Thickness of Textured Geomembrane," Annual Book of ASTM Standards, Vol. 4.09.

Accorsi, J. and Romero, E. (1995) "Special Carbon Black for Plastics," Plastics Engineering, April' 95, pp. 29-32.

Grassie, N., and Scott, G. (1985) *Polymer degradation and stabilization.* Cambridge University Press, New York, N.Y.

Haddad, A.N. and Gunning, R.T., (1994), "Carbon Black and Stabilizers for Geosynthetics," Proceedings on the 8th GRI Conference, IFAI, St. Paul, Minn., pp. 61-73.

Halse, Y., Weitz, J., Rigo, J.M., and Cazzuffi, D.A. (1991), "Chemical Identification Methods used to Characterize Polymeric Geomembranes," Geomembranes Identification and Performance Testing, Report of Technical Committee

103-MGH, Mechanical and Hydraulic Testing of Geomembranes, RILEM, Edited by Rollin, A. and Rigo, J.M., Chapman and Hall, pp. 316-336.

Hsuan, Y.G., (1999), "Rationale and Background for the GRI-GM13 Specification for HDPE Geomembranes," Geosynthetics '99 Conf. Proc., IFAI, St. Paul, Minn., pp. ___-___.

Hsuan, Y.G. and Guan, Z. (1997), "Evaluation of the Oxidation Behavior of Polyethylene Geomembranes Using Oxidative Induction Time Tests", Oxidative Behavior of Materials by Thermal Analytical Techniques, ASTM STP 1326, A.T. Riga and G.H. Patterson, eds., ASTM, pp. 76-90.

Hsuan, Y.G., Koerner, R.M., and Lord, A.E. (1993), "Stress Cracking Resistance of High Density Polyethylene Geomembranes," ASCE, Journal of Geotechnical Engineering, Vol. 119, No. 11, pp. 1840-1858.

Hsuan, Y.G. and Koerner, R.M. (1998), "Antioxidant Depletion Lifetime in High Density Polyethylene Geomembranes", Journal of Geotechnical and Geoenvironmental Engineering, Vol. 124, No. 6, pp. 532-541.

* got this article

NSF International Standard No. 54 on Flexible Membrane Liners, NSF International, Ann Arbor, Michigan.

Rowe, R.K., Hrapovic, L. and Armstrong, M.D. (1996), "Diffusion of Organic Pollutants Through HDPE Geomembrane and Composite Liners and Its Influence on Groundwater Quality," Proceedings 1st European Geosynthetics Conference, Maastricht, Oct., pp. 737-742.

Thomas, R.W. and Ancelet, C.R. (1993), "The Effects of Temperature, Pressure, and Oven Aging on the High-pressure Oxidative Induction Time of Different Types of Stabilizers," Geosynthetics '93 Conf. Proc., IFAI, St. Paul, Minn., pp. 915-924.

Thomas, R.W. and Woods, B., "Stress Crack Testing of Unnotched HDPE Geomembranes and Seams," Proceedings on the 7th GRI Seminar, IFAI, St. Paul, Minn., pp. 116-125.

Designation: D 5397 – 93

Standard Test Method for Evaluation of Stress Crack Resistance of Polyolefin Geomembranes Using Notched Constant Tensile Load Test[1]

This standard is issued under the fixed designation D 5397; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method is used to develop test data from which the susceptibility of polyolefin geomembrane sheet material to stress cracking under a constant tensile load condition and an accelerated environmental condition can be evaluated.

1.2 This test method measures the failure time associated with a given test specimen at a specified tensile load level. Results from a series of such tests utilizing a range of load levels can be used to construct a stress-time plot on a log-log axis.

1.3 The values stated in SI units are to be regarded as the standard. The inch-pound units given in parentheses are provided for information only.

1.4 *This standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*

D 638 Test Method for Tensile Properties of Plastics[2]

D 883 Terminology Relating to Plastics[2]

D 1822 Test Method for Tensile-Impact Energy to Break Plastics and Electrical Insulating Materials[2]

D 4354 Practice for Sampling of Geotextiles for Testing[3]

D 4833 Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products[3]

D 4491 Test Methods for Water Permeability of Geotextiles by Permittivity[3]

3. Terminology

3.1 *Definitions:*

3.1.1 *geomembrane, n*—very low permeability synthetic membrane liners or barriers used with any geotechnical engineering related material so as to control fluid migration in a man-made project, structure, or system (see Test Method D 4833).

3.1.2 *stress crack, n*—an external or internal crack in a plastic caused by tensile stresses less than its short-time mechanical strength (see Definitions D 883).

3.1.2.1 *Discussion*—The development of such cracks is frequently accelerated by the environment to which the plastic is exposed. The stresses that cause cracking may be present internally or externally or may be combinations of these stresses.

4. Summary of Test Method

4.1 This test method consists of subjecting a dumbbell shaped notched test specimen from a polyolefin sheet to a constant tensile load in the presence of a surface-active agent and at an elevated temperature. The time to failure of the test specimen is recorded. The results of a series of such tests conducted at different stress levels are presented by plotting stress level against failure time for each stress level on a log-log axis.

5. Significance and Use

5.1 This test method does not purport to interpret the resulting response curve. Such interpretation is left to the parties involved in the commissioning and reporting of the test results.

5.2 This test method is intended as an index test and may be used for grading polyolefin geomembrane sheets in regard to their stress cracking sensitivity.

5.2.1 Conditions that can affect stress cracking include: level of loading, test temperature and environment, microstructure, polymer additive package, processing history, and thermal history.

6. Apparatus

6.1 *Blanking Die*—A die suitable for cutting test specimens to the dimensions and tolerances shown in Fig. 1 that is in accordance with Test Method D 1822.

NOTE 1—The length of the specimen can be changed to suit the design of the test apparatus. However, there should be a constant neck section with length at least 13 mm (0.5 in.) long. The width should be 3.20 mm (0.125 in.).

6.2 *Notching Device*—A device or machine that can produce a consistent notch depth.[4]

NOTE 2—An evaluation of the notching technique can be performed by quenching a notched specimen in liquid nitrogen and then fracturing it. The notch depth can readily be measured by examining the fracture surface under a reflected light microscope.

6.3 *Stress Cracking Apparatus*—Equipment suitable for subjecting test specimens to a tensile stress of up to 13.8 MPa (2000 lb/in.^{2}). The specimens shall be maintained at a

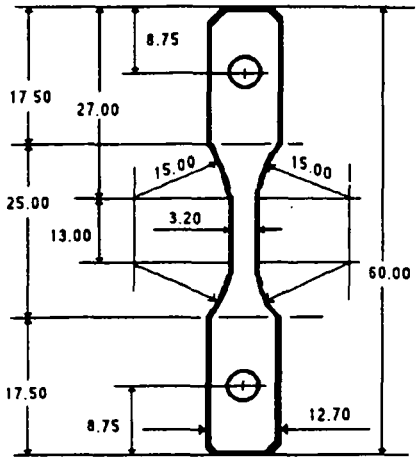
[1] This test method is under the jurisdiction of ASTM Committee D-35 on Geosynthetics and is the direct responsibility of Subcommittee D35.02 on Endurance Properties.

Current edition approved April 15, 1993. Published July 1993.

[2] *Annual Book of ASTM Standards*, Vol 08.01.

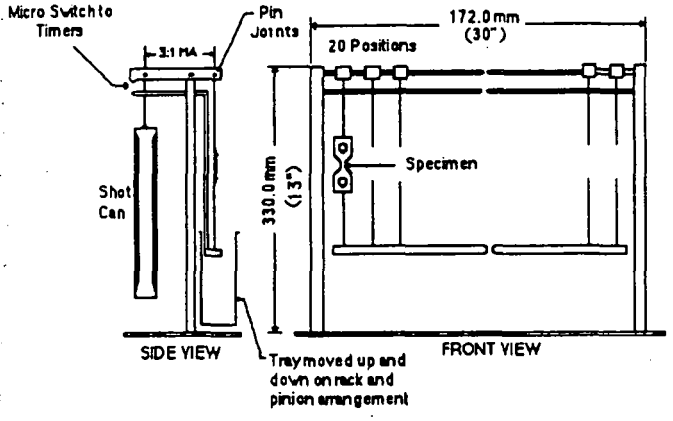
[3] *Annual Book of ASTM Standards*, Vol 04.08.

[4] Notching equipment is available through REMCO Industrial Machine Co., Manville, NJ 08850.



NOTE—Dimensioned in millimetres to an accuracy of 0.02 mm.

FIG. 1 Dimensions of Test Method D 1822 Type "L" Test Specimens



NOTE—The number of positions in the test frame is optional.

FIG. 2 Constant Stress Loading Apparatus Consisting of Twenty Specimen Test Positions

constant temperature of 50 ± 1°C (122 ± 2°F) while being totally immersed in a surface-active agent. The solution should be constantly agitated to provide a uniform concentration throughout the bath.

NOTE 3—The apparatus[5] shown in Fig. 2 is one type that has been used and is capable of testing up to 20 specimens at a time. This equipment uses a lever system with a mechanical advantage (MA) of three to impose the desired loading on each specimen. The surface-active agent in which the specimens are immersed is contained in an open stainless steel tank. A submersion heater and controller are used to maintain the test temperature. A pump keeps the liquid in a constant state of agitation. A timing clock for each test specimen is also provided to record automatically the failure time of the test specimens to the nearest 0.1 h.

NOTE 4—If "on/off" switches are used to control the timing clock, the switch must be sensitive enough to be turned off under 200 g of the force.

7. Reagent

7.1 The reagent should consist of 10 % surface-active agent with 90 % water. The surface-active agent is Igepal CO-630[6] that is nonylphenoxy poly(ethyleneoxy)ethanol. The reagent should be stored in a closed container. The reagent in the bath should be replaced every two weeks to maintain a constant concentration.

NOTE 5—In case of dispute, the water should be distilled or deionized at the discretion of the parties involved.

NOTE 6—Other incubation solutions may also be used in the test, provided that the parties involved mutually agree to the changes and state the specific details in the final report.

8. Sampling

8.1 *Lot Sample*—Divide the product into lots and take the lot sample as directed in Practice D 4354.

8.2 *Laboratory Sample*—As a laboratory sample for acceptance testing, take a full-width swatch approximately 1 m (40 in.) long in the machine direction from each roll in the lot sample. The sample may be taken from the end portion of a roll provided there is no evidence it is distorted or different from other portions of the roll.

8.3 *Test Specimens*—At least thirty test specimens are cut from each swatch in the laboratory sample. For each set of tests, all specimens must be taken from one direction.

NOTE 7—Quite often the test is required to challenge the weakest direction of the sheet material. If this is the cross machine direction, the test specimens should be cut in this direction. Hence the notch is placed in the machine direction so that the specimens are stressed in the desired cross machine direction.

NOTE 8—It has been found that inserting a grommet or eyelet in the two holes at the end tabs of the test specimen helps to reduce the number of "grip failures" or failures occurring outside of the neck section of the specimen.

NOTE 9—If specimens larger than Test Method D 1822 type are used in the test, extra care must be exercised to ensure that the specimen is properly aligned to avoid load eccentricity.

9. Procedure

9.1 Measure the thickness of each individual test specimen at its minimum cross section to the nearest 0.013 mm (0.001 in.).

9.2 Cut into each specimen a control imperfection (notch) on one surface as shown in Fig. 3. The depth of the notch should produce a ligament thickness of 80 % of the nominal thickness of the specimen.

NOTE 10—Using this procedure the actual notch depth will vary in accordance with the actual thickness of the test specimen. For example, a sheet of nominal thickness of 2 mm (80 mil) might have thicknesses ranging from 1.98 to 2.08 mm (78 to 82 mil). To obtain a constant hinge thickness of 1.6 mm (64 mil), the notch depth would vary from 0.36 to 0.46 mm (14 to 18 mil), depending upon the actual thickness of the individual test specimens.

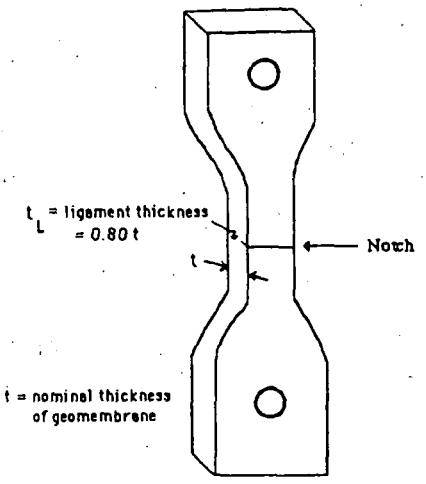
9.3 Conditioning the specimens in ice water for 30 min before notching can help produce a very consistent notch depth. This procedure is particularly useful for low density polyolefin materials.

9.4 Inspect the edge of the blade for scratches and burrs under normal vision prior to the cut. No single blade shall be used for notching more than 20 test specimens.

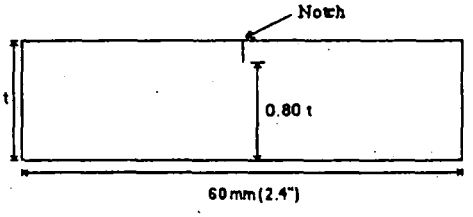
9.5 Test specimens are loaded at various percentages of

[5] This equipment is available through Custom Scientific Instruments Co., Cedar Knolls, NJ 07927, and BT Technology Inc., 613 W. Clinton St., Rushville, IL 62681.

[6] Igepal CO-630 may be obtained from Rhone-Poulenc, CN 7500, Prospect Plains Road, Cranbury, NJ 08512-7500.



Front View of the Cut Test Specimen



Side View of the Test Specimen

FIG. 3 Front and Side Views of the Notched Test Specimen of NCTL Test

their room temperature yield stress. The applied stress levels should range from approximately 20 to 65 % at maximum increments of 5 %. Three specimens are tested at each stress level to produce statistically significant results.

NOTE 11—To develop the entire curve in a single direction at the recommended values listed above will require ten increments at three specimens each, or 30 individual tests. If both directions are to be challenged, the entire test will require twice as many test specimens.

9.6 For each set of test, the yield stress of the material should be measured according to Test Method D 638 (Type IV). Five specimens should be tested and the average value is used to calculate the applied force. The test specimens should be cut from the same sample and same direction as stated in 8.3.

9.7 Calculate the tensile force to be applied to each individual specimen from the equation given below:

$$\text{applied force} = (A)(\sigma_y)(w)(t_L)(1/MA)$$

where:

applied force = force to be applied to achieve a specific percentage of the yield stress, N (lb),
A = percentage of yield stress to be achieved,
σ_y = the yield stress of the material at room temperature, N/m^2 (lb/in.^{2}),
w = width of the neck of the test specimen (3.20 mm (0.125 in.)) for Test Method D 1822 dumbbells),
t_L = the ligament thickness of the test specimen, that is, recommended to be 80 % of the nominal thickness, mm (in.), and
MA = mechanical advantage of the test apparatus, that is 3.0 for the apparatus shown in Fig. 2.

9.8 Fill the test bath with reagent, and adjust the temperature to 50 ± 1°C (122 ± 2°F).

NOTE 12—Other temperatures may be used when conducting this test. However, it must be mutually agreed upon by parties involved and the test temperature must be stated in the final report.

9.9 Attach the test specimens to the hooks of the test apparatus.

9.10 Adjust the distance between the lever arm and the switch to a dimension equal to 20 mm (0.80 in.).

9.11 Immerse the test specimens and allow temperature equilibrium to be reached. The minimum time is 30 min.

9.12 Prepare the appropriated weight of lead shot (or other types) required for each individual test specimen according to the calculation in 9.7.

9.13 Load each individual specimen with its respective weight and record the elapsed time to failure to the nearest 0.1 h.

NOTE 13—Other test duration time can be used besides failure time. However, it must be mutually agreed upon by parties involved and the duration of the test must be stated in the final report.

NOTE 14—Expanded polystyrene or other types of insulation can be placed on top of the liquid to minimize the evaporation of water and oxidation of liquid.

NOTE 15—The liquid level in the bath can be maintained by using an automatic water feeder.

9.14 For each of the applied stress levels, calculate the arithmetic mean of the three failure time values and report it as the "average failure time" for that particular applied stress level.

9.15 Calculate the coefficient of variation as follows and report it to two significant figures:

coefficient of variation (V) = (*standard deviation/mean*) × 100 %

The value (V) must be less than 15 % for those with average failure time greater than 10 h. If not, three new specimens should be tested at that specific applied stress level again.

10. Interpretation of Results

10.1 Present the test data in graphic form by plotting the logarithm of percentage yield stress versus the logarithm of the average failure time for each stress level. Three possible types of curves can result, see Fig. 4.

11. Report

11.1 Report the following:

11.1.1 Complete identification of the material tested,

11.1.2 Yield stress used in the test,

11.1.3 Method of conditioning used if different from that specified herein,

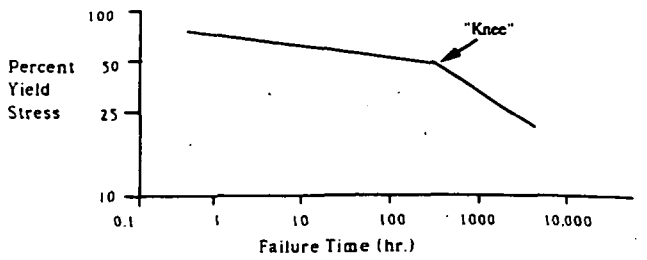
11.1.4 Report the average failure time and coefficient of variation values for each of the applied stress levels, and

11.1.5 A plot of the percent yield stress against average failure time on log-log axes.

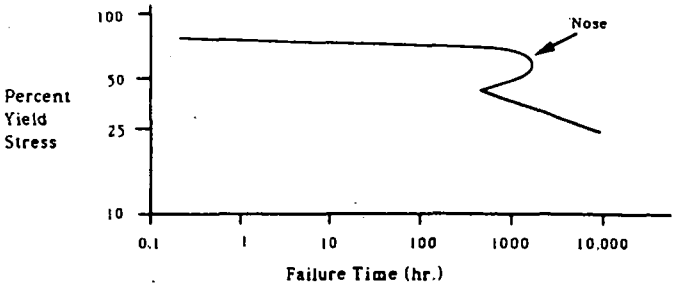
12. Precision and Bias

12.1 *Precision*—The precision of the procedure in this test method is being established.

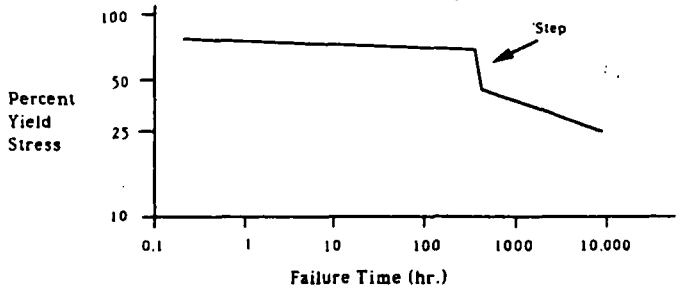
12.2 *Bias*—The procedure in this test method for measuring the failure time at different applied stress has no bias because the value of the failure time can be defined only in terms of a test method.



(a) A Bi-Linear (or "Knee") Response Curve



(b) A Overshoot (or "Nose") Response Curve



(c) A Tri-Linear (or "Step") Response Curve

FIG. 4 Possible Response of Curves Resulting from a Complete Notched Constant Tensile Load (NCLT) Test

13. Keywords

13.1 failure time; geomembrane; notch; polyolefin; yield stress

The American Society for Testing and Materials takes no position respecting the validity of any patent rights asserted in connection with any item mentioned in this standard. Users of this standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, are entirely their own responsibility.

This standard is subject to revision at any time by the responsible technical committee and must be reviewed every five years and if not revised, either reapproved or withdrawn. Your comments are invited either for revision of this standard or for additional standards and should be addressed to ASTM Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend. If you feel that your comments have not received a fair hearing you should make your views known to the ASTM Committee on Standards, 1916 Race St., Philadelphia, PA 19103.

CITRUS

LINER CONCERN

MEETING 8/24/00

KIM FORD, BOB BATTENA, DAVE MASON

SUSIE MCCALEB, DAVID LEGGETT

KEN SANDERS

VISUAL OBSERVED LINER

DISCUSS:

FACTORS FOR FAILURE —

COLD WEATHER, WIND, TOP 20'

LOOKS LIKE NO RIPS IF COVERED

? IS THERE A NEED FOR GEOGRID?

? WHAT IS THE POTENTIAL LEAKAGE?

ESTIMATE NEEDED FOR WORST CASE

LINER RIP LEAKAGE

(IF ON 2:1 SIDESLOPE, NO HEAD,

VERTICAL SLIT, AT TOP only

THEN POTENTIAL LEAKAGE IS LOW)

ETC

POLY-FLEX, INC.

2000 W. Marshall Drive Grand Prairie, Texas 75051 USA

888-765-9359 972-337-7113 FAX 972-337-7233

August 16, 2000

RECEIVED
AUG 18 2000
CITRUS COUNTY DOT
SOLID WASTE MANAGEMENT DIV.

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
AUG 24 2000
SOUTHWEST DISTRICT
TAMPA

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

RE: Citrus County Central Landfill Liner

Dear Ms. Metcalfe;

We are in receipt and have completed our review of the report of investigation prepared by Dr. Ian Peggs of I-Corp International for Jones, Edmunds, and Associates, Inc. There are a few typing errors that should be corrected so not to distort the data compiled by Dr. Peggs.

Page 18, 2nd paragraph, 5th line:
"239 hr for unexposed material" should be "239 hr for exposed material."
Page 18, 3rd paragraph, last sentence:
"In the case of OIT the curve..." should read "In case of the NCTL the curve..."
and "200 minutes" should be "200 hours."
Page 21, 1st paragraph, 2nd line:
"200 hr" should be "100 minute"
Page 22, 5th paragraph, 2nd line:
"1998" should be "1988"
The above points are not critical but should be confirmed by Dr. Peggs for accuracy.

Dr. Peggs conducted "a series of mechanical, physical and structural analytical test" on the geomembrane. This data, along with the test data presented by TRI in 1999 and Poly-Flex in 2000, is presented in Table 1 page 16. This data clearly illustrates that the tested geomembrane exceeds all parameters outlined by the Project Specifications. This along with Dr. Peggs' statement in his discussion, page 21 "the geomembrane material has satisfactorily met the conventional stress cracking specification of 200 hr." leads us to the conclusion that the geomembrane at the Citrus County Central Landfill meets or exceeds all performance requirements of the Project Specification.

We do acknowledge the presence of unexplained cracks in the fold where the geomembrane was installed with the apex down.

Based on the information presented in Dr. Peggs' report, the results of testing by Dr. Peggs, TRI and Poly-Flex, (Table 1) and the inspection of the landfill by Mr. Pat Kamesch, Customer Service Manager at Poly-Flex, Inc., we recommend the following:

- Cap all folds where the geomembrane has been installed with the apex down.
- Inspect all exposed material every six months until it is covered.
- Cap any failed seams that have failed or cracked due to overheating during welding.

If Poly-Flex, Inc. can be of further service or if you wish to discuss our recommendations with us, please feel free to contact us at 888-765-9359,

Sincerely,

Morris E. Jett
General Manager

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION

AUG 2 4 2000

SOUTHWEST DISTRICT
TAMPA

WASTE MGT TAMPA SWD Fax:8137446125

*** Transmit Conf.Report ***

P.1

Aug 23 2000 10:33

Telephone Number	Mode	Start	Time	Pages	Result	Note
(020) SOLID WST/TA	NORMAL	23,10:30	2'46"	6	* O K	

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION	3804 Coconut Palm Drive Tampa, FL 33619-8318

FAX

Date: 8/23/00

Number of pages including cover sheet: 6

To: DAVID MASON

SOLID WASTE MAN

Phone: SC 291-9237

Fax phone:

CC:

From: Ken Ford

Phone: - (813) 744-6100 x382

Fax phone: (813) 744-6125

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

1) MEETING IS AT 10 AM THURSDAY AT CITRUS LANDFILL

2) ALSO BOB WANTS TO KNOW IF YOU CAN GO TO MEET NEARBY AFTERWARDS?

Ken

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION	3804 Coconut Palm Drive Tampa, FL 33619-8318

FAX

Date: 8/23/00

Number of pages including cover sheet: 6

To: DAVID MATSON

SOLID WASTE MAN

Phone: SC 291-9237

Fax phone:

CC:

From: TOM FORD

Phone: (813) 744-6100 x382

Fax phone: (813) 744-6125

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

1. MEETING IS AT 10 AM THURSDAY AT CITRUS LANDFILL
2. ALSO BOB WANTS TO KNOW IF YOU CAN GO TO MEET NEARBY AFTERWARDS?

TOM

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

August 22, 2000

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

600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
Suite 205
352-527-5447 Phone
352-527-5459 Fax

- Permits & Compliance Sec.
Suite 204
352-527-5448 Phone
352-527-5319 Fax

- Project Management Sec.
Suite 241
352-527-5449 Phone
352-527-5482 Fax

- Survey Section
Suite 241
352-527-5446 Phone
352-527-5482 Fax

MAINTENANCE OPERATIONS:
- Facilities Maint. Section
PO Box 219
Lecanto, FL 34460
352-527-5933 Phone
352-527-4654 Fax

- Fleet Management Section
PO Box 219
Lecanto, FL 34460
352-746-6888 Phone
352-746-5011 Fax

AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

ROAD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

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

Post-it Fax Note 7679 | Date 8/22 | # of pages 4
To Kim B. Ford PE
Fax # 813-744-6125
From S. METCALFE
Phone # 352-746-5000

RE: Citrus County Central Landfill Side Slope Liners
Permit No. SO09-247381

Dear Mr. Ford:

The attached letter from David Keough, of Jones, Edmunds & Associates describes the procedures that Citrus County intends to follow in the further investigation and remediation of impaired performance due to stress cracking of side slope liners at the Central Landfill. We look forward to meeting with you and Bob Butera this week to further discuss the current condition of the liner, and our proposed further

Sincerely,

Susan J. Metcalfe, P.G.
Director

Attachment

CC: Robert J. Butera, FDEP Tampa (with attachment)
Kenneth E. Saunders, Jr., Public Works Director (with attachment)
Gary W. Kuhl, County Administrator (with attachment)
Richard Wm. Wesch, Assistant County Administrator (with attachment)
Carl E. Kern, Assistant County Attorney (with attachment)
David A. Keough, Jones, Edmunds & Associates, Gainesville

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

August 22, 2000

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

RE: Citrus County Central Landfill Side Slope Liners
JEA Project No.: 03860-002-01

Dear Kim:

The investigation of cracks that have been observed in the apex down folds and adjacent to a few seams that have been performed to date suggest that portions of exposed (and previously exposed) side slope liner may be susceptible to stress cracking. The July 2000 I-Corp, Inc. Investigation of Liner Cracking... report was previously transmitted to your office by Susan Metcalfe, P.G., Director, Citrus County Solid Waste Management.

The proposed strategy for assessing the extent of liner with impaired performance characteristics is presented in the attached decision chart and is described as follows:

1. Determine the number of positions on the landfill liner material with apex down manufacturing fold installation by visually inspecting the liner strip exposed adjacent to the anchor trench. Also determine those seams that show signs of having full length extrusion (as opposed to fusion) welded seams. It is anticipated that these locations will be primarily on the southern slope of the landfill. Liner in this part of the landfill was exposed for approximately five to seven years. Historic aerial photographs will be utilized to assign the approximate exposure duration for each of the potential areas. We initially anticipate samples for the 5-year exposure duration will be obtained closer to the southwest corner as this would be more nearly representative of the five year critical exposure period as estimated in the July 2000 report.

   Develop a sample methodology that selects a statistically valid number of fold, seam & field samples based on the observations as described above. Samples will then be obtained from the liner at approximately the same distance from the top of the slope as the defects that were observed in early 2000. Additional samples will be taken from the exposed liner near the bottom of the slope along the same folds as were sampled in the July 2000 report. The results of these down slope test will be used to determine if liner material properties have been affected by the relative slope location. All samples will be subjected to the following suite of tests that were also performed in the July 2000 investigation:

   Carbon Black (%)
   Carbon Black Dispersion
   Melt Flow Index

Density
Oxidative Induction Time (OIT)
Notched Constant Tensile Load (NCTL)
Stress Crack Resistance Unnotched (SCR)

2. If tests of the 5-year field, fold and seam materials show acceptable performance characteristics, then we would expand the testing program to include liner that had been exposed for approximately seven years. In the event these 5-year material tests show unacceptable performance characteristics, we will identify locations where tests on 3-year exposures would be performed.

3. In the event the 7-year exposed material shows satisfactory performance, remediation would be limited to the area that is currently exposed plus that area on the eastern slope that was exposed prior to the most recent movement of the rain gutter.

4. Prior to obtaining samples of 3-year exposure material in the event that 5-year material showed significantly compromised performance characteristics, a cost benefit review will be performed to determine the feasibility of obtaining 3-year exposure samples. The County may elect to waive sampling of 3-year material, and commence with a remediation plan over the entire area of potential 3-year exposed material that would consist of placement of final cover over the prescribed areas of concern.

As with any investigation there is the possibility that information discovered during the course of investigation may indicate the need to modify the program and project strategy. We anticipate that approximately three to six months would be required to implement the testing programs and arrive at a final recommended remediation action. The time frame to implement the remediation will be dependent upon the final recommended action with implementation time frames likely ranging between three and twelve months.

We will submit, under separate cover, a signed and sealed report containing the July 20, 2000 I-Corp, Inc. report. Please advise if additional information is required. We look forward to working with you on this sensitive issue.

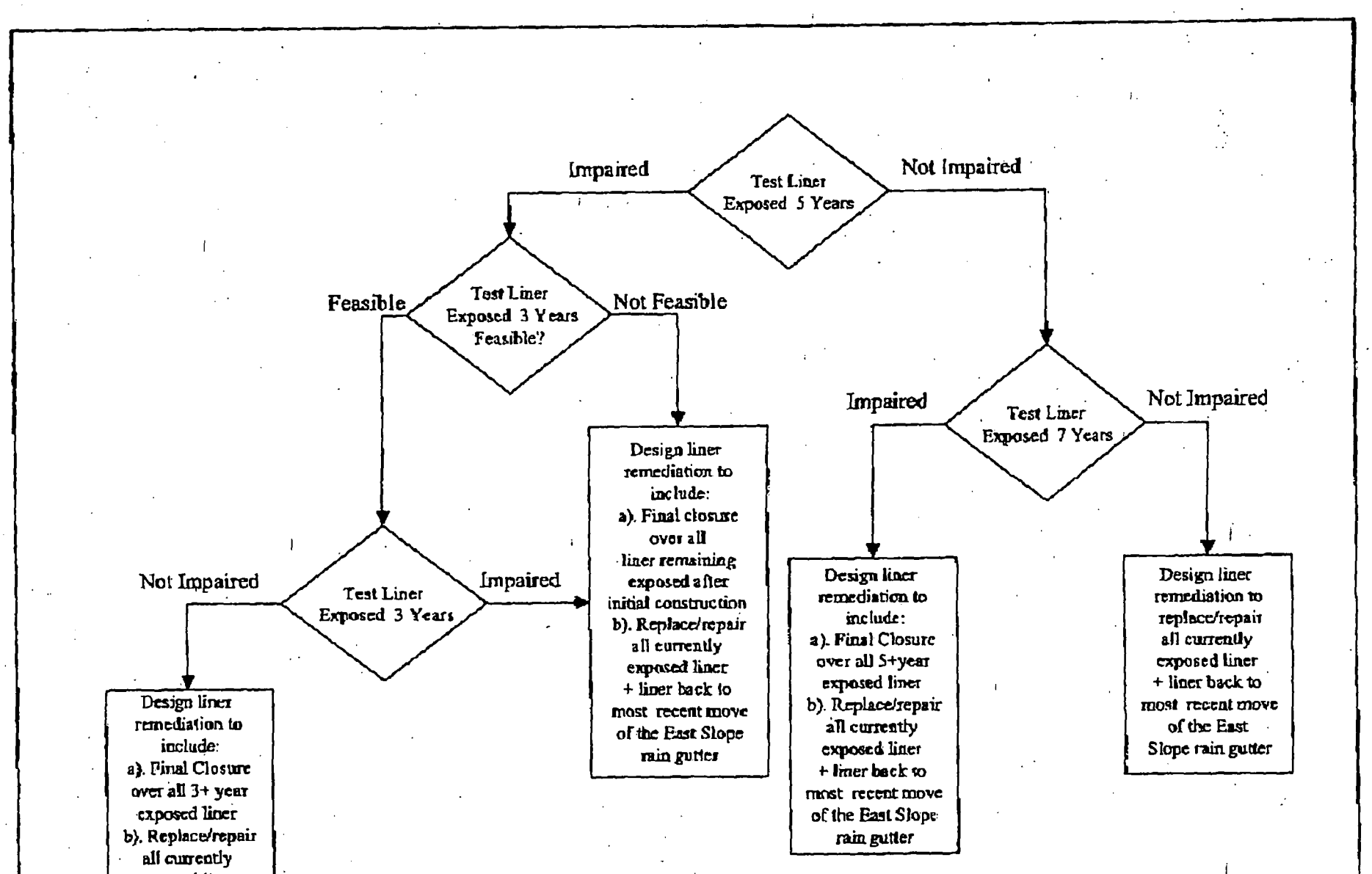
Sincerely,

for David A. Keough, P.E.
Vice President

Attachment

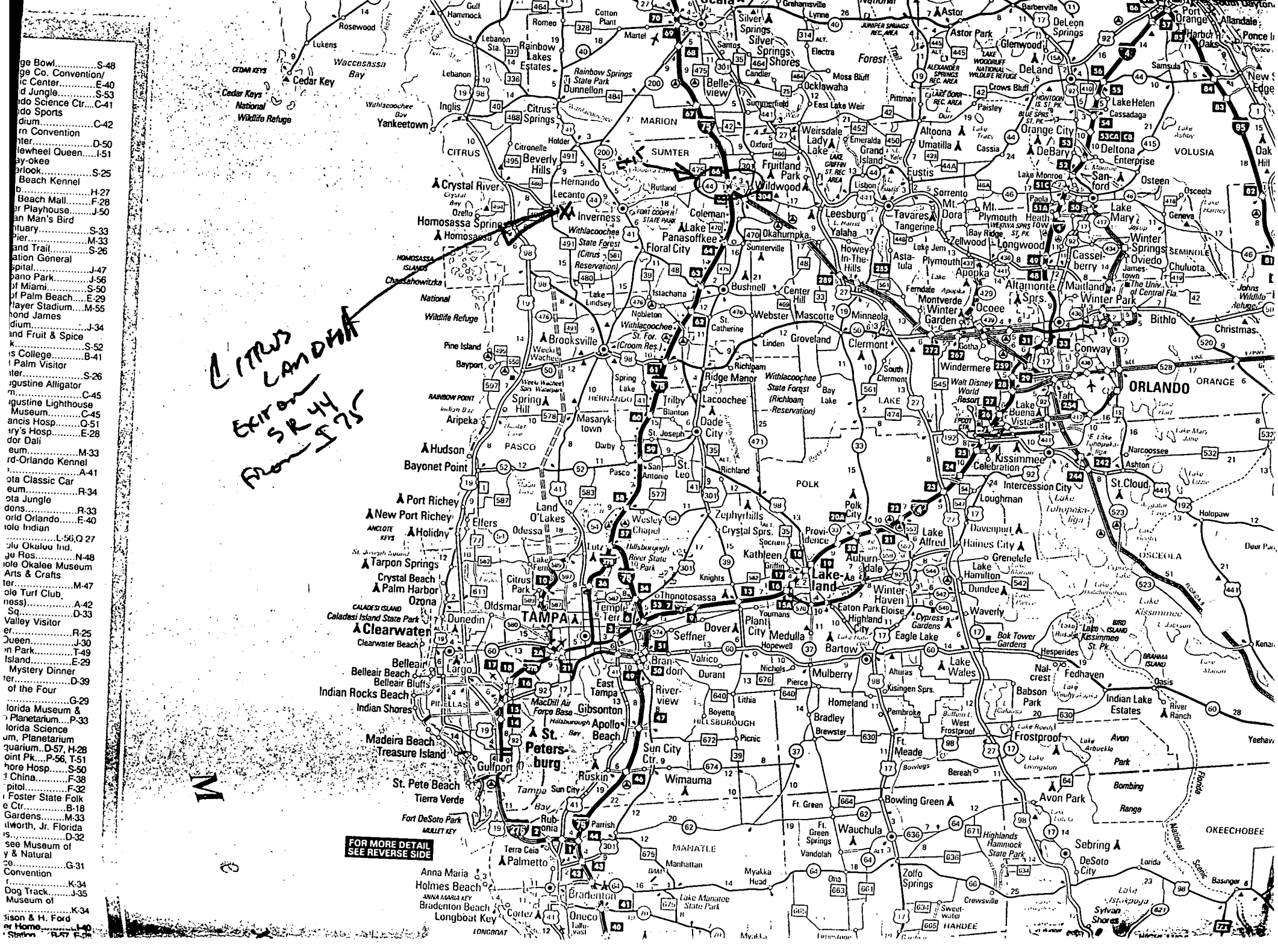
xc: Susan Metcalfe, P.G.

H:\JMcGregor\DKeough\3860\010.wpd



Citrus County Central Landfill
Slope Liner Remediation Decision Chart

Sent By: Jones, Edmunds & Associates, Inc;352 377 3166 ; Aug-22-00 10:59AM; SOLID WASTE MGMT PAGE 04
Page 4/4


Citrus County Exit on SR 44 From I-75
FOR MORE DETAIL SEE REVERSE SIDE
TAMPA
ORLANDO
Cedar Key
Crystal River
Homosassa Springs
Inverness
Brooksville
Dade City
Lakeland
Clearwater
St. Petersburg
Bradenton
Sarasota
Kissimmee
Winter Haven
Bartow
Plant City
Zephyrhills
New Port Richey
Port Richey
Tarpon Springs
Dunedin
Largo
Belleair
Madeira Beach
Treasure Island
St. Pete Beach
Tierra Verde
Gulfport
Indian Rocks Beach
Indian Shores
Belleair Beach
Belleair Bluffs
Clearwater Beach
Oldsmar
Citrus Park
Temple Terr.
Thonotosassa
Seffner
Brandon
Valrico
Riverview
Sun City Ctr.
Ruskin
Wimauma
Apollo Beach
Gibsonton
East Tampa
MacDill Air Force Base
Hudson
Bayonet Point
Aripeka
Hernando
Lecanto
Beverly Hills
Citrus Springs
Inglis
Yankeetown
Crystal River
Homosassa
Ozello
Chassahowitzka
Weeki Wachee
Spring Hill
Masaryktown
Land O'Lakes
Wesley Chapel
Odessa
Elfers
Holiday
Trilby
Lacoochee
Ridge Manor
Richloam
Dade City
St. Joseph
St. Leo
San Antonio
Pasco
Darby
Blanton
Istachatta
Nobleton
Lake Lindsey
Center Hill
Webster
Mascotte
Minneola
Clermont
Groveland
Leesburg
Fruitland Park
Wildwood
Lake Panasoffkee
Floral City
Sumterville
Bushnell
Coleman
Okahumpka
Lake Jem
Howey-In-The-Hills
Yalaha
Tavares
Mount Dora
Eustis
Lisbon
Sorrento
Paola
Umatilla
Altoona
Pittman
Crows Bluff
Paisley
Ocklawaha
Belleview
Summerfield
East Lake Weir
Weirsdale
Lady Lake
Oxford
Emeralda
Grand Island
Astor
Astor Park
Glenwood
DeLeon Springs
DeLand
Orange City
DeBary
Deltona
Enterprise
Lake Helen
Cassadaga
Samsula
New Smyrna Beach
Edgewater
Oak Hill
Port Orange
Daytona Beach
Ormond Beach
Holly Hill
South Daytona
Harbor Oaks
Allandale
Ponce Inlet
Silver Springs
Silver Springs Shores
Ocala
Lynne
Cotton Plant
Martel
Santos
Electra
Romeo
Gulf Hammock
Rosewood
Lukens
Lebanon Sta.
Lebanon
Rainbow Lakes Estates
Rainbow Springs State Park
Dunnellon
Candler
Moss Bluff
Juniper Springs Rec. Area
Alexander Springs Rec. Area
Lake Woodruff National Wildlife Refuge
Lake Dora
Tangerine
Zellwood
Plymouth
Apopka
Altamonte Springs
Maitland
Winter Park
Winter Garden
Montverde
Ocoee
Windermere
Gotha
Conway
Bithlo
Christmas
Taft
Buena Vista
Walt Disney World Resort
Lake Buena Vista
Celebration
Kissimmee
Intercession City
Loughman
Davenport
Haines City
Lake Alfred
Auburndale
Polk City
Providence
Kathleen
Griffin
Socrum
Crystal Spgs.
Lake Hamilton
Grenelefe
Dundee
Waverly
Eaton Park
Eloise
Highland City
Cypress Gardens
Lake Wales
Mulberry
Alturas
Kissingen Spgs.
Nichols
Durant
Lithia
Pierce
Boyette
Homeland
Bradley
Brewster
Pembroke
Fort Meade
Bowlegs
Bereah
Frostproof
Avon Park
Bombing Range
Sebring
DeSoto City
Highlands Hammock State Park
Wauchula
Fort Green
Fort Green Springs
Vandolah
Zolfo Springs
Crewsville
Sweetwater
Hardee
Myakka Head
Manhattan
Parrish
Palmetto
Terra Ceia
Anna Maria
Holmes Beach
Bradenton Beach
Longboat Key
Oneco
Tallevast
Lake Manatee State Park
Myakka
Polk
Pasco
Hernando
Citrus
Sumter
Marion
Lake
Orange
Volusia
Seminole
Osceola
Okeechobee
Hardee
Manatee
Pinellas
Hillsborough
Polk
Cedar Keys National Wildlife Refuge
Withlacoochee State Forest (Citrus Reservation)
Withlacoochee State Forest (Richloam Reservation)
Withlacoochee St. For. (Croom Res.)
Fort Cooper State Park
Rainbow Springs State Park
Hillsborough River State Park
Caladesi Island State Park
Homosassa Springs Wildlife State Park
Lake Griffin St. Rec. Area
Blue Springs St. Pk.
Hontoon Is. St. Pk.
Lake Woodruff National Wildlife Refuge
Alexander Springs Rec. Area
Juniper Springs Rec. Area
Lake Dora Rec. Area
Withlacoochee Bay
Waccasassa Bay
Tampa Bay
Lake Tohopekaliga
Lake Kissimmee
Lake Marion Creek
Lake Hatchineha
Lake Rosalie
Lake Arbuckle
Lake Livingston
Lake Reedy
Lake Weohyakapka
Lake Ashby
Lake Monroe
Lake Tracy
Lake Yale
Lake Eustis
Lake Harris
Lake Jem
Lake Apopka
Lake Hamilton
Lake Alfred
Lake Wales
Lake Eloise
Lake Gibson
Lake Parker
Lake Morton
Lake Hollingsworth
Lake Bonny
Lake Ariana
Lake Mirror
Lake Fannie
Lake Howard
Lake Eola
Lake Lorna Doone
Lake Rowena
Lake Conway
Lake Down
Lake Cane
Lake Tibet
Lake Butler
Lake Sheen
Lake Whippoorwill
Lake Gatlin
Lake Underhill
Lake Pickett
Lake Mary Jane
Lake Hart
Lake Cypress
Lake Tohopekaliga
Lake Kissimmee State Park
Bok Tower Gardens
Florida Citrus Tower
The Univ. of Central Fla.
Johns Wildlife Refuge
Orlando Int'l Airport
Florida Turnpike
Florida Scenic National
Florida Citrus Tower
Ft. Green Springs
Highlands Hammock State Park
Lake Manatee State Park
Caladesi Island State Park
Anna Maria Key
Longboat Key
Cedar Keys National Wildlife Refuge
Homosassa Springs Wildlife State Park
Withlacoochee State Forest (Citrus Reservation)
Withlacoochee State Forest (Richloam Reservation)
Withlacoochee St. For. (Croom Res.)
Fort Cooper State Park
Rainbow Springs State Park
Hillsborough River State Park
Caladesi Island State Park
Lake Griffin St. Rec. Area
Blue Springs St. Pk.
Hontoon Is. St. Pk.
Lake Woodruff National Wildlife Refuge
Alexander Springs Rec. Area
Juniper Springs Rec. Area
Lake Dora Rec. Area
Withlacoochee Bay
Waccasassa Bay
Tampa Bay
Lake Tohopekaliga
Lake Kissimmee
Lake Marion Creek
Lake Hatchineha
Lake Rosalie
Lake Arbuckle
Lake Livingston
Lake Reedy
Lake Weohyakapka
Lake Ashby
Lake Monroe
Lake Tracy
Lake Yale
Lake Eustis
Lake Harris
Lake Jem
Lake Apopka
Lake Hamilton
Lake Alfred
Lake Wales
Lake Eloise
Lake Gibson
Lake Parker
Lake Morton
Lake Hollingsworth
Lake Bonny
Lake Ariana
Lake Mirror
Lake Fannie
Lake Howard
Lake Eola
Lake Lorna Doone
Lake Rowena
Lake Conway
Lake Down
Lake Cane
Lake Tibet
Lake Butler
Lake Sheen
Lake Whippoorwill
Lake Gatlin
Lake Underhill
Lake Pickett
Lake Mary Jane
Lake Hart
Lake Cypress
Lake Tohopekaliga
Lake Kissimmee State Park
Bok Tower Gardens
Florida Citrus Tower
The Univ. of Central Fla.
Johns Wildlife Refuge
Orlando Int'l Airport
Florida Turnpike
Florida Scenic National
Florida Citrus Tower
Ft. Green Springs
Highlands Hammock State Park
Lake Manatee State Park
Caladesi Island State Park
Anna Maria Key
Longboat Key
Cedar Keys National Wildlife Refuge
Homosassa Springs Wildlife State Park

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

August 22, 2000

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

600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 213
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
Suite 205
352-527-5447 Phone
352-527-5459 Fax
- Permits & Compliance Sec.
Suite 204
352-527-5448 Phone
352-527-5219 Fax
- Project Management Sec.
Suite 241
352-527-5449 Phone
352-527-5482 Fax
- Survey Section
Suite 241
352-527-5446 Phone
352-527-5482 Fax

LECANTO, FL 34461

MAINTENANCE OPERATIONS:
- Facilities Maint. Section
PO Box 249
Lecanto, FL 34461
352-527-5313 Phone
352-527-4654 Fax
- Fleet Management Section
PO Box 213
Lecanto, FL 34460
352-746-6888 Phone
352-746-5011 Fax

AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

MSD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

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

Post-it® Fax Note 7679	Date 8/22	# of pages 4
To Kim B. Ford PE		
Fax # 813-744-6125		
From S. METCALFE		
Phone # 352-746-5000		

RE: Citrus County Central Landfill Side Slope Liners
Permit No. SO09-247381

Dear Mr. Ford:

The attached letter from David Keough, of Jones, Edmunds & Associates describes the procedures that Citrus County intends to follow in the further investigation and remediation of impaired performance due to stress cracking of side slope liners at the Central Landfill. We look forward to meeting with you and Bob Butera this week to further discuss the current condition of the liner, and our proposed further actions.

Sincerely,

Susan J. Metcalfe, P.G.
Director

Attachment

CC: Robert J. Butera, FDEP Tampa (with attachment)
Kenneth E. Saunders, Jr., Public Works Director (with attachment)
Gary W. Kuhl, County Administrator (with attachment)
Richard Wm. Wesch, Assistant County Administrator (with attachment)
Carl E. Kern, Assistant County Attorney (with attachment)
David A. Keough, Jones, Edmunds & Associates, Gainesville

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

August 22, 2000

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

RE: Citrus County Central Landfill Side Slope Liners
JEA Project No.: 03860-002-01

Dear Kim:

The investigation of cracks that have been observed in the apex down folds and adjacent to a few seams that have been performed to date suggest that portions of exposed (and previously exposed) side slope liner may be susceptible to stress cracking. The July 2000 I-Corp, Inc. Investigation of Liner Cracking... report was previously transmitted to your office by Susan Metcalfe, P.G., Director, Citrus County Solid Waste Management.

The proposed strategy for assessing the extent of liner with impaired performance characteristics is presented in the attached decision chart and is described as follows:

1. Determine the number of positions on the landfill liner material with apex down manufacturing fold installation by visually inspecting the liner strip exposed adjacent to the anchor trench. Also determine those seams that show signs of having full length extrusion (as opposed to fusion) welded seams. It is anticipated that these locations will be primarily on the southern slope of the landfill. Liner in this part of the landfill was exposed for approximately five to seven years. Historic aerial photographs will be utilized to assign the approximate exposure duration for each of the potential areas. We initially anticipate samples for the 5-year exposure duration will be obtained closer to the southwest corner as this would be more nearly representative of the five year critical exposure period as estimated in the July 2000 report.

   Develop a sample methodology that selects a statistically valid number of fold, seam & field samples based on the observations as described above. Samples will then be obtained from the liner at approximately the same distance from the top of the slope as the defects that were observed in early 2000. Additional samples will be taken from the exposed liner near the bottom of the slope along the same folds as were sampled in the July 2000 report. The results of these down slope test will be used to determine if liner material properties have been affected by the relative slope location. All samples will be subjected to the following suite of tests that were also performed in the July 2000 investigation:

   Carbon Black (%)
   Carbon Black Dispersion
   Melt Flow Index

Density
Oxidative Induction Time (OIT)
Notched Constant Tensile Load (NCTL)
Stress Crack Resistance Unnotched (SCR)

2. If tests of the 5-year field, fold and seam materials show acceptable performance characteristics, then we would expand the testing program to include liner that had been exposed for approximately seven years. In the event these 5-year material tests show unacceptable performance characteristics, we will identify locations where tests on 3-year exposures would be performed.

3. In the event the 7-year exposed material shows satisfactory performance, remediation would be limited to the area that is currently exposed plus that area on the eastern slope that was exposed prior to the most recent movement of the rain gutter.

4. Prior to obtaining samples of 3-year exposure material in the event that 5-year material showed significantly compromised performance characteristics, a cost benefit review will be performed to determine the feasibility of obtaining 3-year exposure samples. The County may elect to waive sampling of 3-year material, and commence with a remediation plan over the entire area of potential 3-year exposed material that would consist of placement of final cover over the prescribed areas of concern.

As with any investigation there is the possibility that information discovered during the course of investigation may indicate the need to modify the program and project strategy. We anticipate that approximately three to six months would be required to implement the testing programs and arrive at a final recommended remediation action. The time frame to implement the remediation will be dependent upon the final recommended action with implementation time frames likely ranging between three and twelve months.

We will submit, under separate cover, a signed and sealed report containing the July 20, 2000 I-Corp, Inc. report. Please advise if additional information is required. We look forward to working with you on this sensitive issue.

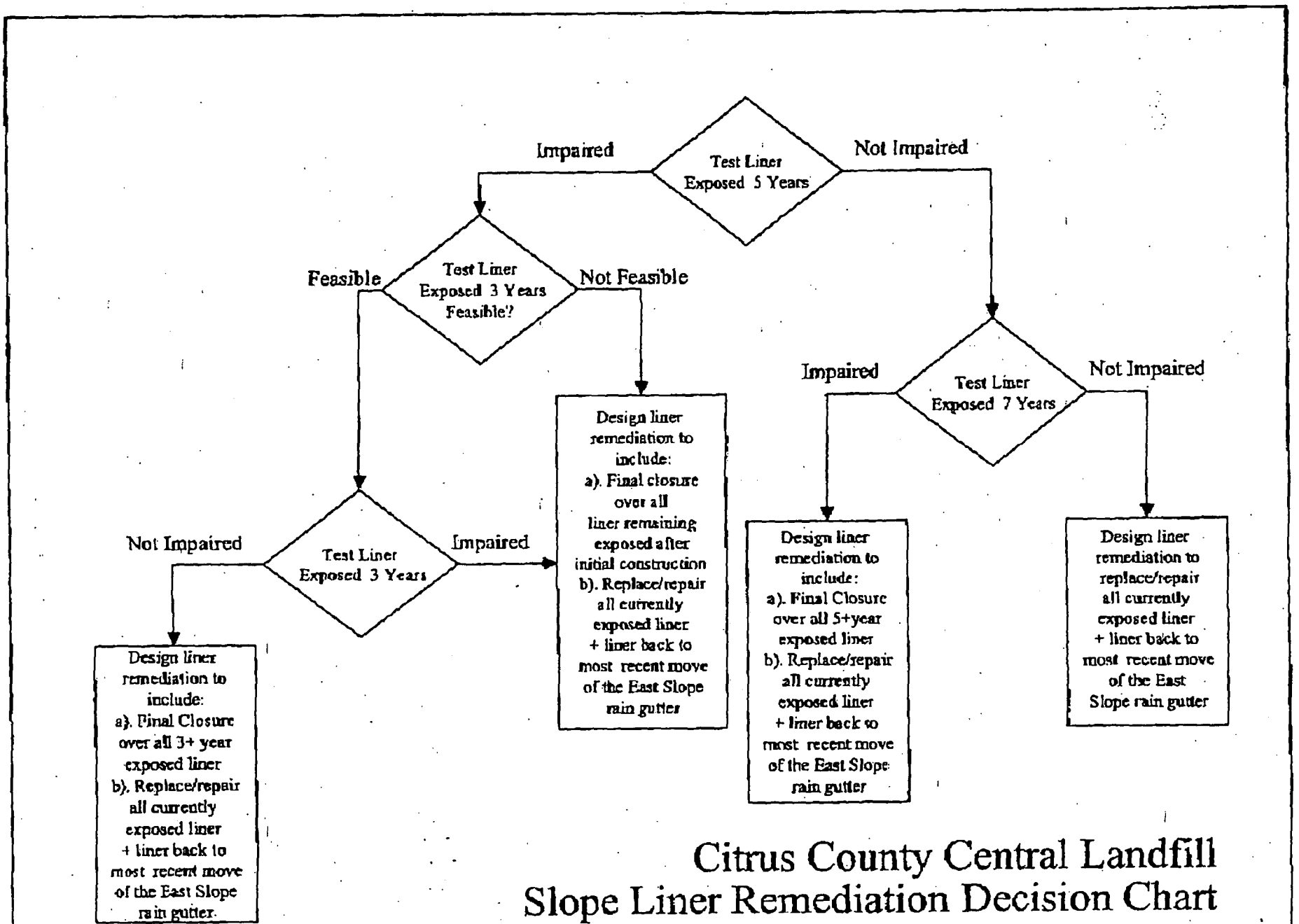
Sincerely,

David A. Keough, P.E.
Vice President

Attachment

xc: Susan Metcalfe, P.G.

H:\JMcGregor\DKeough\03860\010.wpd



Citrus County Central Landfill
Slope Liner Remediation Decision Chart

Sent By: Jones, Edmunds & Associates, Inc;352 377 3166 ; Aug-22-00 10:59AM; SOLID WASTE MGMT PAGE 04
Page 4/4

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

August 22, 2000

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

600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
Suite 205
352-527-5447 Phone
352-527-5459 Fax
- Permits & Compliance Sec.
Suite 204
352-527-5448 Phone
352-527-5319 Fax
- Project Management Sec.
Suite 241
352-527-5449 Phone
352-527-5482 Fax
- Survey Section
Suite 241
352-527-5446 Phone
352-527-5482 Fax

MAINTENANCE OPERATIONS:
- Facilities Maint. Section
PO Box 340
Lecanto, FL 34460
352-527-5313 Phone
352-527-4654 Fax
- Fleet Management Section
PO Box 213
Lecanto, FL 34460
352-746-6888 Phone
352-746-5011 Fax

AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

MOSQUITO MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

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

Post-it Fax Note 7679 | Date 8/22 | # of pages 4
To Kim B. Ford PE
Fax # 813-744-6125
From S. METCALFE
Phone # 352-746-5000

RE: Citrus County Central Landfill Side Slope Liners
Permit No. SO09-247381

Dear Mr. Ford:

The attached letter from David Keough, of Jones, Edmunds & Associates describes the procedures that Citrus County intends to follow in the further investigation and remediation of impaired performance due to stress cracking of side slope liners at the Central Landfill. We look forward to meeting with you and Bob Butera this week to further discuss the current condition of the liner, and our proposed further actions.

Sincerely,

Susan J. Metcalfe, P.G.
Director

Attachment

CC: Robert J. Butera, FDEP Tampa (with attachment)
Kenneth E. Saunders, Jr., Public Works Director (with attachment)
Gary W. Kuhl, County Administrator (with attachment)
Richard Wm. Wesch, Assistant County Administrator (with attachment)
Carl E. Kern, Assistant County Attorney (with attachment)
David A. Keough, Jones, Edmunds & Associates, Gainesville

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

August 22, 2000

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

RE: Citrus County Central Landfill Side Slope Liners
JEA Project No.: 03860-002-01

Dear Kim:

The investigation of cracks that have been observed in the apex down folds and adjacent to a few seams that have been performed to date suggest that portions of exposed (and previously exposed) side slope liner may be susceptible to stress cracking. The July 2000 T-Corp, Inc. Investigation of Liner Cracking... report was previously transmitted to your office by Susan Metcalfe, P.G., Director, Citrus County Solid Waste Management.

The proposed strategy for assessing the extent of liner with impaired performance characteristics is presented in the attached decision chart and is described as follows:

1. Determine the number of positions on the landfill liner material with apex down manufacturing fold installation by visually inspecting the liner strip exposed adjacent to the anchor trench. Also determine those seams that show signs of having full length extrusion (as opposed to fusion) welded seams. It is anticipated that these locations will be primarily on the southern slope of the landfill. Liner in this part of the landfill was exposed for approximately five to seven years. Historic aerial photographs will be utilized to assign the approximate exposure duration for each of the potential areas. We initially anticipate samples for the 5-year exposure duration will be obtained closer to the southwest corner as this would be more nearly representative of the five year critical exposure period as estimated in the July 2000 report.

   Develop a sample methodology that selects a statistically valid number of fold, seam & field samples based on the observations as described above. Samples will then be obtained from the liner at approximately the same distance from the top of the slope as the defects that were observed in early 2000. Additional samples will be taken from the exposed liner near the bottom of the slope along the same folds as were sampled in the July 2000 report. The results of these down slope test will be used to determine if liner material properties have been affected by the relative slope location. All samples will be subjected to the following suite of tests that were also performed in the July 2000 investigation:

   Carbon Black (%)
   Carbon Black Dispersion
   Melt Flow Index

Density
Oxidative Induction Time (OIT)
Notched Constant Tensile Load (NCTL)
Stress Crack Resistance Unnotched (SCR)

2. If tests of the 5-year field, fold and seam materials show acceptable performance characteristics, then we would expand the testing program to include liner that had been exposed for approximately seven years. In the event these 5-year material tests show unacceptable performance characteristics, we will identify locations where tests on 3-year exposures would be performed.

3. In the event the 7-year exposed material shows satisfactory performance, remediation would be limited to the area that is currently exposed plus that area on the eastern slope that was exposed prior to the most recent movement of the rain gutter.

4. Prior to obtaining samples of 3-year exposure material in the event that 5-year material showed significantly compromised performance characteristics, a cost benefit review will be performed to determine the feasibility of obtaining 3-year exposure samples. The County may elect to waive sampling of 3-year material, and commence with a remediation plan over the entire area of potential 3-year exposed material that would consist of placement of final cover over the prescribed areas of concern.

As with any investigation there is the possibility that information discovered during the course of investigation may indicate the need to modify the program and project strategy. We anticipate that approximately three to six months would be required to implement the testing programs and arrive at a final recommended remediation action. The time frame to implement the remediation will be dependent upon the final recommended action with implementation time frames likely ranging between three and twelve months.

We will submit, under separate cover, a signed and sealed report containing the July 20, 2000 I-Corp, Inc. report. Please advise if additional information is required. We look forward to working with you on this sensitive issue.

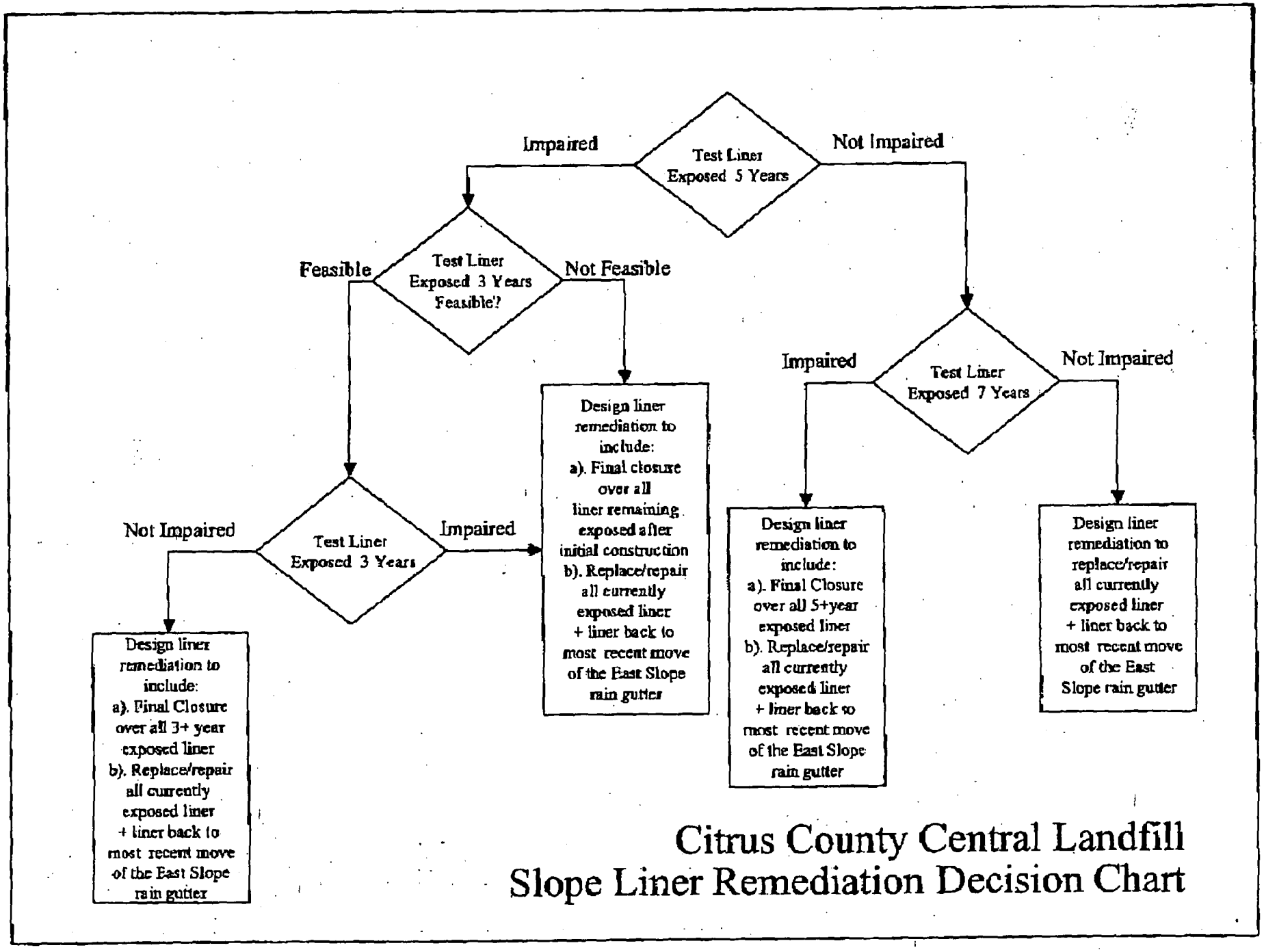
Sincerely,

for David A. Keough, P.E.
Vice President

Attachment

xc: Susan Metcalfe, P.G.

H:\JMcGregor\DKeough\038600\010.wpd



Citrus County Central Landfill
Slope Liner Remediation Decision Chart

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
SOUTHWEST DISTRICT

CONVERSATION RECORD

Date 8/10/00 Subject LINER PROBLEM

Time 1:50 Permit No.

County CITRUS

M DAVE C. Telephone No. 352 7465000

Representing CITRUS LANDFILL

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

Other Individuals Involved in Conversation/Meeting

Summary of Conversation/Meeting

I ASKED FOR

(1) PHOTOS OF LINER COMING OFF ROLLS FOLDED.

(2) COUNTY PROPOSAL WITH ALTERNATIVES AND SCHEDULE

(3) LINER REPORT W/ CONCLUSIONS AND RECOMMENDATIONS - SIGNED & SEALED BY A PE.

I ASKED FOR ALL NEXT WK BEFORE THE MEETING

(continue on another sheet, if necessary)

Signature

Title

PA-01
1/96
pap

INTEROFFICE MEMORANDUM

Sensitivity: COMPANY CONFIDENTIAL

Date: 08-Aug-2000 12:42pm
From: Robert Butera TPA
BUTERA_R
Dept: Southwest District Office
Tel No: 813/744-6100

To: Kim Ford TPA (FORD_K)

Subject: FWD: Citrus County

FYI - Please have Anna make another copy of the Citrus report. The time for the meeting on the 24th has not been determined....will discuss with Susan Metcalf.

INTEROFFICE MEMORANDUM

Sensitivity: COMPANY CONFIDENTIAL

Date: 08-Aug-2000 12:40pm
From: Robert Butera TPA
BUTERA_R
Dept: Southwest District Office
Tel No: 813/744-6100

To: David Mason TAL 850/921-9237 (MASON_D@a1.epic1.dep.state.fl.us)
CC: Richard Tedder TAL (TEDDER_R@a1.epic1.dep.state.fl.us)
CC: Kim Ford TPA (FORD_K)

Subject: Re: Citrus County

We plan on meeting at the facility on August 24th and would appreciate having your participation. If you are going to the Public Workshop in Fort Myers on the 22nd and 23rd you could just stay for the next day. We may want you to give consideration to our decision to allow Polk County to utilize an exposed geomembrane for closure of their Class I Landfill. I will keep you posted. I presume you are headed to the Cape....have a great time!

INTEROFFICE MEMORANDUM

Date: 04-Aug-2000 11:08am
From: David Mason TAL 850/921-9237
MASON_D@a1.epic1.dep.state.fl.us
Dept:
Tel No:

Subject: Citrus County

Bob,

Richard forwarded to me a copy of the information you sent to him about Citrus County's liner. I would be interested in joining you on your visit if by chance it comes along after my vaction. I'll be back in the office on the 21st. But by all means please don't postpone your visit if it happens that I am out. If time allows I would also like to visit Polk County Central landfill.

Thanks.

-David

****
David W. Mason
Engineer II
Solid Waste Section
Florida Department of Environmental Protection
2600 Blair Stone Rd, MS 4565
Tallahassee, Florida 32399-2400

David.Mason@dep.state.fl.us
Tel. (850) 921-9237
Fax (850) 414-0414
http://www.dep.state.fl.us/
****

INTEROFFICE MEMORANDUM

Sensitivity: COMPANY CONFIDENTIAL

Date: 03-Aug-2000 10:52am
From: Robert Butera TPA
BUTERA_R
Dept: Southwest District Office
Tel No: 813/744-6100

To: Richard Tedder TAL (TEDDER_R @ A1 @ EPIC1)
CC: Mary Jean Yon TAL (YON_MJ @ A1 @ EPIC1)
CC: Kim Ford TPA (FORD_K)
CC: Susan Pelz TPA (PELZ_S)

Subject: Citrus County Central Landfill Liner Tears - Resulting from UV exposure

The liner at the subject facility has had numerous tears occurring over the years due to numerous reasons including possible UV exposure. Recently the county requested a thorough examination of the exposed liner after Susan Metcalf observed numerous cracks on a March 13, 2000 inspection. It appears the county may be attempting to have the manufacturer pay for replacement of the balance of the exposed liner (3 acres of material). It must have been presented to the BOCC at a meeting where the media was present so we have been receiving calls from the local Citrus Times on the matter. The liner was installed in 1991 so the portions not currently filled with waste have been exposed for 9 years. This is the deep excavated landfill you visited some time back with the 2:1 side slopes.

I am forwarding you the Investigative Report for your review which we just received. It has excellent photographs of the stress cracking. Susan and I plan on sharing this information with Polk County since they have applications in-house for the exposed geomembrane closure. Finally Kim and I will be visiting the site in the near future to discuss this issue and proposed repairs with Susan Metcalf. You or some of your staff may want to visit the site to observe the cracking as well after you review the report.

meeting @ facility Aug. 24th
See me.
Bob

NEED PE TO SIGN & SEAL CONCLUSIONS & RECOMMENDATIONS AND CITATIONS TO PROVIDE PLAN & SCHEDULE FOR CORRECTIVE ACTIONS

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

August 1, 2000

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

600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
Suite 205
352-527-5447 Phone
352-527-5459 Fax

- Permits & Compliance Sec.
Suite 204
352-527-5448 Phone
352-527-5319 Fax

- Project Management Sec.
Suite 241
352-527-5449 Phone
352-527-5482 Fax

- Survey Section
Suite 241
352-527-5446 Phone
352-527-5482 Fax

600 S. LECANTO HIGHWAY
LECANTO, FLORIDA 34461

MAINTENANCE OPERATIONS:
- Facilities Maint. Section
PO Box 143
Lecanto, FL 34460
352-527-0333 Phone
352-527-0654 Fax

- Fleet Management Section
PO Box 215
Lecanto, FL 34460
352-746-6888 Phone
352-746-5011 Fax

AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

ROAD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

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

D.E.P.
AUG 0 2 2000
Southwest District Tampa

RE: Citrus County Central Landfill Side Slope Liners
Permit No. SO09-247381

Dear Mr. Ford:

A few events have occurred in the past year and a half that have given us cause to look at the material properties of the exposed HDPE side slope liner at the Citrus County Central Landfill. In 1999, a crack occurred on the west slope of the liner that resulted in a liner tear (which was documented to the DEP) that was subsequently repaired. TRI Environmental Inc (TRI) performed an evaluation of the liner material involved in this episode. TRI concluded the tear was initiated by a stress crack that propagated into a ductile tear under the assault of wind and weather conditions.

On March 13, 2000, during the course of regularly scheduled inspections of the liner, a crack was observed near the top of the eastern slope. This crack was not at a seam, as was the 1999 failure, but rather located in a factory panel fold. A follow-up preliminary inspection / evaluation was performed by Jones, Edmunds & Associates, Inc. (JEA) and I-Corp, International (I-Corp). This inspection/evaluation identified 12 sites of cracks of differing severity among other flaws. While the other flaws appeared to be attributable to physical insults, the cracks appear to be stress cracking related. Samples of the areas of initial concern were obtained and subjected to a variety of analyses in a follow-up laboratory evaluation. All identified defects and sample collection locations have been repaired with 60 mil HDPE patches and extrusion welding. Comanco Environmental Corporation performed these repairs.

The recently completed follow-up evaluation performed by I-Corp and TRI through JEA concluded that the March 2000 failures are attributable to stress cracking which has been accelerated by oxidation of the geomembrane surface. The study (two copies enclosed) suggests that stress cracking resistance may be degraded below acceptable performance requirements in areas that have remained exposed for a period of time. Testing of buried liner material to determine the critical

exposure time and to determine the extent of side slope liner with unacceptable performance characteristics will be initiated. Since the bottom liner was covered at the time of installation, it is not expected to be at risk or otherwise compromised.

The obvious corrective action for the degraded exposed liner is replacement. The best corrective action for remediating compromised buried side slope liner will depend on the extent of the problems. We will keep you informed of the progress of the evaluation and the ultimate extent of liner with unacceptable performance characteristics.

We look forward to working with you as we jointly develop a prudent corrective action plan. We are available at your convenience via teleconference or site visit to discuss this situation and our approach to resolve it in more detail.

Sincerely,

Susan J. Metcalfe

Susan J. Metcalfe, P.G.
Director

Attachment

CC: Robert J. Butera, FDEP Tampa (with attachment)
Kenneth E. Saunders, Jr., Public Works Director (w/o attachment)
Gary W. Kuhl, County Administrator (w/o attachment)
Richard Wm. Wesch, Assistant County Administrator (w/o attachment)
Carl E. Kern, Assistant County Attorney (w/o attachment)
David A. Keough, Jones, Edmunds & Associates, Gainesville

I-CORP INTERNATIONAL, Inc.

6072 North Ocean Boulevard
Ocean Ridge, FL 33435-5210 USA
Phone: +1-561-369-0795
Fax: +1-561-369-0895
E-mail: icorp@geosynthetic.com
E-mail: geoicorp@aol.com
Web: www.geosynthetic.com

REPORT

INVESTIGATION OF LINER CRACKING AT CITRUS COUNTY CENTRAL LANDFILL, LECANTO, FLORIDA

D.E.P.
AUG 0 2 2000
Southwest District Tampa

Prepared for

Mr. David Keough
Jones Edmunds & Associates
Gainesville, FL, USA

Prepared by

Ian D. Peggs
I-CORP INTERNATIONAL, Inc.
Ocean Ridge, FL, USA

20 July 2000

INTEROFFICE MEMORANDUM

Sensitivity: COMPANY CONFIDENTIAL

Date: 03-Aug-2000 10:52am
From: Robert Butera TPA
BUTERA_R
Dept: Southwest District Office
Tel No: 813/744-6100

To: Richard Tedder TAL (TEDDER_R @ A1 @ EPIC1)
CC: Mary Jean Yon TAL (YON_MJ @ A1 @ EPIC1)
CC: Kim Ford TPA (FORD_K)
CC: Susan Pelz TPA (PELZ_S)

Subject: Citrus County Central Landfill Liner Tears - Resulting from UV exposure

The liner at the subject facility has had numerous tears occurring over the years due to numerous reasons including possible UV exposure. Recently the county requested a thorough examination of the exposed liner after Susan Metcalf observed numerous cracks on a March 13, 2000 inspection. It appears the county may be attempting to have the manufacturer pay for replacement of the balance of the exposed liner (3 acres of material). It must have been presented to the BOCC at a meeting where the media was present so we have been receiving calls from the local Citrus Times on the matter. The liner was installed in 1991 so the portions not currently filled with waste have been exposed for 9 years. This is the deep excavated landfill you visited some time back with the 2:1 side slopes.

I am forwarding you the Investigative Report for your review which we just received. It has excellent photographs of the stress cracking. Susan and I plan on sharing this information with Polk County since they have applications in-house for the exposed geomembrane closure. Finally Kim and I will be visiting the site in the near future to discuss this issue and proposed repairs with Susan Metcalf. You or some of your staff may want to visit the site to observe the cracking as well after you review the report.

NEED PE TO SIGN & SEAL CONCLUSIONS & RECOMMENDATIONS AND CITATIONS TO PROVIDE PLAN & SCHEDULE FOR CORRECTIVE ACTIONS

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

600 W. SOVEREIGN PATH
ECANTO, FLORIDA 34461

DMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

NGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
  Suite 205
  352-527-5447 Phone
  352-527-5459 Fax
- Permits & Compliance Sec.
  Suite 204
  352-527-5448 Phone
  352-527-5319 Fax
- Project Management Sec.
  Suite 241
  352-527-5449 Phone
  352-527-5482 Fax
- Survey Section
  Suite 241
  352-527-5446 Phone
  352-527-5482 Fax

00 S. LECANTO HIGHWAY
ECANTO, FLORIDA 34461

AINTENANCE OPERATIONS:
- Facilities Maint. Section
  PO Box 143
  Lecanto, FL 34460
  352-527-0333 Phone
  352-527-0654 Fax
- Fleet Management Section
  PO Box 215
  Lecanto, FL 34460
  352-746-6888 Phone
  352-746-5011 Fax

UATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

AD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

TILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

LID WASTE MANAGEMENT
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

August 1, 2000

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

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

D.E.P.
AUG 0 2 2000
Southwest District Tampa

RE: Citrus County Central Landfill Side Slope Liners
Permit No. SO09-247381

Dear Mr. Ford:

A few events have occurred in the past year and a half that have given us cause to look at the material properties of the exposed HDPE side slope liner at the Citrus County Central Landfill. In 1999, a crack occurred on the west slope of the liner that resulted in a liner tear (which was documented to the DEP) that was subsequently repaired. TRI Environmental Inc (TRI) performed an evaluation of the liner material involved in this episode. TRI concluded the tear was initiated by a stress crack that propagated into a ductile tear under the assault of wind and weather conditions.

On March 13, 2000, during the course of regularly scheduled inspections of the liner, a crack was observed near the top of the eastern slope. This crack was not at a seam, as was the 1999 failure, but rather located in a factory panel fold. A follow-up preliminary inspection / evaluation was performed by Jones, Edmunds & Associates, Inc. (JEA) and I-Corp, International (I-Corp). This inspection/evaluation identified 12 sites of cracks of differing severity among other flaws. While the other flaws appeared to be attributable to physical insults, the cracks appear to be stress cracking related. Samples of the areas of initial concern were obtained and subjected to a variety of analyses in a follow-up laboratory evaluation. All identified defects and sample collection locations have been repaired with 60 mil HDPE patches and extrusion welding. Comanco Environmental Corporation performed these repairs.

The recently completed follow-up evaluation performed by I-Corp and TRI through JEA concluded that the March 2000 failures are attributable to stress cracking which has been accelerated by oxidation of the geomembrane surface. The study (two copies enclosed) suggests that stress cracking resistance may be degraded below acceptable performance requirements in areas that have remained exposed for a period of time. Testing of buried liner material to determine the critical

exposure time and to determine the extent of side slope liner with unacceptable performance characteristics will be initiated. Since the bottom liner was covered at the time of installation, it is not expected to be at risk or otherwise compromised.

The obvious corrective action for the degraded exposed liner is replacement. The best corrective action for remediating compromised buried side slope liner will depend on the extent of the problems. We will keep you informed of the progress of the evaluation and the ultimate extent of liner with unacceptable performance characteristics.

We look forward to working with you as we jointly develop a prudent corrective action plan. We are available at your convenience via teleconference or site visit to discuss this situation and our approach to resolve it in more detail.

Sincerely,

Susan J. Metcalfe

Susan J. Metcalfe, P.G.
Director

Attachment

CC: Robert J. Butera, FDEP Tampa (with attachment)
Kenneth E. Saunders, Jr., Public Works Director (w/o attachment)
Gary W. Kuhl, County Administrator (w/o attachment)
Richard Wm. Wesch, Assistant County Administrator (w/o attachment)
Carl E. Kern, Assistant County Attorney (w/o attachment)
David A. Keough, Jones, Edmunds & Associates, Gainesville

I-CORP INTERNATIONAL, Inc.

6072 North Ocean Boulevard
Ocean Ridge, FL 33435-5210 USA
Phone: +1-561-369-0795
Fax: +1-561-369-0895
E-mail: icorp@geosynthetic.com
E-mail: geoicorp@aol.com
Web: www.geosynthetic.com

REPORT

INVESTIGATION OF LINER CRACKING AT CITRUS COUNTY CENTRAL LANDFILL, LECANTO, FLORIDA

D.E.P.
AUG 0 2 2000
Southwest District Tampa

Prepared for

Mr. David Keough
Jones Edmunds & Associates
Gainesville, FL, USA

Prepared by

Ian D. Peggs
I-CORP INTERNATIONAL, Inc.
Ocean Ridge, FL, USA

20 July 2000

Form Confirmation

Thank you for submitting the following information:

topic: Citrus County Landfill Liner
date: July 28, 2000
reporter: Bridget Hall Grumet, #1-800-3337505, ext. 7303
from: St. Pete Times
interview: Kim Ford, Solid Waste Section
phone: 813-7446100, ext. 382
div: Waste Management/ SW Dist.
date_i: July 28, 2000
followup: no
deadline: n/a
B1: Submit

question

Any other landfills with the same problems? How long to review the repair report?

summary

I said no other landfills are the same. Others are not as deep and do not have exposed liner. I have not heard of the liner tearing at other landfills. I said 1 to 2 weeks to complete our review of the repair report after it is received,with at least one meeting with the County to discuss the repair plan. I said I don't know why 3 acres need to be repaired but will get the report next week and said she can have a copy since it will be public record.

Return to the form.

Office of the Secretary

MEDIA HOT-SHEET

If you have had any contact with the media and have not already contacted the DEP Communications Office, please complete the followin questions:

Bob your copy

Topic:

CITRUS COUNTY LANDFILL LINER

Date:

7/28/00

Reporter:

BRIDGET HALL GRUMET

9-1-800-3337505 x7803

From (Newspaper, TV, Radio, etc.):

ST. PETE TIMES

Person Interviewed:

KIM FORD

Phone:

813 744 6100 x382

Division/Bureau/Office:

SOLID WASTE/SWDIST

Date Interviewed:

7/28/00

Questions Asked:

Any other Landfills not same problems ?
How long to review the repair report?

Follow-up Needed?

Deadline:

Summary of Conversation:

Thank you for filling out the Communications Office Media Hot Sheet.

Submit Reset

Last updated:
May 03, 2000

I said no others the same or and not heard of this problem other. Landfills in our district are not deep and have no exposed liner. So can't really compare.

I said 1 to 2 wks to review and meet to discuss repair plan

I said I dont know why 3 acres needs to be repaired but will get report next week and she can have a copy since it will be public record.

7/28/00
2:30 pm

St. Petersburg Times ONLINE CITRUS COUNTY

TIMES

Weather | Sports | Forums | Comics | Classifieds | Calendar | Movies

Landfill liner must be replaced

A liner separating garbage from the earth has cracks, possibly from the sun. Replacing exposed portions is expected to cost about $175,000.

By BRIDGET HALL GRUMET

© St. Petersburg Times, published July 28, 2000

LECANTO -- The only thing at the landfill that separates the garbage from the earth, and ultimately the groundwater, is a black plastic liner as thick as a corrugated cardboard box.

The high density polyethylene liner, produced by Texas-based Poly-Flex Inc., is built to hold 126 pounds per square inch and is tested at temperatures of 185 degrees Fahrenheit, according to the company's material specifications.

But for some reason, the liner has not withstood the rigors of the Citrus County landfill.

Over the past year and a half, officials have discovered three visible cracks in the liner installed in the southern end of the landfill 10 years ago. Those cracks were quickly fixed, Solid Waste Management director Susan Metcalfe said, but a closer inspection has revealed microscopic cracks in other parts of the liner.

The vulnerable spots are at the seams and folds in the liner, both areas especially affected by heat, Metcalfe said.

At some of the seams, where two pieces of liner were joined using a hot glue gun, Metcalfe said the gun may have been too hot, causing tiny breaks in the plastic.

But most of the problem comes from the sun's ultraviolet rays weakening the plastic lining, particularly at the folds, she said. At places where the fold points down like the fold of an open book, the liner takes a greater beating because the stretched sides are also exposed to the sun, she said.

The bottom part of the liner that is shielded from the light by 591,000 tons of garbage is fine, she said. But the top stretch of liner that has been exposed to sunlight for the past decade needs to be replaced.

Metcalfe said Thursday that she is preparing a report to be sent to the state Department of Environmental Protection within the next few days, proposing to replace the exposed 3 acres of liner at an expected cost of $175,000.

DEP approval could take several weeks or months, she said, but the county will move forward with the replacement as soon as possible.

"Right now the main function is protecting the soil underneath," Metcalfe said. "This is something we won't be dragging our feet on."

The question then becomes: Who should pick up the tab?

The proposed county budget, which commissioners will review next week at public workshops, includes $175,000 for landfill repairs, Metcalfe said. But she said she is working with the liner manufacturer Poly-Flex and the installer, MWM Contracting Corp. of Mount Dora, to recoup whatever costs she can through the warranty.

Poly-Flex officials did not return a reporter's telephone call Thursday, and MWM Contracting president Ray Wild was not available for comment.

Metcalfe said it originally cost the county about $300,000 to create that part of the landfill 10 years ago, and the warranty is worth no more than the original project price. Because the 20-year warranty is also pro-rated, and 10 years have passed, the county would probably only be entitled to half of the project price, or $150,000, she said.

That would still leave the county with some costs, in addition to the $25,000 the county has already spent fixing the three cracks and testing other parts of the liner, Metcalfe said.

"It's going to depend on how hard we have to negotiate and whether these companies will accept our claim as valid without a lot of negotiating," she said.

Home
Business | Citrus | Commentary | Entertainment
Hernando | Floridian | Obituaries | Pasco | Sports
State | Tampa Bay | World & Nation

© Copyright 2000 St. Petersburg Times. All rights reserved.

INTEROFFICE MEMORANDUM

Sensitivity: COMPANY CONFIDENTIAL

Date: 28-Jul-2000 09:54am
From: Kim Ford TPA
FORD_K
Dept: Southwest District Office
Tel No: 813/620-6100

To: Robert Butera TPA (BUTERA_R)

Subject: citrus county landfill liner problem - reporter wants to know

Bob,

On July 25th Susie Metcalfe called to explain the old liner has torn and a consultant is going to provide recommendations for corrective action, repair or closure of the old area. She suggested a meeting. I requested a report from the consultant prior to meeting and advised that the landfill permit requires written notification within 7 days detailing the failure and corrective action. She agreed.

A message by voicemail was received from Bridgette Porter of the St. Pete Times at 1-800-3337505 ext.7303 requesting a return call regarding this issue.

Kim

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

June 21, 2000

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

Re: Trees and Drip Irrigation
Citrus County Landfill
Permit #SO09-274381

Dear Ms. Metcalfe:

The Department has no objection to planting trees along the landfill frontage along SR 44 and using treated leachate effluent for drip-irrigation as proposed in your January 24, 2000 letter and supporting documents. Although the quality and quantity impacts are not a concern for the Department, the County may want to consider the impact on the plantings as we discussed today by phone.

Thank you for your attention to this matter. If you have any questions you may call me at (813) 744-6100, extension 382.

Sincerely,

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

KBF/ab

cc: Robert Butera, P.E., FDEP Tampa
John Morris, P.G., FDEP Tampa

Florida Department of

Memorandum — Environmental Protection

TO: CeCe Featheringill

FROM: John Morris JRM

DATE: May 24, 2000

SUBJECT: Citrus Central Class I Landfill

CC: Robert Butera, P.E. RB 5/24/00

Citrus County Solid Waste Management operates the Central County Class I Landfill located south of State Road 44, within the Withlacoochee State Forest. The County has a lease agreement from the State to operate and maintain the landfill. The entire property includes a 60-acre area of unlined closed landfill phases, and a 30-acre area of lined operating landfill phases. The lined portion includes an area that was constructed with a single liner and an area that was constructed with a double liner. There are an additional 50 acres that are available for future expansion within the property. In addition to the Class I landfilling operations, the County operates a citizen waste drop-off facility where recycled materials are accepted and processed, and accepts yard trash for processing into mulch.

The active portion of the Citrus County Central Class I Landfill is currently operated under DEP Solid Waste Permit No. SO09-274381, while maintenance of the closed portions of the landfill are conducted under DEP Solid Waste Permit No. 126601-001-SF. The environmental monitoring requirements included in the permits specify the following activities: leachate collection, treatment, on-site disposal, and sampling; landfill gas monitoring; and ground water sampling. The existing monitor wells are located and constructed to characterize ground water quality in the uppermost aquifer around the entire property, and will not distinguish between the active (lined) or closed (unlined) portions of the facility.

Assessment monitoring was required by the Department based on the results of ground water analyses conducted at wells located along the western property boundary. Supplemental monitor wells were installed west of the property as part of the assessment, and these wells have been maintained in the permit as part of the routine semi-annual ground water sampling events. The assessment monitoring was completed without implementation of corrective actions.

Environmental monitoring conducted at Citrus Central Class I Landfill is summarized below:

- Leachate samples are collected from the storage tank at a semi-annual frequency.
- Leachate samples are collected from the on-site treatment facility at a quarterly frequency.
- Landfill gas is monitored at a quarterly frequency.
- Ground water samples are collected from the monitor wells at a semi-annual frequency.

INTEROFFICE MEMORANDUM

Sensitivity: COMPANY CONFIDENTIAL

Date: 22-May-2000 08:22am
From: Robert Butera TPA
BUTERA_R
Dept: Southwest District Office
Tel No: 813/744-6100

To: Kim Ford TPA (FORD_K)

Subject: FWD: Citrus County Municipal Landfill

please contact Cece and give her any information she needs.

John

Citrus has 30 acres lined and
60 acres unlined.

I can only guess that if the
30 acres lined leaked it was
cause about as much GW problem
as the 60 acres unlined.

What's the condition of the GW
from the old 60 acres unlined?

Kim
5/22/00

INTEROFFICE MEMORANDUM

Date: 19-May-2000 11:14am
From: CeCe Featheringill TPA FEATHERING_C
Dept: Southwest District Office
Tel No: 813/744-6100 Ext. 364

Subject: Citrus County Municipal Landfill

Hi Bob. I will be going up to a League of Women Voters meeting next Thursday to assist someone from our Tallahassee office in a presentation to them. One of the issues they requested information on was their concern regarding landfill liners (specifically the County owned landfill) and the effect that a failure in the liner could have on the groundwater. If you have any information regarding this landfill, I would appreciate a brief paper/e-mail so I can share it with our presenter. Thanks!

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

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

3600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
  Suite 205
  352-527-5447 Phone
  352-527-5459 Fax
- Permits & Compliance Sec.
  Suite 204
  352-527-5448 Phone
  352-527-5319 Fax
- Project Management Sec.
  Suite 241
  352-527-5449 Phone
  352-527-5482 Fax
- Survey Section
  Suite 241
  352-527-5446 Phone
  352-527-5482 Fax

300 S. LECANTO HIGHWAY
LECANTO, FLORIDA 34461

MAINTENANCE OPERATIONS:
- Facilities Maint. Section
  PO Box 143
  Lecanto, FL 34460
  352-527-0333 Phone
  352-527-0654 Fax
- Fleet Management Section
  PO Box 215
  Lecanto, FL 34460
  352-746-6888 Phone
  352-746-5011 Fax

AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

ROAD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

March 16, 2000

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

D.E.P.
MAR 24 2000
Southwest District Tampa

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

Dear Mr. Ford:

This is to report that Citrus County staff recently observed that the expansion joint sealant in the secondary containment walls of the leachate storage tank has reached or exceeded its ability to expand. The center joint on each wall has reached the point where the sealant has pulled away from the concrete. This is particularly true at the top of the wall. Other joints show lesser evidence.

During the four to five-year life of this structure, even during heavy rains, the depth of liquid in the secondary containment has never reached the base of the wall, but has been contained in the sloped floor catchment.

WCG, Inc. (formerly Glace and Radcliffe), who are engineers for the County have reviewed the situation and have recommended that we replace the joint sealant. They have provided specifications and the County will bid that project as soon as possible. We estimate that the work will be complete within 2-3 months.

Please let me know if you have any questions.

Yours truly,

Susan J. Metcalfe

Susan J. Metcalfe, P.G.
Director

CC: Ken Saunders, Director, Public Works Department
Stan Keely, WCG Inc.

D.E.P.
MAR 24 2000
Southwest District Tampa

MEMORANDUM

To: Barbara Flynn, Interim Risk Manager

From: Susan Metcalfe, Director, Solid Waste Management Division

Date: March 20, 2000

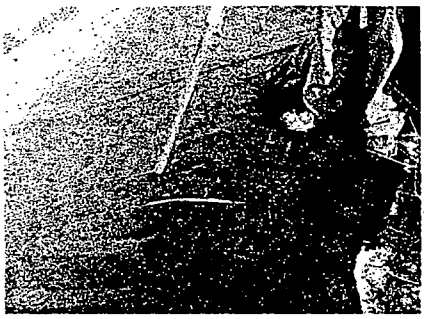
Subject: Liner Failure Investigation

We have recently discovered two more locations on the exposed landfill liner that have failed. We intend to proceed with emergency repairs, and have contacted the contractor to schedule the repairs. The repair costs are likely to be a few thousand dollars. The location of these failures makes it unlikely that they were caused by physical damage from heavy equipment operation.

However the fact that there have been several such locations within the past 15 months to have similar failures leads us to suspect that there may be other problems. Therefore, we have also requested one of the engineering firms, under contract with the County for solid waste work, to investigate the cause(s) of these failures. They are proposing a two-phase investigation with onsite observation of liner condition and review of historical records as the first phase. That effort will cost about $4,800. The second phase scope will depend on the findings of the first phase. That phase will include physical and perhaps chemical testing of the liner. The investigation may also recommend remedial actions impacting some or all exposed liner on the site or even more aggressive actions. The second phase investigation will be much more expensive than the first. The cost to effectuate remedial actions may range from minor to extremely significant.

Is it possible that any of the investigative or repair costs may be a covered claim? An incident report and copy of the report to FDEP, our regulatory agency, are attached. If you need additional information, please contact me.

CC: Kenneth E. Saunders, Jr., Director, Public Works Department



CITRUS COUNTY INCIDENT REPORT

= **Mandatory - Photographs Required**

☞ IMPORTANT ☜

THIS FORM IS TO BE COMPLETED FOR ALL INCIDENTS BY RESPECTIVE PARTIES AND SUBMITTED TO RISK MANAGEMENT *WITHIN 48 HOURS OF INCIDENT.*

✪ **Fleet and Building Maintenance** ✪ Page 1 of 2
Require a copy of Incident Report before repair

USE INK OR TYPE

	TYPE CODE (Must Check One)	
☐	(1) Vehicle Accident/Incident	✪
☒	(2) Property Damage	✪
☐	(3) Bodily Injury	
☐	(4) Other	
☐	County Property (First Party)	✪
☐	Non-County Property (Third Party)	

USE INK OR TYPE

	ACTION (Must Check One)
☐	INCIDENT ONLY - NO ACTION - (Required Supervisor **AND** Director's Signature)
☐	CLAIM - INVOICE TO FOLLOW (within 10 days)
☐	CLAIM - INVOICE ATTACHED
☐	POLICE REPORT TO FOLLOW (within 10 days)
☐	POLICE REPORT ATTACHED

Note: First Party Property Damage in excess of $1,000 requires three (3) estimates.

INCIDENT DATE	DATE REC'D	TIME	RM REC'D
7 3/10			

MUST BE COMPLETED

Employee Name Susan Metcalfe Employee ID# 2497 Dept/Division Public Works Solid Waste

Location Landfill County Vehicle# (if applicable) N/A

Incident Description: Discovered 2 tears in landfill liner during routine inspection. Affected vapit to FDEP. Engineers (Jones Edmunds & Associates) will help identify causes & Commerce Environmental will provide repair services

☐ **Continued Back Page — Miscellaneous** ☐ **Continued Separate Sheet (attached)**

LAW ENFORCEMENT INFORMATION (if applicable)

Name of Law Enforcement Agency:

Note: Copy of police report must be provided to Risk Management Office within 10 days of incident or notification otherwise.

NON-COUNTY PROPERTY DAMAGE AND/OR BODILY INJURY

☐ THIRD PARTY PROPERTY	
Name	
Address	
Telephone#	
Type Damage	
Insurance Information	
Risk Mgmt Only	WAIVER REQUIRED

GALLAGHER BASSETT ☐ THIRD PARTY BODILY INJURY	
Name	
Address	
Telephone#	
D.O.B.	
Type Injury	
Medical Treatment?	☐ YES ☐ NO
If Yes, attending physician and telephone #:	
Risk Mgmt Only	WAIVER REQUIRED

WITNESS INFORMATION

1)	Name	David Chomiak
	Address	Landfill
	Telephone#	746-5000
2)	Name	
	Address	
	Telephone#	
3)	Name	
	Address	
	Telephone#	

MISCELLANEOUS COMMENTS

☐ Continued on separate sheet (attached)

** MANDATORY **
SUPERVISOR'S COMMENTS/CORRECTIVE ACTION TAKEN

☐ Continued on separate sheet (attached)

Employee Signature — Date

Supervisor Signature — Date

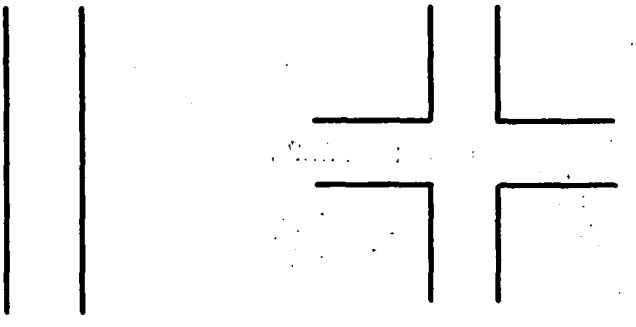
Susan Whitcraft 3/21/00

Division Director's Signature — Date

Department Director's Signature — Date

FYI - **INCIDENT ONLY - NO ACTION** must be signed by Division Director **AND** Department Director

COMPLETE AS APPLICABLE:



BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

3600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
  Suite 205
  352-527-5447 Phone
  352-527-5459 Fax
- Permits & Compliance Sec.
  Suite 204
  352-527-5448 Phone
  352-527-5319 Fax
- Project Management Sec.
  Suite 241
  352-527-5449 Phone
  352-527-5482 Fax
- Survey Section
  Suite 241
  352-527-5446 Phone
  352-527-5482 Fax

300 S. LECANTO HIGHWAY
LECANTO, FLORIDA 34461

MAINTENANCE OPERATIONS:
- Facilities Maint. Section
  PO Box 143
  Lecanto, FL 34460
  352-527-0333 Phone
  352-527-0654 Fax
- Fleet Management Section
  PO Box 215
  Lecanto, FL 34460
  352-746-6888 Phone
  352-746-5011 Fax

AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

ROAD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone,
352-746-1676 Fax

SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

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

RECEIVED
MAR 20 2000
Department of Environmental Protection
SOUTHWEST DISTRICT

March 16, 2000

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

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

Dear Mr. Ford:

This is to report that Citrus County staff has discovered two additional liner failures in the Phase 1 area of the landfill. Both are on the exposed east side slope liner and both are near the top of the slope. One is in the material immediately adjacent to a seam and the other is in a factory fold. The locations are shown on the attached map. The longer split is less than two feet; the shorter is a few inches. The County will contract with Comanco to repair these tears.

At the time that repairs are made, we expect to take samples of the liner at the failed locations including the undamaged area surrounding each. The samples will be retained for testing to determine, if possible, the cause of these failures. Citrus County has requested that Jones, Edmunds and Associates, Inc. study the condition of exposed liner, report causes of failures and if needed, describe potential remedial actions.

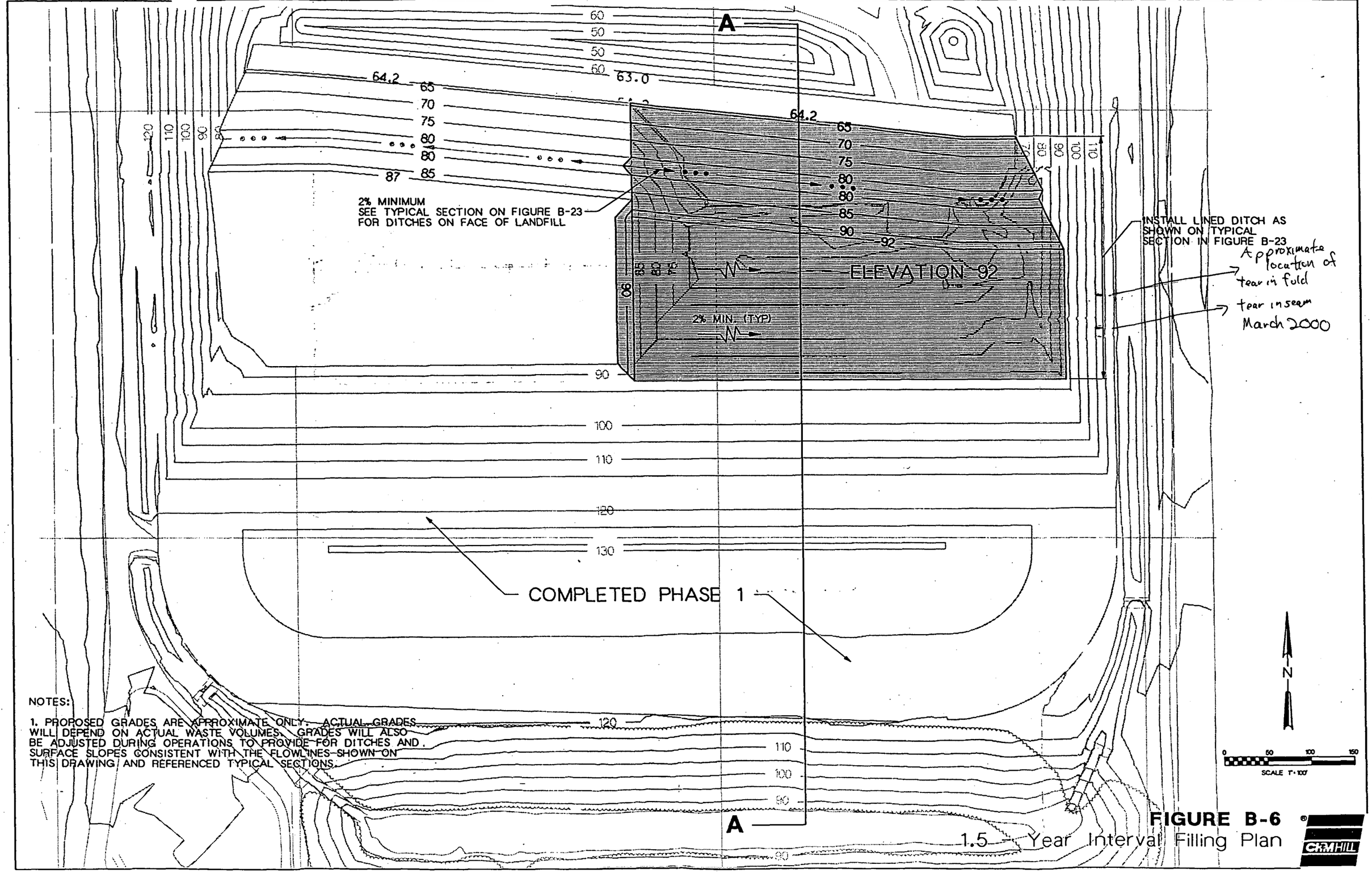
Please let me know if you have any questions.

Yours truly,

Susan J. Metcalfe

Susan J. Metcalfe, P.G.
Director

CC: Ken Saunders, Director, Public Works Department
David Keough, Jones, Edmunds & Associates



NOTES:

1. PROPOSED GRADES ARE APPROXIMATE ONLY. ACTUAL GRADES WILL DEPEND ON ACTUAL WASTE VOLUMES. GRADES WILL ALSO BE ADJUSTED DURING OPERATIONS TO PROVIDE FOR DITCHES AND SURFACE SLOPES CONSISTENT WITH THE FLOWLINES SHOWN ON THIS DRAWING AND REFERENCED TYPICAL SECTIONS.

FIGURE B-6

1.5 Year Interval Filling Plan

CH2MHILL

1/28/00

Kim—

I ~~HAVE~~ NO OBJECTIONS.

DO YOU ~~HAVE~~ COMMENTS?

John

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

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

3600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
  Suite 205
  352-527-5447 Phone
  352-527-5459 Fax
- Permits & Compliance Sec.
  Suite 204
  352-527-5448 Phone
  352-527-5319 Fax
- Project Management Sec.
  Suite 241
  352-527-5449 Phone
  352-527-5482 Fax
- Survey Section
  Suite 241
  352-527-5446 Phone
  352-527-5482 Fax

1300 S. LECANTO HIGHWAY
LECANTO, FLORIDA 34461

MAINTENANCE OPERATIONS:
- Facilities Maint. Section
  PO Box 143
  Lecanto, FL 34460
  352-527-0333 Phone
  352-527-0654 Fax
- Fleet Management Section
  PO Box 215
  Lecanto, FL 34460
  352-746-6888 Phone
  352-746-5011 Fax

AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

ROAD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

January 24, 2000

John Morris
Solid Waste Section
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619-8318

D.E.P.
JAN 27 2000
Southwest District Tampa

RE: PROPOSED TREE PLANTING AND DRIP IRRIGATION SYSTEM
PERMIT NO. SO-09-274381

Dear Mr. Morris:

When FDOT widened SR-44 adjacent to the northern boundary of the closed landfill and active landfill entrance area, the existing vegetative buffer was destroyed. Three years ago, we attempted, unsuccessfully, to replace that buffer with pine seedlings. The County has budgeted for and received an Urban and Community Forestry Grant, from the Division of Forestry, to establish plantings in that area.

The grant requires planting trees between 1 ½ inch to 4-inch caliper. We expect to put in several hundred trees of several native species. Considering the size of trees, the extreme depth to groundwater and the current drought conditions, we will need to have irrigation to establish these plants. This letter is to determine whether the Department has any objection to using treated leachate effluent in a drip irrigation system for this project.

A copy of the grant application is attached and shows the planting area, the number and species of trees that will be planted, and the project budget. The area that will be planted is north of the filled area on the closed site and is beyond the extent of the cap. An unplanted area will be maintained along the property line for vehicular access to gas and groundwater monitoring wells. The entrance area and fence line near the office are the only parts of the active site that will be planted. The area is inside the monitoring wells for both sites. The length of the irrigation system will be approximately 2000 feet, covering at least 300 plants. We expect that after about one year, or at the most two years, the plants will be able to survive on rainfall alone. We estimate that it would take at least 1.5 gallons per day to keep the root-ball of a plant grown in a 7-gallon container saturated.

Although design is not complete, we expect that the irrigation system will use about 1,000 gallons of treated leachate per day.

Please feel free to call me if you have any questions.

Sincerely,

Susan J. Metcalfe

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

CC: Kenneth E. Saunders Jr., Director, Public Works

SUBMIT PROPOSAL TO:
DEPT. OF AGRICULTURE AND CONSUMER SERVICES
PURCHASING - MAYO BUILDING, ROOM SB-8
407 SOUTH CALHOUN STREET
TALLAHASSEE, FLORIDA 32399-0800
Telephone Number: (850) 488-7552

STATE OF FLORIDA

REQUEST FOR PROPOSAL

CONTRACTUAL SERVICES
Bidder Acknowledgment

Page 1 of 136 pages	PROPOSALS WILL BE OPENED @ 2:30 P.M. AUGUST 18, 1999 and may not be withdrawn within 90 days after such date and time.	PROPOSAL NO. RFP/DF-99/00-01
AGENCY MAILING DATE: MAY 13, 1999	PROPOSAL TITLE: 1999 URBAN AND COMMUNITY FORESTRY (U&CF) GRANT PROGRAM	

STATE PURCHASING SUBSYSTEM (SPURS) VENDOR NUMBER
N/A

VENDOR NAME (Solid Waste)
Citrus County Board of County Commissioners

VENDOR MAILING ADDRESS
P. O. Box 340

CITY - STATE - ZIP
Lecanto, FL 34460

AREA CODE 352 | PHONE NUMBER 746-5000 | FREE NUMBER

REASON FOR NO PROPOSAL

POSTING OF BID TABULATIONS
Bid tabulations with recommended awards will be posted for review by interested parties at the location where bids were opened and will remain posted for a period of 72 hours. Failure to file a protest within the time prescribed in Section 120.57(3), or failure to post the bond or other security required by law within the time allowed for filing a bond shall constitute a waiver of proceedings under Chapter 120, Florida Statutes. Posting will be on or about:
OCTOBER 20, 1999

I certify that this Proposal is made without prior understanding, agreement, or connection with any corporation firm, or person submitting a proposal for the same materials, supplies or equipment, and is in all respects fair and without collusion or fraud. I agree to abide by all conditions of this Proposal and certify that I am authorized to sign this Proposal for the Proposer and that the Proposer is in compliance with all requirements of the Request for Proposal including but not limited to, certification requirements. In submitting a Proposal to an agency for the State of Florida, the Proposer offers and agrees that if the Proposal is accepted, the Proposer will convey, sell, assign or transfer to the State of Florida all rights, title and interest in and to all causes of action it may now or hereafter acquire under the Anti-trust laws of the United States and the State of Florida for price fixing relating to the particular commodities or services purchased or acquired by the State of Florida. At the State's discretion, such assignment shall be made and become effective at the time the purchasing agency tenders final payment to the Proposer.

Vicki Phillips
AUTHORIZED SIGNATURE (MANUAL)

Vicki Phillips, Chairman, BOCC
AUTHORIZED SIGNATURE (TYPED) TITLE

GENERAL CONDITIONS

SEALED PROPOSALS: All proposal sheets and this original acknowledgment form must be executed and submitted in a sealed envelope. **(DO NOT INCLUDE MORE THAN ONE PROPOSAL PER ENVELOPE.)** The face of the envelope shall contain, in addition to the above address, the date and time of the proposal opening and the proposal number. Proposal prices not submitted on attached proposal price sheets when required shall be rejected. All proposals are subject to the conditions specified herein. Those which do not comply with these conditions are subject to rejection.

1. **EXECUTION OF PROPOSAL:** Proposal must contain a manual signature of authorized representative in the space provided above. Proposal must be typed or printed in ink. Use of erasable ink is not permitted. All corrections made by proposer to his proposal price must be initialed. The company name and SPURS vendor number shall appear on each page of the bid as required. Complete ordering instructions must be submitted with the proposal. If you are not a registered vendor with the Department of Management Services, contact State Purchasing, 4050 Esplanade Way, Suite 360, Tallahassee, FL 32399-0950, (850) 487-4634 immediately.

2. **NO PROPOSAL SUBMITTED:** If not submitting a proposal, respond by returning only this proposer acknowledgment form, marking it "NO PROPOSAL" and explain the reason in the space provided above. Failure to respond to a procurement solicitation without giving justifiable reason for such failure, non-conformance to contract conditions, or other pertinent factors deemed reasonable and valid shall be cause for removal of the supplier's name from the proposal mailing list. **NOTE:** To qualify as a respondent, proposer must submit a **"NO PROPOSAL"**, and it must be received no later than the stated proposal opening date and hour.

3. **PROPOSAL OPENING:** Shall be public, on the date, location and the time specified on the acknowledgment form. It is the proposer's responsibility to assure that his proposal is delivered at the proper time and place of the proposal opening. Proposals which for any reason are not so delivered, will not be considered. Offers by telegram or telephone are not acceptable. A proposal may not be altered after opening of price proposals. **NOTE:** Proposal tabulations will be furnished upon written request with an enclosed, self addressed, stamped envelope and payment of a predetermined fee. Proposal files may be examined during normal working hours by appointment. Proposal tabulations will not be provided by telephone.

4. **PRICES, TERMS AND PAYMENT:** Firm prices shall be proposed and include all services rendered to the purchaser.

   (a) **TAXES:** The State of Florida does not pay Federal Excise and Sales taxes on direct purchases of services. See tax exemption number on face of purchase order. This exemption does not apply to purchases of services in the performance of contracts for the improvement of state-owned real property as defined in Chapter 192, F. S.

   (b) **DISCOUNTS:** Cash discounts for prompt payment shall not be considered in determining the lowest net cost for proposal evaluation purposes.

   (c) **MISTAKES:** Proposers are expected to examine the conditions, scope of work, proposal prices, extensions, and all instructions pertaining to the services involved. Failure to do so will be at the proposer's risk. Unit prices bid will govern in award.

   (d) **INVOICING AND PAYMENT:** The contractor shall be paid upon submission of properly certified invoices to the purchaser at the prices stipulated on the contract at the time the order is placed, after delivery and acceptance of goods, less deductions if any, as provided. Invoices shall contain the contract number, purchase order number and the contractor's SPURS vendor number. An original and three (3) copies of the invoice shall be submitted.The final payment shall not be made until after the contract is complete unless the State has agreed otherwise. Invoices for fees or other compensation for services or expenses submitted in accordance with the rates at or below those specified in Sections 112.061 and 287.058, F.S.**INTEREST PENALTIES:** Payment shall be made in accordance with Section 215.422, F.S., which states the contractor's rights and the State agency's responsibilities concerning interest penalties and time limits for payment of invoices. **VENDOR RESPONSE SYSTEM:** To access an interactive Voice Response System for vendor payment inquiry, Vendors may call (850) 413-7269 between 7 a.m. and 6 p.m. Monday through Friday to check on the status of payments by State agencies. The system can accommodate English and Spanish speaking callers. **VENDOR OMBUDSMAN:** Vendors providing goods and services to an agency should be aware of the following time frames. Upon receipt, an agency has five (5) working days to inspect and approve the goods and services, unless the bid specifications, purchase order or contract specifies otherwise. An agency has 20 days to deliver a request for payment (voucher) to the Department of Banking and Finance. The 20 days are measured from the latter of the date the invoice is received or the goods and services are received, inspected and approved. If a payment is not available within 40 days, a separate interest penalty set by the Comptroller pursuant to Section 55.03 F.S., will be due and payable, in addition to the invoice amount, to the vendor. To obtain the applicable interest rate, contact the agency purchasing office. The interest penalty provision applies after a 35 day time period to health care providers, as defined by rule. Interest penalties of less than one (1) dollar will not be enforced unless the vendor requests payment. Invoices which have to be returned to a vendor because of vendor preparation errors will result in a delay in the payment. The invoice payment requirements do not start until a properly completed invoice is provided to the agency. A Vendor Ombudsman has been established within the Department of Banking and Finance. The duties of this individual include acting as an advocate of vendors who may be experiencing problems in obtaining timely payment(s) from a State agency. The Vendor Ombudsman may be contacted a (850) 488-2924 or by calling the State Comptroller's Hotline, 1-800-848-3792. State Purchasing shall review the conditions and circumstances surrounding non-payment, and unless there is a bona fide dispute, State Purchasing may, in writing, authorize the contract supplier to reject and return purchase orders from said agency until such time as the agency complies with the provisions of Section 215.422,F.S.

   (e) **ANNUAL APPROPRIATIONS:** The State of Florida's performance and obligation to pay under this contract is contingent upon an annual appropriation by the Legislature.

5. **CONFLICT OF INTEREST:** The award hereunder is subject to the provisions of Chapter 112, F.S. Proposers must disclose with their proposal the name of any officer, director, or agent who is also an employee of the State of Florida, or any of its agencies. Further, all proposers must disclose the name of any State employee who owns, directly or indirectly, an interest of five (5%) or more in the proposer's firm or any of its branches. In accordance with Chapter 287, F.S., no person or firm receiving a contract that has not been procured pursuant to Section 287.057(2) or (3), F.S., to perform a feasibility study of the potential implementation of a subsequent contract, participating in the drafting of a request for proposals, or developing a program for future implementation shall be eligible to contract with the agency for any contracts dealing with that specific subject matter, and proposers must disclose with their proposal any such conflict of interest.

PROPOSAL # RFP/DF-99/00-01 OPENING DATE: AUGUST 18, 1999 – 2:30 P.M.

TABLE OF CONTENTS

REQUEST FOR PROPOSALS FORM – PUR7033

TABLE OF CONTENTS

ATTACHMENT B - DRUG-FREE WORKPLACE PROGRAM CERTIFICATION

ATTACHMENT C – DEBARRMENT CERTIFICATION

ATTACHMENT D – URBAN AND COMMUNITY FORESTRY GRANT PROPOSAL FORMS
- Proposer Information
- Grant Program Information
- Project Description
- Budget

RESOLUTION BY BOARD OF COUNTY COMMISSIONERS

LOCATION MAP/AERIAL PHOTOGRAPH

DETAILED PLANTING PLAN
(PREPARED BY COUNTY FORESTER, ERIN ALBURY)

COLOR PHOTOGRAPHS OF PLANTING SITES

LETTER OF AUTHORIZATION FROM LANDOWNER (DIVISION OF FORESTRY)

LETTER OF SUPPORT FROM BOY SCOUT TROOP 302

LETTER OF SUPPORT FROM MASTER GARDENER'S GROUP

COMMENTS BY COUNTY ATTORNEY ON MAINTENANCE AGREEMENT

ATTACHMENT B

STATE OF FLORIDA

DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES

DRUG-FREE WORKPLACE PROGRAM - BIDDER CERTIFICATION

IDENTICAL TIE BIDS - Preference shall be given to businesses with drug- free workplace programs. Whenever two or more bids which are equal with respect to price, quality, and service are received by the State or by any political subdivision for the procurement of commodities or contractual services, a bid received from a business that certifies that it has implemented a drug-free workplace program shall be given preference in the award process. Established procedures for processing tie bids will be followed if none of the tied vendors have a drug-free workplace program. In order to have a drug-free workplace program, a business shall:

1) Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.

2) Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.

3) Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1)

4) In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.

5) Impose a sanction on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.

6) Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.

Dwight L. Jones

VENDOR'S SIGNATURE

Director, Citrus County Office of Human Resources

U.S. DEPARTMENT OF AGRICULTURE

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 7 CFR Part 3017, Section 3017.510, Participants' responsibilities. The regulations were published as Part IV of the January 30, 1989, Federal Register (pages 4722-4733). Copies of the regulations may be obtained by contacting the Department of Agriculture agency with which this transaction originated.

(BEFORE COMPLETING CERTIFICATION, READ INSTRUCTIONS ON REVERSE)

(1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

(2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Citrus County Board of County Commissioners — Proposal # RFP/DF-99/00-01

Organization Name — PR/Award Number or Project Name

Vicki Phillips, Chairman

Name(s) and Title(s) of Authorized Representative(s)

Vicki Phillips — August 1, 1999

Signature(s) — Date

Form AD-1048 (1/92)

Instructions for Certification

1. By signing and submitting this form, the prospective lower tier participant is providing the certification set out on the reverse side in accordance with these instructions.

2. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

3. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

4. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.

5. The prospective lower tier participant agrees by submitting this form that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

6. The prospective lower tier participant further agrees by submitting this form that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.

8. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

9. Except for transactions authorized under paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

PROPOSAL #RFP/DF-99/00-01 OPENING DATE: AUGUST 18, 1999 - 2:30 P.M.

Attachment D

FLORIDA
URBAN AND COMMUNITY FORESTRY GRANT PROPOSAL FORM
1999

GENERAL INSTRUCTIONS: Please complete all items pertaining to the Category Grant for which you are applying. The proposal packet must not exceed thirty (30) one sided pages, excluding maps and plans. All attachments must be 8 1/2" X 11", except any attached sketches, plans and maps which must be no larger than 2' X 3" and folded into 8 1/2" X 11". **Eight (8) copies (one copy with original signatures and (7) seven copies) of the proposal packet including the proposal form, the project description and all attachments must be received no later than 2:30 p.m. August 18, 1999 at:**

Department of Agriculture and Consumer Services
Purchasing Office - **U&CF - 99 PROPOSAL**
Mayo Building - Room SB-8
Tallahassee, FL 32399-0800
Telephone (850) 488-7552

If you have any questions, please see Attachment K, "Division of Forestry District/Center Contacts"

PROPOSER INFORMATION (Please Print or Type)

Project Title: Landfill Buffer along SR44

Proposer Name: Citrus County Board of County Commissioners

Name and Title of Contact Person: Susan Metcalfe, Director, Solid Waste Management Division

Address: P.O. Box 340

Lecanto, FL Zip: 34460 Phone: (352) 746-5000

Is your organization a Nonprofit corporation pursuant to Chapter 617, Florida Statutes? Yes_____ No X
FEID Number 59 6000-548
As the duly authorized representative of the Proposer named above, I hereby certify that all parts of the proposal and required grant information have been read and understood and that all information submitted herein is true and correct.

Authorized Executive Officer: Vicki Phillips
Title: Chairman, Citrus County Board of County Commissioners
Signature: Vicki Phillips Date 8/10/99

PROPOSAL #RFP/DF-99/00-01 OPENING DATE: AUGUST 18, 1999 - 2:30 P.M.

ATTACHMENT D
GRANT PROGRAM INFORMATION
Specify Category 1, 2, 3, 4 OR 5 and designate the applicable subcategory (see pages 19-22, "General Information").

Category: Demonstration or Site Specific Projects

Sub-Category: Demonstration tree/palm planting projects on Public Property

SUMMARY OF COSTS: A 50/50 match on behalf of the proposer is required).

	Requested Grant $ I	Local Match $ II
Contractual costs	120	0
Personnel costs	0	2300
Travel costs	0	0
Equipment costs	0	1440
Supplies costs	1080	285
Operating costs	1100	0
Tree costs	3122	1398
Overhead costs	0	0

Total Requested Grant(I) $ 5422 -0-

Total Matching Costs(II) $ -0- $ 5423

Total Program Costs(III) $ 10,845
100%

Add columns I and II for total III (100%)

50 % Grant request 50 %Local match

A budget, detailing all costs identified above must be attached.

PROJECT LOCATION INFORMATION (Please Print or Type)
(Complete where applicable)

This project is for Region (1), 2, 3, or statewide (circle one). Please see Attachment J to determine the applicable region.

County Citrus

Describe the Specific Location of the Project: Southside SR44 S1 T19S R18E 1800 foot frontage between Landfill and Highway.

Who has Maintenance Responsibility for the Property(Category 2 Grants)? Citrus County Board of County Commissioners

Is the Land Ownership Public or Private?: Public

Name of Landowner: State of Florida Board of Trustees, Internal Improvement Trust Fund

PROPOSAL #RFP/DF-99/00-01 OPENING DATE: AUGUST 18, 1999 – 2:30 P.M.

Project Title: Landfill Buffer Along SR 44

Proposer Name: Citrus County Board of County Commissioners

PROJECT DESCRIPTION
Urban and Community Forestry Grant Proposal

Approximately 1,800 feet of road frontage in Citrus County along SR 44, the major east-west route in the County, has unrestricted views of the closed and active landfill. Citrus County proposes to utilize grant funds to assist in planting a vegetative screen along this section of roadway. The use of native trees is more in keeping with the nature of the area than alternate screening methods. Previous attempts at planting have been unsuccessful. The County expects to involve Boy Scouts, or other community groups, in the planting program. Public education on the reforestation efforts will be included in packets provided to landfill customers, civic groups and youth groups.

The Citrus County Central Landfill is located on the south side of SR 44 surrounded on the east, south and west by the Withlacoochee State Forest. A 1995 aerial photograph of the area is attached (Figure 1). A 60-acre parcel was used between 1975 and 1990 as a landfill under a sublease agreement with the State of Florida. Closure was complete in 1993. FDEP requires monitoring and maintenance of the closed landfill for a period of 30 years both in their rules and Permit No. SF09-211030. A new 25-year sublease (3316-5) was signed in 1996 for maintenance of 54 acres of this property. A land management plan for the leased parcel was submitted in March 1998 and approved. That plan indicates the County's intent to create a screen of vegetation along the highway frontage.

An 80-acre parcel, immediately to the east of the closed landfill, was purchased from the State for landfill construction in 1988 in a two-for-one land-swap deal. This property is currently being used for disposal and has the potential to be a solid waste management site for decades. The landfill operates under FDEP permit no. SO09-274381.

FDEP rules require that landfills be screened from public view. Local land development code requires that waste disposal facilities provide berms, opaque fencing or vegetative screens. These properties are the only non-forest parcels on the south side of SR 44 for a distance of over five miles. Therefore, the use of berms or opaque fences would be out of character. Approximately 1,150 feet of the north boundary of the closed landfill abuts the right-of-way for SR 44, which was widened in 1996, removing an existing vegetative buffer. A 250 -foot length of the new landfill entrance road, that was required as a result of the state road improvement, likewise offers unobstructed views of the landfill. Additionally, approximately 400 feet of highway frontage on the active landfill property does not have any vegetative buffer.

In the winter of 1997, the County purchased and planted pine seedlings, with the help of a Boy Scout troop, in an attempt to establish a vegetative screen. No irrigation was available and the survival rate was extremely low. When summer rains did come, annual weeds choked out the few survivors. The ragged appearance from the road brought requests to mow the weeds. This proposal includes a planned, mixed species, tree and shrub planting, with irrigation that should result in a more successful survival rate and a more attractive, effective buffer between the landfill and this high visibility section of roadway. 1998 DOT surveys show between 19,000 and 20,000 daily trips on this segment.

A project such at this is ideal to involve Boy Scouts, particularly as an Eagle Scout project. Scouts can assist in site preparation, planting irrigation system installation and planting follow-up care. If no candidate takes this on as an individual leadership project, troop involvement can be solicited from among the several County employees who are active adults in the program. Citrus 2020, the garden clubs and the horticulture training program at Withlacoochee Technical Institute are other possible sources of volunteers for planting. In order to assure that the volunteers have guidance in proper planting techniques and to assist in final layout of the planting plan, we hope to use the skills of the Master Gardeners.

In this County of 112,424 (1998) residents, the landfill has between 7,000 and 8,500 residential customers each month. Every new customer receives a packet of information about solid waste, recycling, and hazardous waste programs. When rate changes are enacted, every customer receives this information. We also distribute packets through a new resident greeting service, at the County Commission office and to groups that tour the facility. If this grant proposal is accepted, we will include an information sheet in each packet on the reforestation effort and the use of native plants for landscaping.

PROPOSAL #RFP/DF-99/00-01 OPENING DATE: AUGUST 18, 1999 - 2:30 P.M.

Attachment D

BUDGET

Please note: All proposals must include a detailed itemized budget summary which lists all anticipated expenditures and explains all project costs. Proposals for site specific demonstration tree planting projects (category 2A and 2B) must list the quantity, species, and approximate size (container size, or caliper and height) of trees to be planted.

**** IMPORTANT: THIS FORM MUST BE USED. PROPOSERS NOT USING THIS FORM WILL BE RULED INELIGIBLE ****

Cost Items	Quantity (#)	Rate or Price ($)	Grant Cost ($)	Match Cost ($)
Contractual (description)				
Mulch Delivery	3 - 30 yd. laods	$ 40	$ 120	
Personnel (list titles or positions)				
Section Chief	40 Hrs.	$ 10		$ 400
Heavy Equipment Operator	88 Hrs.	$ 10		$ 880
Laborer-Planting	170 Hrs.	$ 6 (doanted)		$ 1020
Travel				
None				
Cost Items	Quantity (#)	Rate or Price ($)	Grant cost ($)	Match cost ($)

Cost Items	Quantity (#)	Rate or Price ($)	Grant cost ($)	Match cost ($)
Equipment (list items)				
Tractor Rental (site prep)	8 Hrs.	$ 30		$ 240
Water Truck Rental (planting and start)	32 Hrs.	$ 30		$ 960
Front End Loader (Distribute plants and Mulch)	8 Hrs.	$ 30		$ 240

PROPOSAL #RFP/DF-99/00-01 OPENING DATE: AUGUST 18, 1999 - 2:30 P.M.

Cost Items	Quantity (#)	Rate or Price ($)	Grant cost ($)	Match cost ($)
Supplies* (list items)				
Gloves	2 Dozen	$ 7.50/Doz.		$ 15
Shovels	10	$ 10.00/Ea.		$ 100
Rakes	5	$ 10.00/Ea.		$ 50
Buckets	24	$ 5.00/Ea.		$ 120
Cypress Mulch	90 Yards	$ 12.00/Yd.	$ 1080	

Cost Items	Quantity (#)	Rate or Price ($)	Grant cost ($)	Match Cost ($)
Operating Costs (list)				
Printing (Public Info Sheets)	20,000 8½ x 11 - 2 Side Black on White	$ 840 LS	$ 840	
Hwy. 44 Sign	1 - 4' x 6'	$ 260 LS	$ 260	
Trees (list species and size)				
Live Oak (Q. Virginiana)				
7 Gallon	12	$ 14	$ 168	
15 Gallon	12	$ 35	$ 420	
Long Leaf Pine (P. Palustrus)				
7 Gallon	23	$ 14	$ 322	
15 Gallon	12	$ 35	$ 420	
Southern Red Cedar (J. Silicicola)				
7 Gallon	48	$ 14	$ 672	
Chickasaw Plum (P. Angustifolia)				
7 Gallon	80	$ 14	$ 1120	
Overhead**			**********	
Total				

* Grant dollars may not be used to purchase food as supplies.
** Overhead costs up to 5% of total project cost may only be used as a matching cost, grant funds may not be used for overhead costs.

Cost Items	Quantity (#)	Rate or Price ($)	Grant cost ($)	Match Cost ($)
Operating Costs (list)				
Trees (list species and size)				
Wax Myrtle (M. Ceufera) 7 Gallon	58	$ 14		$ 812
Sparkleberry (V. Arbotleum) 7 Gallon	27	$ 14		$ 378
Persmimmon (D. Virginiana) 3 Gallon	13	$ 6		$ 78
Scrub Palmetto (S. Etonia) 3 Gallon	26	$ 5		$ 130
Overhead**			**********	
Total			$ 5,422	$ 5,423

* Grant dollars may not be used to purchase food as supplies.
** Overhead costs up to 5% of total project cost may only be used as a matching cost, grant funds may not be used for overhead costs.

Urban and Community Forestry Grant
RESOLUTION 99-117

A RESOLUTION BY THE BOARD OF COUNTY COMMISSIONERS, CITRUS COUNTY , FLORIDA, AUTHORIZING APPLICATION FOR AN URBAN AND COMMUNITY FORESTRY GRANT , ESTABLISHING A BUDGET TO SERVE AS THE REQUIRED MATCHING FUNDS AND AUTHORIZING THE CHAIRMAN TO ENTER INTO AN URBAN AND COMMUNITY FORESTRY GRANT MEMORANDUM OF AGREEMENT WITH THE STATE OF FLORIDA, DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES, DIVISION OF FORESTRY.

WHEREAS, Citrus County desires to improve the appearance of the section of SR 44 along the north edge of both the closed 60-acre landfill property and the active 80-acre landfill property; and

WHEREAS, Citrus County desires to comply with its commitment in the land management plan for the closed site and to provide a vegetative screen rather than an earth berm or opaque fence to buffer both landfill properties from roadside view; and

WHEREAS, Citrus County desires to apply for an Urban and Community Forestry Grant to provide monies, in the amount of $5,432 to help fund purchase, and installation of trees to form this vegetative buffer, and to fund public education concerning the reforestation effort and

WHEREAS, Citrus County will provide sufficient matching funds ($5,595) to qualify for the award of an Urban and Community Forestry Grant

WHEREAS, Citrus County wishes to enter into an Urban and Community Forestry Grant Memorandum of Agreement between Citrus County and the Florida Department of Agriculture and Consumer Services;

NOW, THEREFORE, BE IT RESOLVED by the Board of County Commissioners of Citrus County, Florida:

1) The Board of County Commissioners supports the planting of a vegetative buffer between SR 44 and the closed and active landfill sites.

2) The Board of County Commissioners hereby authorizes the Chairman to execute an Urban and Community Forestry Grant Application in the amount of $5,432, and

3) The Board of County hereby authorizes a set-aside amount of $5,595 in matching funds for the purpose of qualifying for the Urban and Community Forestry Grant; and

4) If such grant award is made, the Board of County Commissioners hereby authorizes the Chairman to enter into an Urban and Community Forestry Grant Memorandum of Agreement between Citrus County, Florida and the Florida Department of Agriculture and Consumer Services.

5) If such grant award is made, the Board of County Commissioners hereby authorizes the Chairman to enter into an Urban and Community Forestry Grant Maintenance Memorandum of Agreement, as amended, between Citrus County, Florida and the Florida Department of Agriculture and Consumer Services, which is attached hereto and made a part hereof marked Exhibit "A.

6) The Board of County Commissioners hereby designates Susan J. Metcalfe, Director, Division of Solid Waste Management as the Grant Project Manager for this project.

ADOPTED THIS THE 10TH DAY OF AUGUST, 1999.

Upon the motion of Commissioner Bartell seconded by Commissioner Thorpe, the Resolution was adopted by a vote of 4 to 0.

ATTEST:

Alicia A. Kell, D.C.
for BETTY STRIFLER, CLERK

BOARD OF COUNTY COMMISSIONERS OF CITRUS COUNTY, FLORIDA

BY: Vicki Phillips
VICKI PHILLIPS, CHAIRMAN

APPROVED AS TO FORM AND CORRECTNESS:

LARRY M. HAAG
COUNTY ATTORNEY

ATTACHMENT H

URBAN AND COMMUNITY FORESTRY GRANT

MAINTENANCE MEMORANDUM OF AGREEMENT

This agreement, made and entered into this the_____day of _____19____, by and between the STATE OF FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES, an agency of the State of Florida, hereinafter called the "Department" and _____, hereinafter called the Entity (Subrecipient).

WITNESSETH

WHEREAS, the Department desires to increase the general level of knowledge of the principles of urban and community forestry by granting funds to the Entity (Subrecipient) for the establishment of a demonstration tree planting project as outlined in the Urban and Community Forestry grant application Number _____ and Grant Memorandum of Agreement (the "Grant Agreement") attached hereto as Exhibit "1" and by reference made a part hereof;

WHEREAS, the Department has awarded the Entity (Subrecipient) an urban and community forestry grant for the improvements to the project property more particularly set forth in the Grant Agreement;

WHEREAS, the Entity (Subrecipient) agreed in the Grant Agreement to maintain the project(as described in the Grant Application);

WHEREAS, the parties hereto recognize the need for entering into an agreement designating and setting forth the responsibilities of each party in maintaining the project; and

WHEREAS, the Entity (Subrecipient) by Resolution desires to enter into this Agreement and authorizes its officers to do so.

NOW THEREFORE, for and in consideration of the mutual benefits that flow each to the other herein and in Exhibit "1", the Grant Memorandum of Agreement, the parties covenant and agree as follows:

1. The Entity (Subrecipient) shall maintain the project in a responsible manner and with due care in accordance with the below listed "Project Standards" for the property at the following location:

_____

_____

_____

Specifically, the Entity (Subrecipient) accepts the below listed responsibilities and duties:

(a). Proper watering and proper fertilization of all trees
keeping them as free as practicable from disease and harmful insects;
(b). Proper mulching of tree beds;
(c). Keeping the premises free of weeds;
(d). Mowing and/or cutting grasses to the proper length;
(e). Proper pruning of all trees which include (I) removing dead or diseased parts of trees or (ii)

pruning such parts thereof which present a hazard;

(f). Removing and replacing dead or diseased trees in their entirety, or removing and replacing those that fall below original Project Standards.

(g) Following the Planting Guidelines as included herein as Exhibit "C".

The Entity (Subrecipient) agrees to repair, or remove and replace at its own expense all or part of the project that falls below Project Standards. In the event any part or parts of the project, including all plants, must be removed and replaced for whatever reason, then they shall be replaced by parts of the same grade, size and specification as provided in the original plans for the project. Furthermore, the Entity (Subrecipient) shall keep litter removed from the project area. The above named functions to be performed by the Entity (Subrecipient) shall be subject to periodic inspections by the Department. It is the intent of the parties hereto that except as otherwise provided in paragraphs 2 and 4 hereof, the Entity (Subrecipient) shall be the owner of the planting and other installations included and stipulated in the grant application comprising the project.

2. This Agreement may by terminated under any one of the following conditions:

(a). By the Department, if the Entity (Subrecipient) fails to perform its duties under this Agreement or for refusal by the Entity (Subrecipient) to allow public access to all documents, papers, letters, or other material subject to the provisions of Chapter 119, Florida Statutes and made or secured by the Entity (Subrecipient) in conjunction with this Agreement following reasonable written notice.

(b). By either party following sixty (60) calendar days written notice.

(c). By both parties following the complete execution by both parties of an agreement to terminate this Agreement.

3. The terms of this Agreement commence on the date of Certification of Acceptance and continue for a period of three (3) years.

4. In the event this Agreement is terminated in accordance with subparagraph 2(a) then the Entity (Subrecipient) shall refund to the Department a pro-rated portion of the grant award based upon the following schedule:

(a) If this agreement is terminated within one year of the date in Paragraph 3, 75 percent of the grant award.

(b) If this agreement is terminated during the second year of this agreement, 50 percent of the grant award.

(c) If this agreement is terminated during the third year of this agreement, 25 percent of the grant Award.

ATTACHMENT "H"

5. The entity (sub-recipient) shall be responsible for any damages arising out of injury or damages should damage to persons or property directly cause or resulting from the negligence of entity's officers, agents or employees. Nothing herein shall waive entity's right to claims of sovereign immunity pursuant to Section 768.28, Florida Statutes.

6. This Agreement, together with the Urban and Community Forestry Grant Memorandum of Agreement, embodies the entire agreement and understanding between the parties hereto and there are no other agreements or understandings, oral or written, with reference to the subject matter hereof that are not superseded hereby.

7. This Agreement may not be assigned or transferred by the Entity (sub-recipient) in whole or in part without the expressed written consent of the Department.

8. This Agreement shall be governed by and construed in accordance with the laws of the State of Florida.

9. All notices, demands, requests or other instruments shall be given by depositing the same in the U.S. Mail, postage prepaid, registered or certified with return receipt requested, or be telex (FAX) or telegram:

(a) If to the Department, addressed to the Urban Forestry Coordinator, Forest Management Bureau, 3125 Conner Boulevard, Tallahassee, FL 32399-1650 or at such other address the Department may from time to time designate by written notice to the Entity (sub-recipient); and

(b) If to the Entity (sub-recipient) addressed to:

_____

_____

_____

or at such other address as the Entity (sub-recipient) from time to time designates by written notice to the Department. All time limits provided hereunder shall run from the date of receipt of all mailed notices, demands, requests and other instruments, or from the date telexed or faxed.

10. Time is of the essence of this Agreement.

11. This contract, which disburses grants and aids appropriations is subject to the requirements of Section 216.347, Florida Statutes, and the Entity (sub-recipient) is therefore not allowed to expend any funds received through this contract for the purpose of lobbying the Florida Legislature, the Department, the Judicial Branch, or any other State agency.

ATTACHMENT H

This contract, which disburses grants and aids appropriations, is subject to the requirements of Section 216.349, Florida Statutes, which are:

(a) The Department and the Comptroller before disbursing any funds must independently ensure that the proposed expenditure is in accordance with all legal and regulatory requirements and that this contract specifically prohibits the use of funds for the purpose of lobbying the Legislature, the Department, the Judicial Branch or any state agency.

(b) If the Entity (Subrecipient) is a local government agency, non-profit organization, or not-for-profit organization it shall: (I) for amounts $25,000 or less, have its head attest that it has complied with grant provisions, (ii) for amounts greater than $25,000 but not more than $100,000 have a grant-specific audit performed in accordance with the rules of the Auditor General or have a statement prepared by an independent certified public accountant which attests that the grant provisions have been complied with, (iii) for amounts greater than $100,000 have a grant-specific audit performed in accordance with the rules of the Auditor General, and (iv) have such audits, statements, or attestations filed with the Department and the Auditor General.

IN WITNESS WHEREOF, the parties hereto have caused these presents to be executed the day and year first above written.

STATE OF FLORIDA
DEPARTMENT OF AGRICULTURE AND
CONSUMER SERVICES

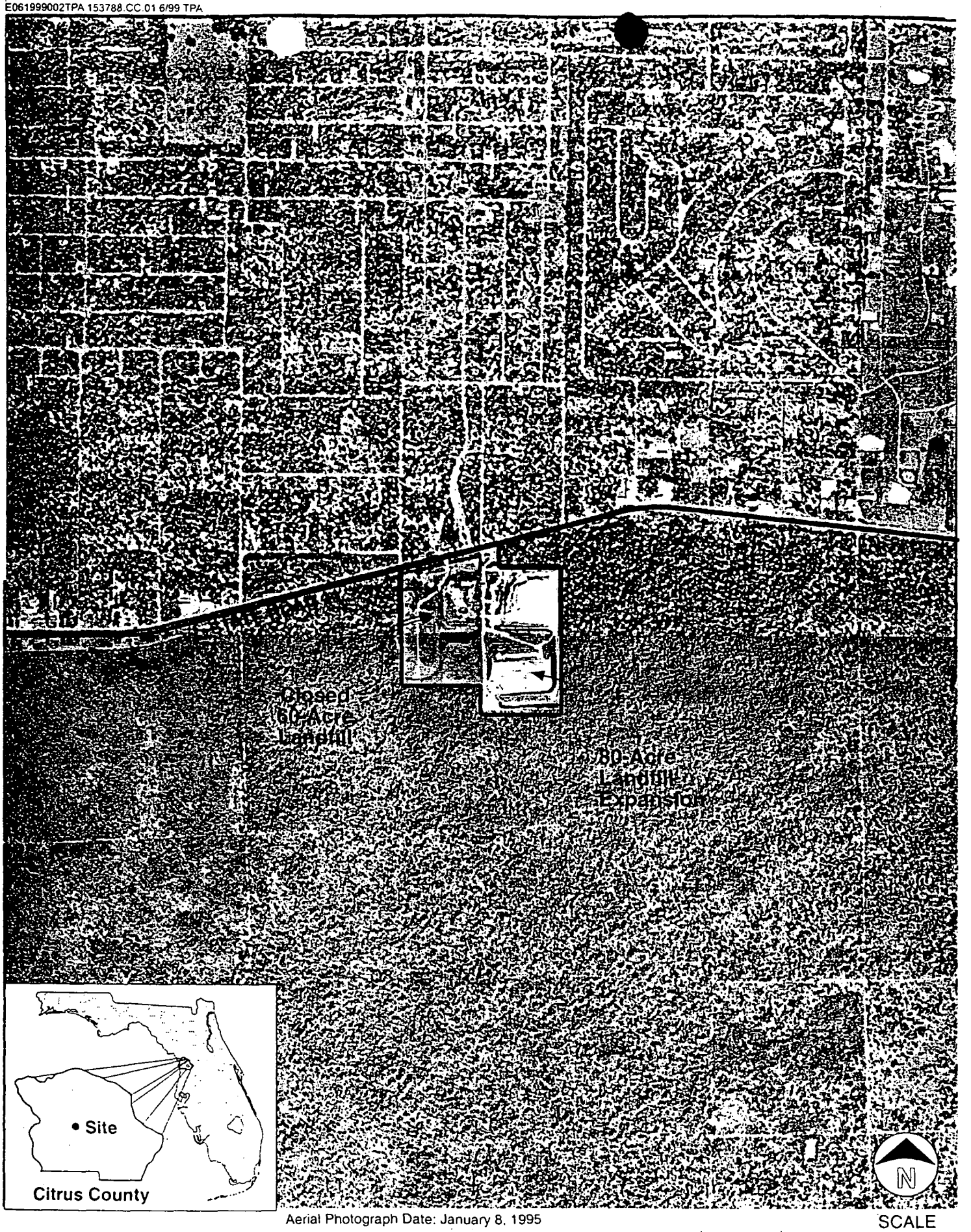
BY: _____
Director, Division of
Administration

_____
Name of Entity (Subrecipient)

BY: _____

Title: _____

ATTEST: _____ (SEAL)



Aerial Photograph Date: January 8, 1995

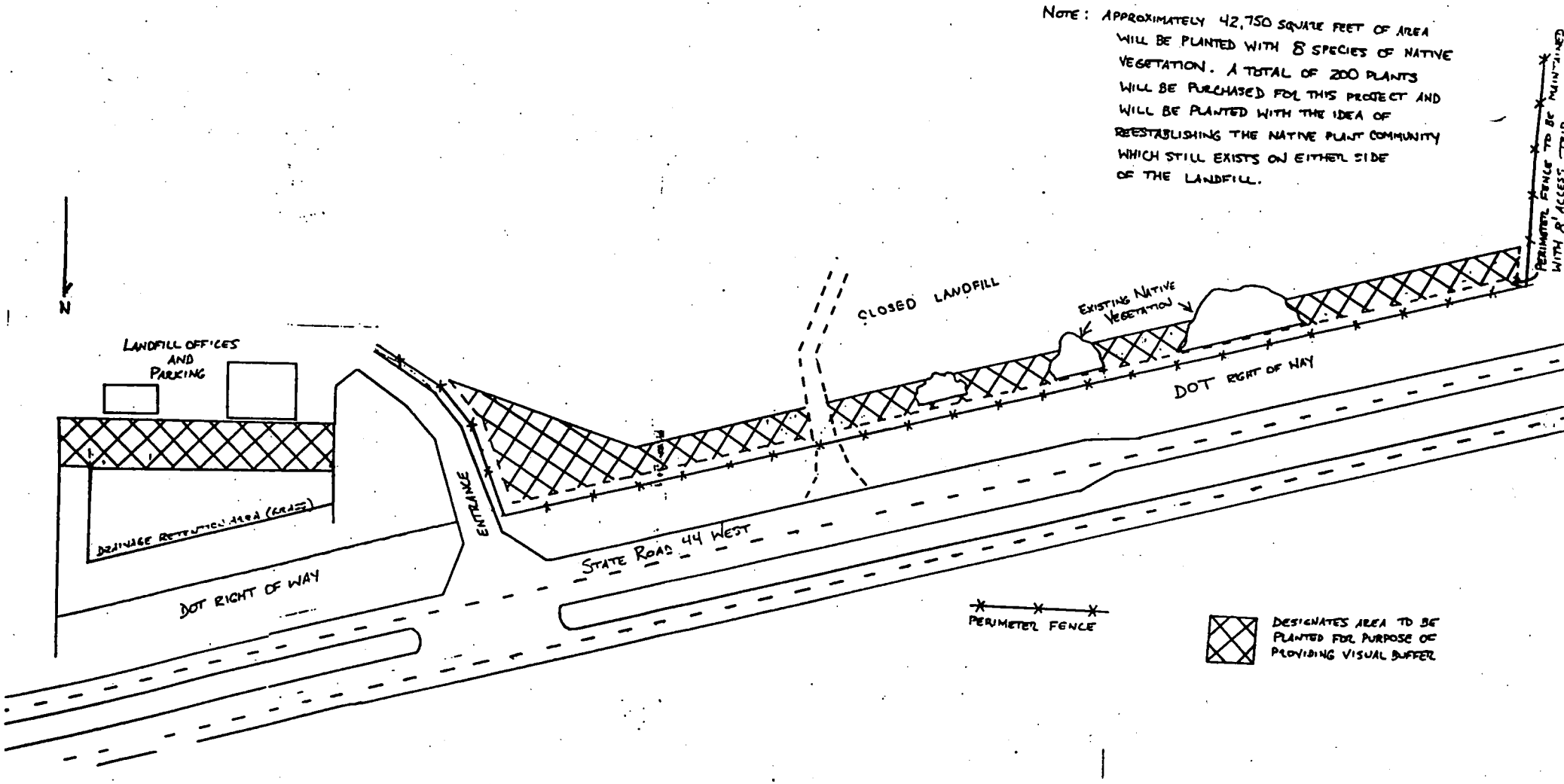
SCALE
1" = 2083'

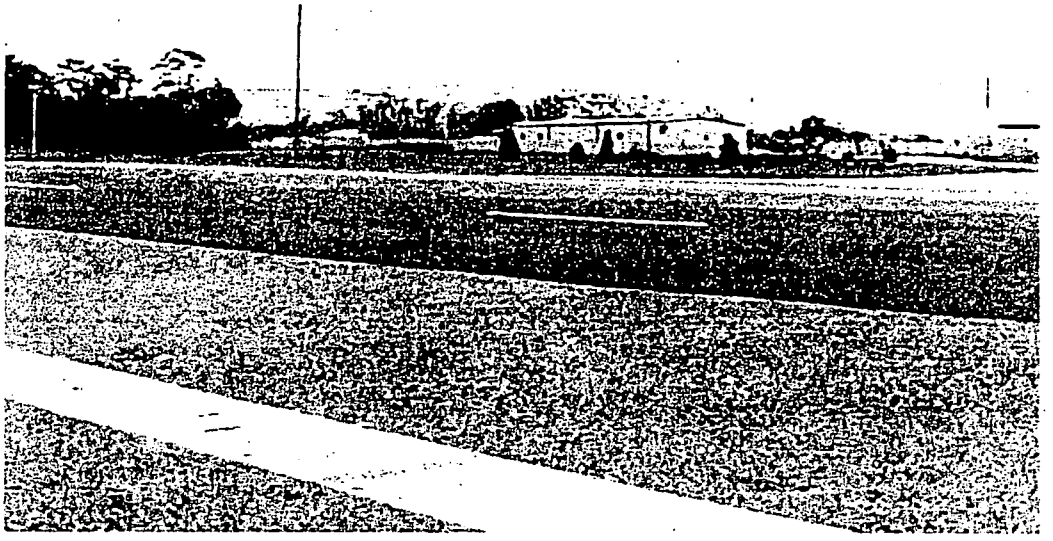
FIGURE 1-1
Site Location Map

CH2MHILL

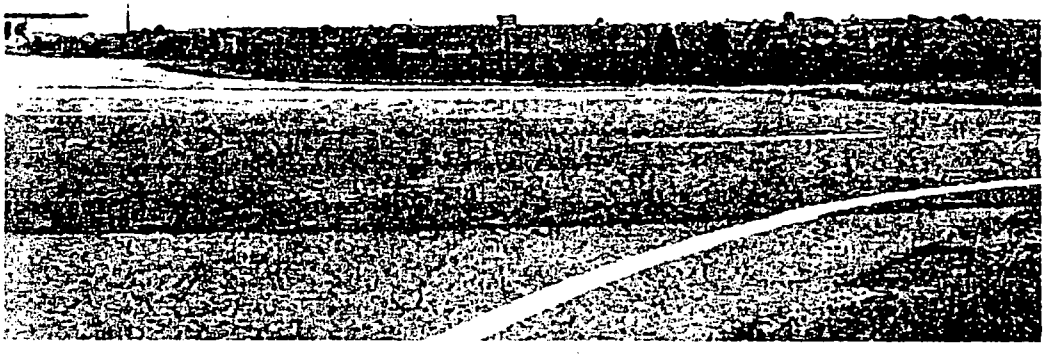
Map

NOTE: APPROXIMATELY 42,750 SQUARE FEET OF AREA WILL BE PLANTED WITH 8 SPECIES OF NATIVE VEGETATION. A TOTAL OF 200 PLANTS WILL BE PURCHASED FOR THIS PROJECT AND WILL BE PLANTED WITH THE IDEA OF REESTABLISHING THE NATIVE PLANT COMMUNITY WHICH STILL EXISTS ON EITHER SIDE OF THE LANDFILL.



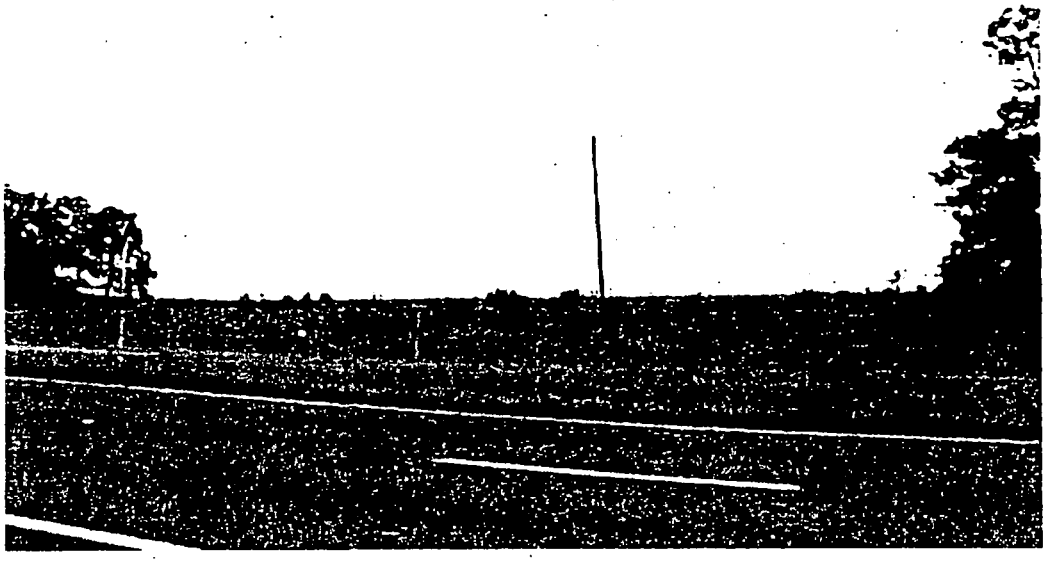


LANDFILL OFFICE AREA FROM SR 44



EAST SECTION OF CLOSED LANDFILL FROM SR 44

CENTRAL SECTION OF CLOSED LANDFILL FROM SR 44



WEST SECTION OF CLOSED LANDFILL FROM SR 44

Florida Department of Agriculture & Consumer Services
BOB CRAWFORD, Commissioner
The Capitol • Tallahassee, FL 32399-0800

Please Respond to:
Withlacoochee Forestry Center
15019 Broad Street
Brooksville, Florida 34601

July 29, 1999

Susan Metcalfe
Director, Division of Solid Waste Management
Dept. of Public Works
P.O.Box 340
Lecanto, Fl. 34460-0340

Dear Ms. Metcalfe,

The Division of Forestry, Withlacoochee State Forest, the current property owner of the landfill area currently being proposed as a part of a U&CF grant, fully supports and authorizes the planting of a vegetative buffer along SR 44. This would greatly improve the aesthetics and habitat of this locale.

If I can be of any other assistance, please feel free to contact me at 352-754-6777, ext.120.

Sincerely,

Winnie Schreiber

Winnie Schreiber
Center Manager
Withlacoochee State Forest

Boy Scout Troop 302
Inverness, Florida
July 28, 1999

Florida Department of Agriculture and Consumer Services
Division of Forestry
Tallahassee

Re: Urban and Community Forestry Grant Application
Citrus County

To Whom It May Concern:

I understand that Citrus County has made an application for a grant to plant trees on the County Landfill property bordering SR 44 near Lecanto. This type of project would be an ideal Eagle Scout project. One Scout can organize all the volunteer labor to plant the trees and install the irrigation system. This is the type of project our troop committee is always looking for because each Scout must show leadership in a community service project in order to earn the Eagle rank. This project could likewise be an opportunity for many boys to earn a part of the Forestry merit badge. The opportunity to help prepare an educational brochure about the project could be part our involvement and participants could earn part of the Communications merit badge.

Our troop supports the County's grant application as an opportunity for Boy Scouts to be involved in a community service project.

Sincerely,

Gary W. Marshall Advancement Chairman for John Pridham

John Pridham
Committee Chairman

UNIVERSITY OF FLORIDA Cooperative Extension Service

Institute of Food and Agricultural Sciences

Citrus County Cooperative Extension Service
3600 S Florida Avenue
Inverness, Fl 34450
352/726-2141

August 11, 1999

MEMORANDUM

TO: SUSAN METCALF, SOLID WASTE

FROM: TIM JOHNSTON, ADJ. HORT. AGENT

SUBJECT: **MASTER GARDENER ASSISTANCE FOR PLANTING PROJECT**

The County Extension Service can provide at least two experienced master gardeners to train unskilled volunteers in planting techniques with 30 days notice.

The County Extension Service welcomes the opportunity for assisting in your planned landscape improvements.

TJ/as

The Institute of Food and Agricultural Sciences is an Equal Employment Opportunity – Affirmative Action Employer authorized to provide research, educational information and other services only to individuals and institutions that function without regard to race, color, sex, age, handicap or national origin.
COOPERATIVE EXTENSION WORK IN AGRICULTURE, HOME ECONOMICS, STATE OF FLORIDA, IFAS, UNIVERSITY OF FLORIDA, U.S. DEPARTMENT OF AGRICULTURE, AND BOARDS OF COUNTY COMMISSIONERS COOPERATING.

M E M O R A N D U M

TO: SUSAN J. METCALFE, DIRECTOR
DIVISION OF SOLID WASTE MANAGEMENT

FROM: LARRY M. HAAG LMH/cac
COUNTY ATTORNEY

DATE: AUGUST 2, 1999

SUBJ: URBAN AND COMMUNITY FORESTRY GRANT
MEMORANDUM OF AGREEMENT

I have reviewed the above described agreement for legal sufficiency and have only one problem and that pertains to the maintenance agreement attached which needs to have paragraph 5 deleted in its entirety. A new paragraph should be added that:

> "The entity (sub-recipient) shall be responsible for any damages arising out of injury or damages should damage to persons or property directly cause or resulting from the negligence of entity's officers, agents or employees. Nothing herein shall waive entity's right to claims of sovereign immunity pursuant to Section 768.28, Florida Statutes."

LMH:cac

RECEIVED
AUG - 3 1999
CITRUS COUNTY — DPW
SOLID WASTE MANAGEMENT DIV.

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

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

3600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
  Suite 205
  352-527-5447 Phone
  352-527-5459 Fax
- Permits & Compliance Sec.
  Suite 204
  352-527-5448 Phone
  352-527-5319 Fax
- Project Management Sec.
  Suite 241
  352-527-5449 Phone
  352-527-5482 Fax
- Survey Section
  Suite 241
  352-527-5446 Phone
  352-527-5482 Fax

1300 S. LECANTO HIGHWAY
LECANTO, FLORIDA 34461

MAINTENANCE OPERATIONS:
- Facilities Maint. Section
  PO Box 143
  Lecanto, FL 34460
  352-527-0333 Phone
  352-527-0654 Fax
- Fleet Management Section
  PO Box 215
  Lecanto, FL 34460
  352-746-6888 Phone
  352-746-5011 Fax

AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

ROAD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

December 3, 1999

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

Re: Citrus County Central Landfill,
Permit No. 274381
Liner Repair

Dear Mr. Ford:

Repair of the liner damage reported to you on November 29, has been completed by Comanco and county staff. Photos of the repair process are attached.

Approximately 5 yards of clayey soil were placed in the washout area. Most was placed and compacted with a backhoe, the section adjacent to the liner edge was placed by hand. The washout was approximately 50 feet long, 1 to 4 feet wide and less than 2 feet deep. The welding machine passed the startup testing criteria and each weld was vacuum tested. The area has been covered with at least two feet of sandy soil in preparation for filling in that area. A new liner-edge gutter is being placed approximately 10 feet higher than the repaired section.

Please contact me if you have any questions.

Yours truly,

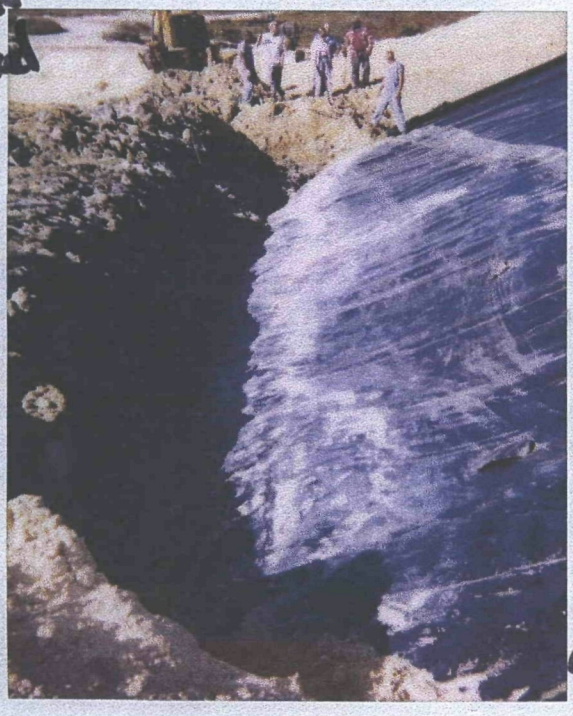
Susan J. Metcalfe

Susan J. Metcalfe, P.G.
Director

D.E.P.
DEC 06 1999
Southwest District Tampa

CC: Ken Saunders, Director, Public Works Department

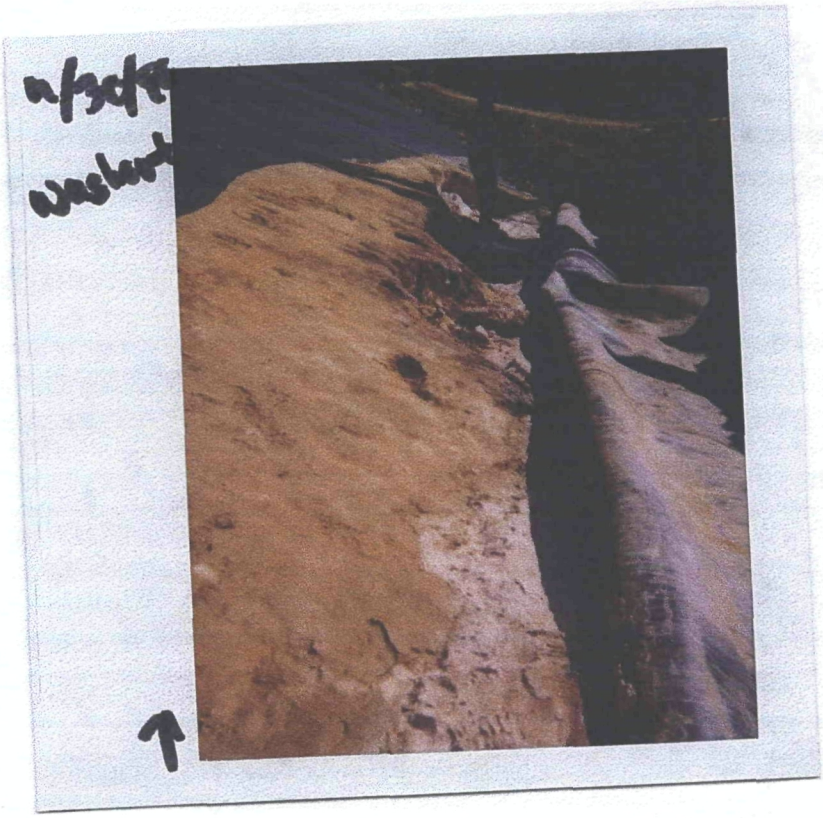
11/30/99 uncovered liner for repair



11/30/99 cutting liner for dirt replacement

11/30/99 washout at liner tear

11/30/99 washout under liner



12/1/99 Replaced material under washout

12/1/99 looking N along repair area

↑ 12/1/99 N end of repair patching in progress

↑ 12/1/99 S. end of repair

12/1/99 N end patches

12/1/99 S end patches

12/1/99 middle area patches

12/1/99 dirt placed up to top patch

12/1/99 Top patch left (N) end

12/1/99 Top patch center

12/1/99 Top patch S end

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

3600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
  Suite 205
  352-527-5447 Phone
  352-527-5459 Fax
- Permits & Compliance Sec.
  Suite 204
  352-527-5448 Phone
  352-527-5319 Fax
- Project Management Sec.
  Suite 241
  352-527-5449 Phone
  352-527-5482 Fax
- Survey Section
  Suite 241
  352-527-5446 Phone
  352-527-5482 Fax

1300 S. LECANTO HIGHWAY
LECANTO, FLORIDA 34461

MAINTENANCE OPERATIONS:
- Facilities Maint. Section
  PO Box 143
  Lecanto, FL 34460
  352-527-0333 Phone
  352-527-0654 Fax
- Fleet Management Section
  PO Box 215
  Lecanto, FL 34460
  352-746-6888 Phone
  352-746-5011 Fax

AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

ROAD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

RECEIVED
DEC 0 2 1999

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

November 29, 1999

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

Re: Citrus County Central Landfill,
Permit No. 274381

Dear Mr. Ford:

Staff discovered a hole in the 60-mil HDPE liner on the east side of Phase 1of the landfill today. The hole is about 1foot square and is shown on the attached map and photo. This area has been beneath the liner-edge gutter for three to four years. Apparently water has been entering into the hole and has created a washout beneath the liner. At the present time, we estimate the area at 3 feet wide and 60 feet long and less than a foot deep. We have requested assistance in performing repairs from county staff, and a liner repair firm. We expect both to be onsite Tuesday, November 30.

Please contact me if you have any questions.

Yours truly,

Susan J. Metcalfe

Susan J. Metcalfe, P.G.
Director

CC: Ken Saunders, Director, Public Works Department

N1644000
N1643500
N1643000
N1642500
N1642000
N1641500
E517000
E516500
E516000
E515500
Trail 15
East Gate
Perimeter Road
Perimeter Road
Perimeter Road
Soil Stockpile
Construction Access Road
Haul Road
Location of Linerhole discovered 11/24/99
Existing Stormwater Pond
Landfill Disposal Area
Proposed Phase 1A Expansion
Citizen Solid Waste Dropoff
Recycle Alley & Citizen Dropoff Facility
Administrative Offices
Yard Waste
Access Road
Tires
Oil
Bulbs
Metal
Staging Area
Access Road
Leachate Storage Facility
State Road 44
Gated Access
Scale House
Leachate Treatment Facility
Methanol Tank
Hazardous Waste Collection and Storage Facility
N
LEGEND
Fence

FIGURE ES-1
Citrus County Central Landfill Site Plan

CH2MHILL

11/29/91
east
side
Phl
liner
damage

↑

11/29/91 east side ↑
Phl

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

November 23, 1999

Ms. Susan J. Metcalfe, P.G.
Citrus County Solid Waste Management
P.O. Box 340
Lecanto, FL 34460-0340

Re: Citrus Central Class I Landfill, Citrus County
Operating Permit No. SO09-274381

Dear Ms. Metcalfe:

The Department has no objection to the proposed resumption of discharge of treated leachate effluent to the onsite percolation ponds as requested in your letter dated November 22, 1999. The results of leachate effluent sample analyses that were provided with the referenced letter indicate that the samples collected on November 17, 1999 meet the regulatory levels established in Specific Condition No. 33.a. of the operating permit. This authorization to discharge to the onsite percolation ponds is contingent on the treated leachate effluent continuing to meet these regulatory levels.

Please contact me at (813) 744-6100 extension 336 if you have questions or comments.

Sincerely,

John R. Morris, P.G.
Solid Waste Section

cc: RB Robert Butera, P.E., FDEP

** Transmit Conf.Report **

P.1 Nov 23 1999 16:07

Telephone Number	Mode	Start	Time	Pages	Result	Note
813525271204	NORMAL	23,16:06	0'41"	1	* O K	

FAXED

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

November 23, 1999

Ms. Susan J. Metcalfe, P.G.
Citrus County Solid Waste Management
P.O. Box 340
Lecanto, FL 34460-0340

Re: Citrus Central Class I Landfill, Citrus County
Operating Permit No. SO09-274381

Dear Ms. Metcalfe:

The Department has no objection to the proposed resumption of discharge of treated leachate effluent to the onsite percolation ponds as requested in your letter dated November 22, 1999. The results of leachate effluent sample analyses that were provided with the referenced letter indicate that the samples collected on November 17, 1999 meet the regulatory levels established in Specific Condition No. 33.a. of the operating permit. This authorization to discharge to the onsite percolation ponds is contingent on the treated leachate effluent continuing to meet these regulatory levels.

Please contact me at (813) 744-6100 extension 336 if you have questions or comments.

Sincerely,

John R. Morris, P.G.
Solid Waste Section

cc: pb Robert Butera, P.E., FDEP

Post-it® Fax Note 7671	Date 11/23/99	# of pages ▶ 1
To SUSAN METCALFE	From JOHN MORRIS	
Co./Dept. CITRUS COUNTY	Co. DEP	
Phone #	Phone # 813-744-6100 x 336	
Fax # 352-527-1204	Fax #	

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

REPLY TO:

Div. of Solid Waste Mgmt.
Susan J. Metcalfe, Director
352/746-5000
FAX: 352/527-1204

600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
  Suite 205
  352-527-5447 Phone
  352-527-5459 Fax
- Permits & Compliance Sec.
  Suite 204
  352-527-5448 Phone
  352-527-5319 Fax
- Project Management Sec.
  Suite 241
  352-527-5449 Phone
  352-527-5482 Fax
- Survey Section
  Suite 241
  352-527-5446 Phone
  352-527-5482 Fax

0 S. LECANTO HIGHWAY
LECANTO, FLORIDA 34461

INTENANCE OPERATIONS:
- Facilities Maint. Section
  PO Box 143
  Lecanto, FL 34460
  352-527-0033 Phone
  352-527-0454 Fax
- Fleet Management Section
  PO Box 215
  Lecanto, FL 34460
  352-746-6858 Phone
  352-746-5011 Fax

IATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

D MAINTENANCE
PO Box 167
Inverness, FL 34450
352-746-4107 Phone
352-746-1203 Fax

ITIES DIVISION
O Box 440
ecanto, FL 34460
52-746-2694 Phone
52-746-1676 Fax

D WASTE MANAGEMENT
00 W. Gulf to Lake Highway
O Box 340
nverness, FL 34450
52-746-5000 Phone
52-527-1204 Fax

DATE: 11/22/99

TIME: 4:15

NO. PAGES: 5 including cover sheet

TO: John Morris

FDEP 813-744-6125

FROM: Susan Metcalfe

RE: Leachate treatment plant results

Request to resume discharge

MESSAGE:

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

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

3600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
  Suite 205
  352-527-5447 Phone
  352-527-5459 Fax
- Permits & Compliance Sec.
  Suite 204
  352-527-5448 Phone
  352-527-5319 Fax
- Project Management Sec.
  Suite 241
  352-527-5449 Phone
  352-527-5482 Fax
- Survey Section
  Suite 241
  352-527-5446 Phone
  352-527-5482 Fax

1300 S. LECANTO HIGHWAY
LECANTO, FLORIDA 34461

MAINTENANCE OPERATIONS:
- Facilities Maint. Section
  PO Box 143
  Lecanto, FL 34460
  352-527-0333 Phone
  352-527-0654 Fax
- Fleet Management Section
  PO Box 215
  Lecanto, FL 34460
  352-746-6888 Phone
  352-746-5011 Fax

AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

ROAD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

November 22, 1999

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

Re: Citrus County Central Landfill,
Permit No. SO09-274381, Specific Condition 33
Leachate Treatment Plant Testing

Dear Mr. Morris:

As we discussed during a phone conversation last week, testing of the weekly parameter list for the leachate treatment plant resulting in violations of the 20-mg/l limit for Total Suspended Solids for the November 3 and November 10 sample dates. Copies of those reports are attached. Discharge of treated effluent was ceased on November 15. Effluent was disposed at the County Utilities' Meadowcrest and Brentwood wastewater treatment plants on November 16 and November 19.

The results of testing for the November 17 sample showed that the effluent met the 20-mg/l standard as shown on the attached copy of the report. In-house testing agrees with the laboratory results and shows improvement since last week's episode. This is to request permission to resume onsite discharge of treated leachate.

Please call me if you have questions.

Yours truly,

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

CC: Kenneth E. Saunders Jr., Director, Public Works Department
Robert Butera, FDEP, Tampa

Advanced
Environmental Laboratories, Inc.

5810-D Breckenridge Parkway
Tampa, Florida 33610
(813) 630-9616
FAX (813) 630-4327

Client: Citrus County Central Landfill
P.O. Box 340
Lecanto, FL 34460

Field Custody: Client
Client/Field ID: Citrus County
Matrix: Wastewater
Sample Collection: 11/03/99@0800
P.O. Number
Sample Pickup: 11/03/99@0805
Lab Custody Date: 11/03/99@1130
DOH Certification: 84549,E84589
DEP/Comqap#: 980174

COMMENTS:

Parameter ID	Analysis Result	Data Qualifier	Lab ID Number	Units	Analytical Method	Detection Limit Used	Analysis/Setup Date/Time	Analyst Initials
CBOD(Eff.)	4.6		T993509	mg/l	SM5210B	2	11/05/99@0800	CAW
TSS(Eff.)	26		T993509	mg/l	160.2	1	11/5/99	CAW
COD	111		T993509	mg/l	410.1	20	11/3/99	CAW
Ammonia	0.39		T993509	mg/l	350.1	0.05	11/08/99@1110	DMC
Nitrate	0.24		T993509	mg/l	4500NO3F	0.05	11/03/99@1447	DMC
TN	2.7		T993509	mg/l	351.2,4500NO3F	0.05	11/3/99	DMC
TKN	2.4		T993509	mg/l	351.2	0.02	11/5/99	DMC
TP	6.4		T993509	mg/l	365.4	0.02	11/5/99	DMC
Fecal	300		T993509	CFU/100ml	SM9222D	1	11/03/99@1310	TMH
Total Chlorine(Eff)	0.58		T993509	mg/l	SM4500CLD	0.1	11/3/99	DMC
PH				mg/l	150.1	1		

Approved by:
Michael Cammarata, Laboratory Manager

RECEIVED
NOV 18 1999

Advanced Environmental Laboratories, Inc.
5810-D Brookeridge Parkway
Tampa, Florida 33610
(813) 630-9616
FAX (813) 630-4327

Client: Citrus County Central Landfill
P.O. Box 340
Lecanto, FL 34460

Field Custody: Client
Client/Field ID: Citrus County
Matrix: Wastewater
Sample Collection: 11/10/99@1220
P.O. Number
Sample Pickup: 11/10/99@1220
Lab Custody Date: 11/10/99@1500
DOH Certification: 84549,E84589
DEP/Comqap#: 980174

COMMENTS:

Parameter ID	Analysis Result	Data Qualifier	Lab ID Number	Units	Analytical Method	Detection Limit Used	Analysis/Setup Date/Time	Analyst Initials
CBOD(Eff.)	3.5		T993609	mg/l	SM5210B	2	11/11/99@0800	CAW
TSS(Eff.)	32		T993609	mg/l	160.2	1	11/15/99	CAW
COD	134		T993609	mg/l	410.1	20	11/16/99	CAW
Ammonia	0.57		T993609	mg/l	350.1	0.05	11/15/99@1033	DMC
Nitrate	0.97		T993609	mg/l	4500NO3F	0.05	11/11/99@1149	DMC
TN	4.4		T993609	mg/l	351.2,4500NO3F	0.05	11/11/99	DMC
TKN	3.4		T993609	mg/l	351.2	0.05	11/12/99	DMC
TP	5.5		T993609	mg/l	365.4	0.05	11/12/99	DMC
Fecal	<1	U	T993609	CFU/100m	SM9222D	1	11/10/99@1545	TMH
Total Chlorine(Eff)	1.1		T993609	mg/l	SM4500CLD	0.1	11/10/99	DMC
PH	7.4		T993609	mg/l	150.1	1	11/10/99	CAW

Approved by: Donna M. Cammarata
Michael Cammarata, Laboratory Manager

Advanced Environmental Laboratories, Inc.
5810 D Breckenridge Parkway
Tampa, Florida 33610
(813) 630 9619
FAX (813) 630-4377

Client: Citrus County Central Landfill
P.O. Box 340
Lecanto, FL 34460

Field Custody: Client
Client/Field ID: Citrus County
Matrix: Wastewater
Sample Collection: 11/17/99@0815
P.O. Number
Sample Pickup: 11/17/99@0815
Lab Custody Date: 11/17/99@1130
DOH Certification: 84549,E84589
DEP/Comqap#: 980174

COMMENTS:

Parameter ID	Analysis Result	Data Qualifier	Lab ID Number	Units	Analytical Method	Detection Limit Used	Analysis/Setup Date/Time	Analyst Initials
CBOD(Eff.)			T993687	mg/l	SM5210B	1		
TSS(Eff.)	14.5		T993687	mg/l	160.2	1	11/19/99	CAW
COD	91		T993687	mg/l	410.1	20	11/17/99	CAW
Ammonia			T993687	mg/l	350.1	0.05		
Nitrate	6.5		T993687	mg/l	4500NO3F	0.05	11/17/99@1459	DMC
TN	8.2		T993687	mg/l	351.2,4500NO3F	0.05	11/17/99	DMC
TKN	1.7		T993687	mg/l	351.2	0.05	11/19/99	DMC
TP	4.4		T993687	mg/l	365.4	0.05	11/19/99	DMC
Fecal	16		T993687	CFU/100ml	SM9222D	1	11/17/99@1305	TMH
Total Chlorine(Lff)	0.68		T993687	mg/l	SM4500CLD	0.1	11/17/99	DMC
PH	7.5		T993687	mg/l	150.1	1	11/17/99	JAE

Approved by: _____
Michael Cammarata, Laboratory Manager

St. Petersburg Times ONLINE CITRUS COUNTY

TAMPA BAY forums

Yahoo! TIMES

Calendars | Classifieds | Comics/Games | Forums | Sports | Weather

Home
Columnist
Jan Glidewell
News Sections
Action
Arts & Entertainment
Business
Citrus County
Columnists
Floridian
Hernando County
Obituaries
Opinion
Pasco County
State
Tampa Bay
World & Nation
Featured areas
AP The Wire
Alive!
Area Guide
A-Z Index
Classifieds
Comics & Games
Employment
Health
Forums
Lottery
Movies
Police Report
Real Estate
Sports
Stocks
Weather
What's New
Weekly Sections
Home & Garden
Perspective
Taste

E-mail this story Print this story

Commission rescinds transfer station plans

By AMYLIA WIMMER

© St. Petersburg Times, published November 10, 1999

INVERNESS -- David Dee, a Tallahassee lawyer who specializes in solid-waste issues, had a word of caution for county commissioners Tuesday.

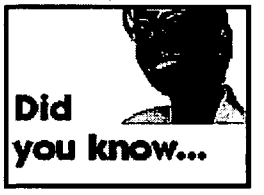
The transfer station commissioners wanted to build near the Citrus County landfill -- the one that would allow Citrus to ship its trash to other counties and hold onto valuable open space in its own landfill -- doesn't make much sense, Dee told them.

His presentation angered Commissioner Jim Fowler, who was sold on the idea of a transfer station. The commission voted unanimously in May to move forward with building a $1-million to $2-million transfer station, but voted 4-1 Tuesday to change course.

"This is so frustrating to me," Fowler said. "This board made a decision, and now it seems like we're going to reverse this decision."

Dee, who also works as a consultant for the county, told commissioners he wanted to warn commissioners before they spent money unnecessarily. Building a transfer station would be useless if no surrounding county wants to accept Citrus trash.

The decision to build and operate a transfer station would end up costing each resident of Citrus County



Tech Times
Travel
Weekend

Other Sections
Buccaneers
College Football
Devil Rays
Lightning
Ongoing Stories
Photo Reprints
Photo Review
Seniority
Star Wars
Tax Help 99
Web Specials

Market Info
Advertise online

Contact Us
All Departments

about $4, Dee said.

At a transfer station, haulers bring trash that then can be sent on to a solid waste incinerator, landfill or other facility in another county.

Fowler has argued that the county will benefit by saving the space in its landfill.

Other commissioners said that, while the transfer station doesn't appear feasible now, the commission could change direction again if the market changes.

"At this point in time, the truth of the matter is we're disposing of our waste in the most efficient manner and the most cost-effective way we can at this time," Commission Chairwoman Vicki Phillips said. "I think that's what the citizens expect."

Commissioner Gary Bartell called the transfer station a "warm and fuzzy" option because it involves taking Citrus trash elsewhere.

"I would like nothing better than to transfer it to somewhere else, but economically, I haven't solved that puzzle yet," Commissioner Brad Thorpe said.

* * *

E-mail this story Print this story

Back to Citrus County news

BACK TO TOP

© Copyright 1999 St. Petersburg Times. All rights reserved.

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

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

D.E.R.
OCT 0 6 1999
Southwest District Tampa

October 1, 1999

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

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

Dear Mr. Ford:

This is to report completion of replacement of three gas wells located along the west side of the closed landfill. The wells were moved approximately three feet to the east in order to have them inside the perimeter fence. The design is identical to those wells that were replaced and the shift in location is so small that no change is noticeable on the attached drawing. The replaced wells are GS-B3W, GS-K3W and GS-L3W.

Please contact me if you have any questions.

Yours truly,

Susan J. Metcalfe

Susan J. Metcalfe, P.G.
Director

CC: Ken Saunders, Director, Public Works Department

3600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
  Suite 205
  352-527-5447 Phone
  352-527-5459 Fax
- Permits & Compliance Sec.
  Suite 204
  352-527-5448 Phone
  352-527-5319 Fax
- Project Management Sec.
  Suite 241
  352-527-5449 Phone
  352-527-5482 Fax
- Survey Section
  Suite 241
  352-527-5446 Phone
  352-527-5482 Fax

1300 S. LECANTO HIGHWAY
LECANTO, FLORIDA 34461

MAINTENANCE OPERATIONS:
- Facilities Maint. Section
  PO Box 143
  Lecanto, FL 34460
  352-527-0333 Phone
  352-527-0654 Fax
- Fleet Management Section
  PO Box 215
  Lecanto, FL 34460
  352-746-6888 Phone
  352-746-5011 Fax

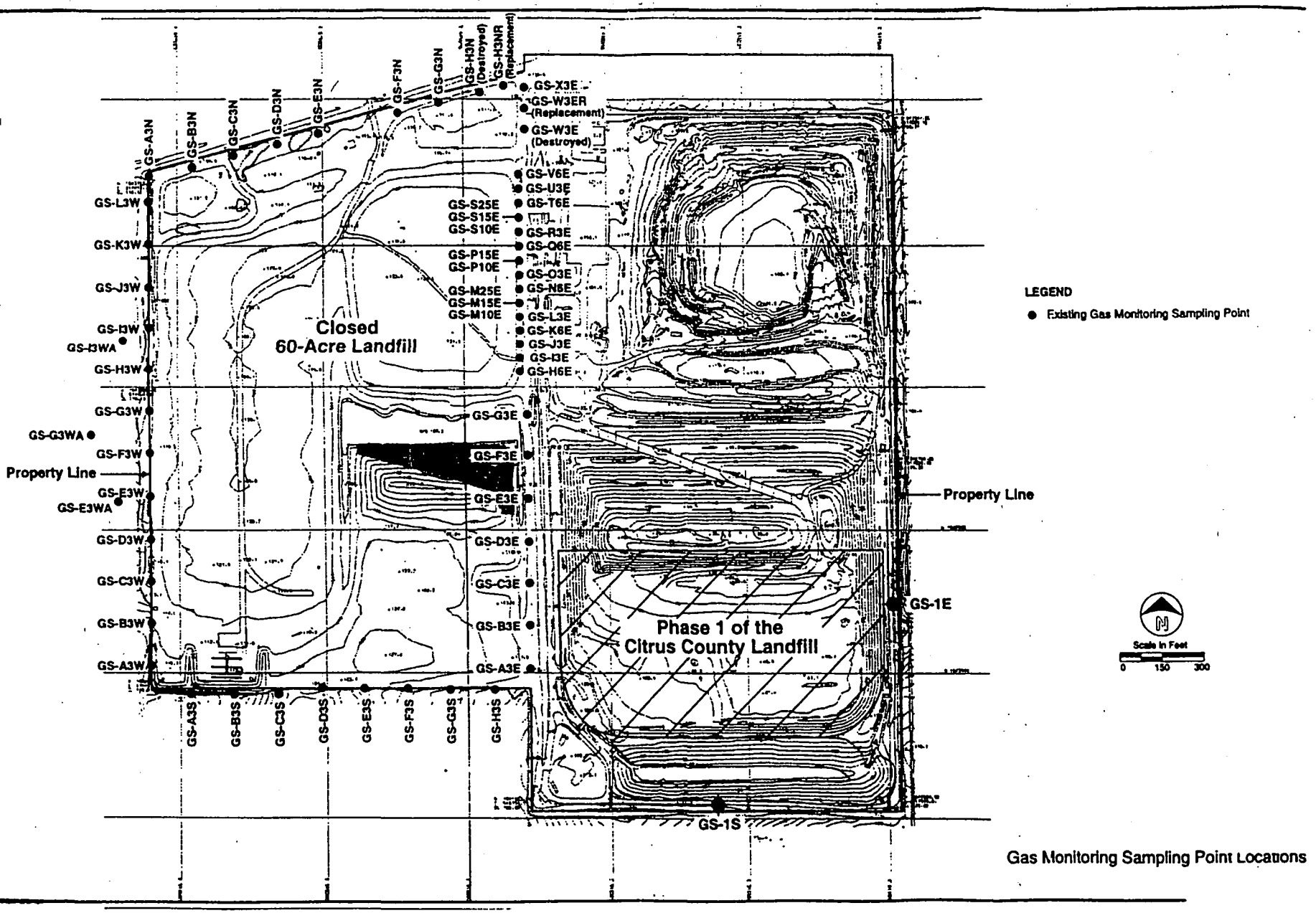
AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

ROAD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

CITRUS COUNTY CENTRAL LANDFILL GAS SAMPLING POINTS



Gas Monitoring Sampling Point Locations

SAMPLING EVENT:_____

RESULTS 100% LEL HIGHLIGHTED

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

3600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
  Suite 205
  352-527-5447 Phone
  352-527-5459 Fax
- Permits & Compliance Sec.
  Suite 204
  352-527-5448 Phone
  352-527-5319 Fax
- Project Management Sec.
  Suite 241
  352-527-5449 Phone
  352-527-5482 Fax
- Survey Section
  Suite 241
  352-527-5446 Phone
  352-527-5482 Fax

1300 S. LECANTO HIGHWAY
LECANTO, FLORIDA 34461

MAINTENANCE OPERATIONS:
- Facilities Maint. Section
  PO Box 143
  Lecanto, FL 34460
  352-527-0333 Phone
  352-527-0654 Fax
- Fleet Management Section
  PO Box 215
  Lecanto, FL 34460
  352-746-6888 Phone
  352-746-5011 Fax

AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

ROAD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

D.E.P.
OCT 0 1 1999
Southwest District Tampa

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

John
FYI
Any comments?
10/8/99

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

Re: Citrus County Central Landfill,
Permit No. 247381

Dear Mr. Ford:

After several attempts to make the methane detectors located in the leachate and stormwater lift stations that were installed with the Phase 1A expansion in 1997, we have decided to eliminate the dedicated units and use portable units. The assumption, for safety purposes, will be that methane is present and that its concentration must be tested prior to any entry. The attached letter from CH2M HILL details the history of this situation.

Please contact me if you have any questions.

Yours truly,

Susan J. Metcalfe

Susan J. Metcalfe, P.G.
Director

CC: Kenneth E. Saunders, Jr., Director, Public Works Department
Bob Butera, FDEP, Tampa

CH2M HILL
3011 S.W. Williston Road
Gainesville, FL
32608-3928
Mailing address:
P.O. Box 147009
Gainesville, FL
32614-7009
Tel 352.335.7991
Fax 352.335.2959

CH2MHILL

RECEIVED
SEP 24 1999
CITRUS COUNTY DPW
SOLID WASTE MANAGEMENT DIV

September 23, 1999

153891.46.01

Susan Metcalfe
Citrus County Division of Solid Waste Management
P..O. Box 340
Lecanto, FL 34460

Subject: Methane Detector at Citrus County Central Landfill

Dear Susie:

This letter is a follow-up to several telephone conversations that we have had recently regarding the methane detector in the leachate and stormwater sumps at the Central Landfill. On July 6, 1999, you contacted me, reported that the methane meters were not functioning and asked that we investigate the cause of the meter failures. The following conditions were reported:

- Smith Construction installed two methane detectors, one at the leachate sump and one at the stormwater sump, during the construction of the Phase 1A liner system. The detectors were incorrectly located outside of the wetwells. Smith reported that both detectors were operable; however, this was not confirmed by County staff or the CH2M HILL resident observer.
- Both of the detectors installed by Smith failed. The one from the stormwater sump was returned to the manufacturer, Industrial Scientific, Corp., and the manufacturer reported that the detector had been stuck by lightning or that it was improperly wired.
- County obtained replacement detectors of the same type and model from Industrial Scientific and they were installed in the inside the sumps by F&H Electrical. County staff confirmed initial operation of the detectors.
- Both detectors failed within 6 weeks of installation. Upon investigation, it was discovered that:
  - The detector inside the leachate sump was too close to the leachate discharge point and failure of this detector was attributed to leachate spray hitting the detector.
  - The detector in the stormwater sump appeared to be properly located, but when it was opened by F&H Electrical moisture was discovered on contact inside the detector.

Following the most recent failure of the methane detectors and subsequent to your request on July 6, we have evaluated the design drawings and technical specifications for Phase 1A, and the shop drawings and operation and maintenance manual for the methane detectors provided by Smith Construction. Our review indicates that:

- The design drawings designate "MSA McNeill" or equal methane detectors with sensors installed in the wetwells, and controllers and alarms mounted in the control panels.
- The shop drawings provided by Smith designated methane detectors supplied by Industrial Scientific Corp. and indicated that there were no variations from the Contract.
- The shop drawings indicated that the sensor and controller were an integral unit, and that the unit was suitable for a 0 to 99% relative humidity, non-condensing atmosphere.
- The atmosphere inside the wetwells is probably a condensing atmosphere that may be causing the methane detectors to fail.

Based on our findings and as mutually agreed during our telephone conversation on August, 19, 1999, we recommend that the use of in-wetwell methane detectors be discontinued and that a portable Lower Explosive Limit (LEL) meter be used whenever you need to test the atmosphere inside the sumps. The functionality of the recommended method would be the same as the permanently installed meters, since the installed meters did not provide remote outputs and consequently a technician is required to visit the sumps in order to obtain a reading. In addition, only one portable meter is required and the meter can be stored in a controlled environment when not in use.

If you have any question regarding our analysis or recommendation, please give me a call.

Sincerely,

CH2M HILL

R. J. Bruner III, P.E.
Project Manager

GNV\Metcalfe Methane Detector.doc
c: Greg Yarberry/GNV
Tom Kraemer/SEA
Dave Green/DFB

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

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

September 13, 1999

RE: Citrus County Landfill Financial Assurance Cost Estimates
Permit Nos.: 126601-002-SF, Closed Class I
SO09-274381, Class I

Dear Ms. Metcalfe:

This letter is to acknowledge receipt of the revised cost estimates prepared by CH2MHill, Inc., dated August 23, 1999 (received September 1, 1999), for closing and long-term care of the Citrus County Landfill (Phase 1, 1A, and old closed 60 acres). The cost estimates received September 1, 1999 (closing $2,715,963 and long-term care $157,633/year x 30 years=$4,729,004), are **APPROVED for 1999**. The next annual update (revised or inflation-adjusted estimates) is due no later than **September 1, 2000**.

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

Sincerely,

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

sjp
cc: Gary Kuhl, P.E., Director, Citrus Co. Dept. of Public Works, PO Box 340, Lecanto, Fl. 34461
R.J. Bruner III, P.E., CH2M Hill, 3011 SW Williston Road, Gainesville, Fl. 32608-3928
Fred Wick, FDEP, Tallahassee, w/attachment
Robert Butera, P.E., FDEP Tampa
Kim Ford, P.E., FDEP Tampa

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

AA AA
KF
RB RB

D.E.P.
JUN 03 1999
Southwest District Tampa

3600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
  Suite 205
  352-527-5447 Phone
  352-527-5459 Fax
- Permits & Compliance Sec.
  Suite 204
  352-527-5448 Phone
  352-527-5319 Fax
- Project Management Sec.
  Suite 241
  352-527-5449 Phone
  352-527-5482 Fax
- Survey Section
  Suite 241
  352-527-5446 Phone
  352-527-5482 Fax

1300 S. LECANTO HIGHWAY
LECANTO, FLORIDA 34461

MAINTENANCE OPERATIONS:
- Facilities Maint. Section
  PO Box 143
  Lecanto, FL 34460
  352-527-0333 Phone
  352-527-0654 Fax
- Fleet Management Section
  PO Box 215
  Lecanto, FL 34460
  352-746-6888 Phone
  352-746-5011 Fax

AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

ROAD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

June 1, 1999

Robert J. Butera, P.E.
Solid Waste Manager
Southwest District
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, FL 33619

Subject: **Proper Management and disposal of Streetsweepings, Stormwater Sediments and Catch Basin Sediments**

Dear Mr. Butera:

On May 4, 1999, your letter was received informing me that all streetsweepings, ditch and drainage sediments, stormwater and catch basin sediments are a solid waste and must be managed accordingly.

I have asked Susan Metcalfe, our Solid Waste Director, to apply for the necessary permits that will allow our landfill to accept this material as cover material.

Currently, Citrus County does not own a street sweeper nor are streets swept. We do, however, have a vacuum catch basin cleaner, and the picked up material is dried out and either used as fill or taken to a landfill.

Sincerely,

Kenneth E. Saunders, Jr.
Public Works Director

KES:lsh

cc: Gary W. Kuhl, County Administrator
Susan Metcalfe, Director Solid Waste Management

FDEP | 3804 Coconut Palm Drive, Tampa, FL 33619-8318

FAX

Date: 5/14/12 FAXED

Number of pages including cover sheet: 2

To: SUSAN METCALFE

CITRUS County

Phone: (352) 746 5000

Fax phone: (352) 527 1204

CC:

From: Tom FORD

Phone: (813) 744-6100 x38a

Fax phone: (813) 744-6125

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

PLEASE PROVIDE DETAILS AND DESCRIPTION OF THE PIPE REPLACEMENT AND CONNECTIONS

THX

Tom

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

December 9, 1998

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

3600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
  Suite 205
  352-527-5447 Phone
  352-527-5459 Fax
- Permits & Compliance Sec.
  Suite 204
  352-527-5448 Phone
  352-527-5319 Fax
- Project Management Sec.
  Suite 241
  352-527-5449 Phone
  352-527-5482 Fax
- Survey Section
  Suite 241
  352-527-5446 Phone
  352-527-5482 Fax

1300 S. LECANTO HIGHWAY
LECANTO, FLORIDA 34461

MAINTENANCE OPERATIONS:
- Facilities Maint. Section
  PO Box 143
  Lecanto, FL 34460
  352-527-0333 Phone
  352-527-0654 Fax
- Fleet Management Section
  PO Box 215
  Lecanto, FL 34460
  352-746-6888 Phone
  352-746-5011 Fax

AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

ROAD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

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

RECEIVED
DEC 11 1998
Department of Environmental Protection
BY SOUTHWEST DISTRICT

Re: Citrus County Central Landfill,
Permit No. 126601-002-SF (Closed 60-acre site)
Permit No. SO09-274381 (Active 80-acre site)

Dear Mr. Ford:

Citrus County plans to implement two projects this fiscal year, one each on the active and closed sites for which we are requesting clarification as to whether permits will be required. The project for the closed landfill will be to complete fencing the property. The south and west sides, which are contiguous with the Withlacoochee State Forest currently do not have fencing. The firing range in the southwest corner of the site has berms for separation from the forest. The attached sketch shows the proposed alignment of the fencing.

The project for the active landfill will be to replace existing contaminated stormwater piping (PVC), in the locations outside the liner, with HDPE piping. The attached sketch shows the proposed alignment of the new piping. This will connect to PVC piping and flex hose inside the lined area. As you may recall, contaminated stormwater is pumped on an as-needed basis from the open fill area, by means of a diesel-powered hydraulic pump, through that hose and piping to the leachate storage tank.

Please contact me if you have any questions and provide a written response concerning permitting requirements, if any.

Yours truly,

Susan J. Metcalfe

Susan J. Metcalfe, P.G.
Director

12/17/98 10:10 AM W/ Susan
FENCE OK
NEED DETAILS ON PIPE CONNECTIONS / EXISTING PIPE ALIGNMENT

CC: Ken Saunders, Director, Public Works Department
Ken Cheek, Engineer, Utilities Division
Bob Butera, FDEP, Tampa

Transmit Confirmation Report

No.	:	009
Receiver	:	813525271204
Transmitter	:	WASTE MGT TAMPA SWDIST
Date	:	May 19 99 11:49
Time	:	01'13
Mode	:	Norm
Pages	:	02
Result	:	OK

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

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

3600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
  Suite 205
  352-527-5447 Phone
  352-527-5459 Fax
- Permits & Compliance Sec.
  Suite 204
  352-527-5448 Phone
  352-527-5319 Fax
- Project Management Sec.
  Suite 241
  352-527-5449 Phone
  352-527-5482 Fax
- Survey Section
  Suite 241
  352-527-5446 Phone
  352-527-5482 Fax

1300 S. LECANTO HIGHWAY
LECANTO, FLORIDA 34461

MAINTENANCE OPERATIONS:
- Facilities Maint. Section
  PO Box 143
  Lecanto, FL 34460
  352-527-0333 Phone
  352-527-0654 Fax
- Fleet Management Section
  PO Box 215
  Lecanto, FL 34460
  352-746-6888 Phone
  352-746-5011 Fax

AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

ROAD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

April 12, 1999

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

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
APR 15 1999
SOUTHWEST DISTRICT
TAMPA

Re: Citrus County Central Landfill,
Permit No. SO09-274381, Specific Condition 33a
Leachate Treatment Plant Performance

Dear Mr. Morris:

This is to report that the landfill leachate treatment plant is back in compliance with the treatment criteria established in our FDEP operating permit. A copy of partial analytical results from last week's testing is attached. This shows that CBOD was 1.4 mg/l, well below the 20-mg/l standard.

We are hereby requesting that your office approve discharge of treated leachate plant effluent to the onsite percolation ponds, beginning as soon as permission is granted and continuing as long as compliance with permit conditions standards continues.

The following summary is an update to my March 24 letter describing conditions that lead to the non-compliant condition. Reseeding the plant second stage improved the de-nitrification treatment immediately and within a few days, onsite testing for process control indicated the plant was again in compliance for nitrate and ammonia. This was confirmed by weekly laboratory testing. Results of testing for all required parameters for the past four weeks, and preliminary results from last week are attached for your review.

After improvements in treatment results in the first and second stage, which provides nitrification and de-nitrification, the high CBOD persisted. When the plant is not in compliance, (and discharge is not allowed) the sampling location changes from after the chlorine contact chamber/ filtration unit effluent to after the second stage. We felt that lack of this final stage in treatment contributed significantly to the high CBOD. The logic was that chlorine would kill off any remaining bacteria and the sand filter would remove any carbon or bacterial remains that may have

contributed to the high CBOD. Therefore, last week we requested that we be allowed to discharge long enough to obtain a sample after the final step of treatment. Results of that testing are consistent with the assumption.

Please contact me if you have any questions. Your prompt attention to this matter is appreciated.

Yours truly,

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

CC: Kenneth E. Saunders Jr., Director, Public Works Department
Robert Butera, FDEP, Tampa

CITRUS COUNTY CENTRAL LANDFILL

PARAMETER MONITORING REPORT
Rule 62-522.900 (11)

GMS # 4009C00086 Sample Date/Lab ID: 03/10/99 9400234001

Test Site #:_____

Test Site Name: Leachate

Site Type: [ ] Background
[ ] Site Boundary
[ ] Intermediate
[ ] Compliance
[X] Other: Leachate

Sample Method: Grab, where applicable

Storet Code	Parameter Monitored	Analysis Method	Analysis Date	Analysis Result	Units	Practical Quant. Level	Sample Filtered /Unfiltered	Preservative Added
004000	pH, Field	150.1	03/10/99	7.4	S.U.	0.20	--	--
900201	Total Suspended Solids	SM2540 D	03/10/99	1.5	mg/L	1.0	U	None
000620	Nitrate-Nitrogen	300.0	03/11/99	<0.060	mg/L	0.060	U	None
000620	Nitrite-Nitrogen	300.0	03/11/99	< 0.044	mg/L	0.044	U	None
000610	Ammonia-Nitrogen	350.1	03/15/99	4.2	mg/L	0.050	U	H_2SO_4
000625	Total Kjeldahl Nitrogen	351.2	03/16/99	4.7	mg/L	0.20	U	H_2SO_4
000600	Total Nitrogen	351.2	03/17/99	4.8	mg/L	0.20	U	H_2SO_4
000665	Total Phosphorus	365.4	03/15/99	0.89	mg/L	0.50	U	H_2SO_4
000340	COD	410.4	03/15/99	120	mg/L	5.0	U	H_2SO_4
80082	CBOD5	SM5210 B	03/10/99	61	mg/L	2.0	U	None
031616	Fecal Coliform	SM9222 D	03/10/99	17	CFU/100mL	1.0	U	$Na_2S_2O_3$

CITRUS COUNTY CENTRAL LANDFILL

PARAMETER MONITORING REPORT

Rule 62-522.900 (11)

GMS # 4009C00086

Sample Date/Lab ID: 03/17/99 9100788001

Test Site #:_____

Test Site Name: Leachate

Site Type:
[ ] Background
[ ] Site Boundary
[ ] Intermediate
[ ] Compliance
[X] Other: Leachate

Sample Method: Grab, where applicable

Storet Code	Parameter Monitored	Analysis Method	Analysis Date	Analysis Result	Units	Practical Quant. Level	Sample Filtered /Unfiltered	Preservative Added
004000	pH, Field	150.1	03/17/99	6.8	S.U.	0.20	--	--
900201	Total Suspended Solids	160.2	03/22/99	11	mg/L	2.0	U	None
000620	Nitrate-Nitrogen	300.0	03/18/99	<0.060	mg/L	0.060	U	None
000620	Nitrite-Nitrogen	300.0	03/18/99	<0.044	mg/L	0.044	U	None
000610	Ammonia-Nitrogen	350.1	03/19/99	10	mg/L	0.050	U	H_2SO_4
000625	Total Kjeldahl Nitrogen	351.2	03/22/99	11	mg/L	0.20	U	H_2SO_4
000600	Total Nitrogen	351.2	03/23/99	11	mg/L	0.20	U	H_2SO_4
000665	Total Phosphorus	365.4	03/22/99	2.6	mg/L	0.50	U	H_2SO_4
000340	COD	410.4	03/19/99	270	mg/L	5.0	U	H_2SO_4
80082	CBOD5	SM5210 B	03/18/99	25	mg/L	2.0	U	None
031616	Fecal Coliform	SM9222 D	03/17/99	80	CFU/100mL	1.0	U	$Na_2S_2O_3$

03/24/99 WED 10:52 FAX 1 561 467 1584 B B E L →→ CITRUS COUNTY 003

CITRUS COUNTY CENTRAL LANDFILL

PARAMETER MONITORING REPORT
Rule 62-522.900 (11)

GMS # 4009C00086 Sample Date/Lab ID: 03/24/99 9400277001

Test Site #:_____

Test Site Name: Leachate

Site Type: [ ] Background
[ ] Site Boundary
[ ] Intermediate
[ ] Compliance
[X] Other: Leachate

Sample Method: Grab, where applicable

Storet Code	Parameter Monitored	Analysis Method	Analysis Date	Analysis Result	Units	Practical Quant. Level	Sample Filtered /Unfiltered	Preservative Added
004000	pH, Field	150.1	03/24/99	7.2	S.U.	0.20	--	--
900201	Total Suspended Solids	SM2540 D	03/24/99	32	mg/L	1.0	U	None
000620	Nitrate-Nitrogen	300.0	03/25/99	7.0	mg/L	0.060	U	None
000620	Nitrite-Nitrogen	300.0	03/26/99	47	mg/L	0.044	U	None
000610	Ammonia-Nitrogen	350.1	03/25/99	21	mg/L	0.050	U	H_2SO_4
000625	Total Kjeldahl Nitrogen	351.2	03/25/99	21	mg/L	0.20	U	H_2SO_4
000600	Total Nitrogen	351.2	03/31/99	74	mg/L	0.20	U	H_2SO_4
000665	Total Phosphorus	365.4	03/25/99	16	mg/L	0.50	U	H_2SO_4
000340	COD	410.4	03/30/99	750	mg/L	5.0	U	H_2SO_4
80082	CBOD5	SM5210 B	03/24/99	480	mg/L	2.0	U	None
031616	Fecal Coliform	SM9222 D	03/24/99	73	CFU/100mL	1.0	U	$Na_2S_2O_3$

CITRUS COUNTY CENTRAL LANDFILL

PARAMETER MONITORING REPORT
Rule 62-522.900 (11)

GMS # 4009C00086

Sample Date/Lab ID: 03/31/99 9100922001

Test Site #:_____

Test Site Name: Leachate

Site Type:
[ ] Background
[ ] Site Boundary
[ ] Intermediate
[ ] Compliance
[X] Other: Leachate

Sample Method: Grab, where applicable

Storet Code	Parameter Monitored	Analysis Method	Analysis Date	Analysis Result	Units	Practical Quant. Level	Sample Filtered /Unfiltered	Preservative Added
004000	pH , Field	150.1	03/31/99	7.9	S.U.	0.20	--	--
900201	Total Suspended Solids	160.2	04/05/99	5.0	mg/L	2.0	U	None
000620	Nitrate-Nitrogen	300.0	04/01/99	1.1	mg/L	0.060	U	None
000620	Nitrite-Nitrogen	300.0	04/01/99	0.096	mg/L	0.044	U	None
000610	Ammonia-Nitrogen	350.1	04/06/99	<0.050	mg/L	0.050	U	H_2SO_4
000625	Total Kjeldahl Nitrogen	351.2	04/08/99	0.89	mg/L	0.20	U	H_2SO_4
000600	Total Nitrogen	351.2	04/08/99	2.1	mg/L	0.20	U	H_2SO_4
000665	Total Phosphorus	365.4	04/08/99	5.5	mg/L	0.50	U	H_2SO_4
000340	COD	410.4	04/05/99	300	mg/L	5.0	U	H_2SO_4
80082	$CBOD5^J$	SM5210 B	04/01/99	25	mg/L	2.0	U	None
031616	Fecal Coliform	SM9222 D	03/31/99	110	CFU/100mL	1.0	U	$Na_2S_2O_3$

Client:	Citrus County Central Landfill		Page 2
Workorder ID	Citrus County Landfill	**Sampled**	04/07/99 09:00
Laboratory ID	9400314001	**Received**	04/07/99 10:25
Sample ID	Weekly Leach Eff	**Reported**	04/12/99 14:40
Matrix	Environmental Water		

Wet Chemistry Analysis

Parameter	Method	Prep Date	Analyzed	Result	DL	Units
pH[D]	EPA 150.1	N/A	04/07/99 WPH	7.8	0.20	SU
Nitrite as N	EPA 300.0	N/A	04/08/99 21:46 RS	<0.044	0.044	mg/L
Nitrate as N	EPA 300.0	N/A	04/08/99 21:46 RS	<0.060	0.060	mg/L
Ammonia	EPA 350.1	N/A	04/08/99 SMB	<0.050	0.050	mg/L
Total Nitrogen	EPA 351.2	04/08/99	04/12/99 GG	1.5	0.20	mg/L
Total Kjeldahl Nitrogen	EPA 351.2	04/08/99	04/09/99 SMB	1.5	0.40	mg/L
Total Phosphorus as P	EPA 365.4	04/08/99	04/09/99 SMB	15	1.0	mg/L
Total Suspended Solids	SM2540 D	N/A	04/07/99 MAB	1.3	1.0	mg/L
CBOD5	SM5210 B	N/A	04/07/99 16:00 MAB	2.0	2.0	mg/L
Fecal Coliform	SM9222 D	N/A	04/07/99 MAB	12	1.0	CFU/100mL

D - Measurement was made in the field.

Client:	Citrus County Central Landfill		
Workorder ID	Citrus County Landfill	**Sampled**	04/07/99 09:00
Laboratory ID	9400314001	**Received**	04/07/99 10:25
Sample ID	Weekly Leach Eff	**Reported**	04/12/99 13:23
Matrix	Environmental Water		

Wet Chemistry Analysis

Parameter	Method	Prep Date	Analyzed	Result	DL	Units
pH[D]	EPA 150.1	N/A	04/07/99 WPH	7.8	0.20	SU
Nitrite as N	EPA 300.0	N/A	04/08/99 21:46 RS	<0.044	0.044	mg/L
Nitrate as N	EPA 300.0	N/A	04/08/99 21:46 RS	<0.060	0.060	mg/L
Ammonia	EPA 350.1	N/A	04/08/99 SMB	<0.050	0.050	mg/L
Total Kjeldahl Nitrogen	EPA 351.2	04/08/99	04/09/99 SMB	1.5	0.40	mg/L
Total Phosphorus as P	EPA 365.4	04/08/99	04/09/99 SMB	15	1.0	mg/L
Total Suspended Solids	SM2540 D	N/A	04/07/99 MAB	1.3	1.0	mg/L
Fecal Coliform	SM9222 D	N/A	04/07/99 MAB	12	1.0	CFU/100mL

D - Measurement was made in the field.

Harbor Branch Oceanographic Institution, Inc.
Harbor Branch Environmental Laboratory
5600 U.S. 1, North
Fort Pierce, Florida 34946

ENVIRONMENTAL LABORATORY

FACSIMILE

DATE: April 12, 1999	
TO: JIM BRUNSWICK	
FAX NO:	**TELEPHONE:**
Internet: hash@hbel.com **FROM: Don Hash**	
FACSIMILE: (561) 467-1584	**800-333-4264** **TELEPHONE: (561) 465-2400, ext. 285**
Number of Pages (including cover page): 1	
CBOD for effluent....2.0 mg/L and filtered 1.4 mg/L. Later cbod sample results of 1.4 mg/L.	

HARBOR BRANCH ENVIRONMENTAL LABORATORY
5600 US 1 North, Fort Pierce, FL 34946
561-465-2400, Ext. 285

FDEP QAP 870174

April 12, 1999

Cathy Winter
Citrus County Central Landfill
Solid Waste Management
POB 340, 230 Gulf to Lake Hwy
Lecanto, FL 34460

Client : Citrus County Central Landfill
Project [Reference] : Citrus County Landfill [9400314]
Date Received : April 07, 1999

Analytical results presented in this report have been reviewed for compliance with the laboratory quality assurance plan and applicable quality control criteria. The quality control parameters evaluated have met all method and compliance criteria unless otherwise noted on a Quality Control Summary Page immediately following this cover sheet.

FDOH (HRS) Drinking Water Certification Number: 96230, 83486, 82500, 85512, 84526

FDOH (HRS) Environmental Certification Number: E96080, E83509, E82417, E85370, E84418

FDEP CompQAP Approval Number: 870174

NOTE: This report is not to be copied, except in full, without the express written consent of the Harbor Branch Environmental Laboratory.

If you have any questions regarding this report, or if we can be of further assistance, please feel free to call (561) 465-2400 ext. 285 and ask to speak with your project manager.

Don Hash
Project Manager

Preliminary results

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

April 13, 1999

Ms. Susan J. Metcalfe, P.G.
Citrus County Solid Waste Management
P.O. Box 340
Lecanto, FL 34460-0340

Re: Citrus Central Class I Landfill, Citrus County
Operating Permit No. SO09-274381

Dear Ms. Metcalfe:

The Department has no objections to the proposed resumption of discharge of treated leachate effluent to the onsite percolation ponds as requested in your letter dated April 12, 1999. The results of leachate effluent sample analyses that were provided with the referenced letter indicate that the samples collected on April 7, 1999 meet the regulatory levels established in Specific Condition No. 33.a. of the operating permit. This authorization to discharge to the onsite percolation ponds is contingent on the treated leachate effluent continuing to meet these regulatory levels.

Please contact me at (813) 744-6100 extension 336 if you have questions or comments.

Sincerely,

John R. Morris

John R. Morris, P.G.
Solid Waste Section

cc: Robert Butera, P.E., FDEP

FDEP	3804 Coconut Palm Drive, Tampa, FL 33619-8318

FAX

Date: 4/13/99

Number of pages including cover sheet: 2

To:

SUSAN METCALFE
CITRUS COUNTY

Phone:
Fax phone: 352 - 527 - 1204
CC:

From:

JOHN MORRIS

Phone: (813) 744-6100 X 336
Fax phone: (813) 744-6125

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

SUSAN -

THE LETTER AUTHORIZING DISCHARGE OF TREATED LEACHATE EFFLUENT TO THE PERCOLATION PONDS IS ATTACHED. WILL SEND THE ORIGINAL OUT IN THE MAIL TODAY. YOU HAD A GOOD IDEA ABOUT THE SAMPLING POINT DIFFERENCES & LEVEL OF TREATMENT.

JOH

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

Ms. Susan J. Metcalfe, P.G.
Citrus County Solid Waste Management
P.O. Box 340
Lecanto, FL 34460-0340

April 13, 1999

Re: Citrus Central Class I Landfill, Citrus County
Operating Permit No. SO09-274381

Dear Ms. Metcalfe:

The Department has no objections to the proposed resumption of discharge of treated leachate effluent to the onsite percolation ponds as requested in your letter dated April 12, 1999. The results of leachate effluent sample analyses that were provided with the referenced letter indicate that the samples collected on April 7, 1999 meet the regulatory levels established in Specific Condition No. 33.a. of the operating permit. This authorization to discharge to the onsite percolation ponds is contingent on the treated leachate effluent continuing to meet these regulatory levels.

Please contact me at (813) 744-6100 extension 336 if you have questions or comments.

Sincerely,

John R. Morris, P.G.
Solid Waste Section

cc: Robert Butera, P.E., FDEP

Transmit Confirmation Report

No.	:	007
Receiver	:	813525271204
Transmitter	:	WASTE MGT TAMPA SWDIST
Date	:	Apr 13 99 12:27
Time	:	01'02
Mode	:	Norm
Pages	:	02
Result	:	OK

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

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

3600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
Suite 205
352-527-5447 Phone
352-527-5459 Fax

- Permits & Compliance Sec.
Suite 204
352-527-5448 Phone
352-527-5319 Fax

- Project Management Sec.
Suite 241
352-527-5449 Phone
352-527-5482 Fax

- Survey Section
Suite 241
352-527-5446 Phone
352-527-5482 Fax

1300 S. LECANTO HIGHWAY
LECANTO, FLORIDA 34461

MAINTENANCE OPERATIONS:
- Facilities Maint. Section
PO Box 143
Lecanto, FL 34460
352-527-0133 Phone
352-527-0664 Fax

- Fleet Management Section
PO Box 213
Lecanto, FL 34460
352-746-6888 Phone
352-746-5011 Fax

AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

ROAD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4197 Phone
352-746-1203 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

April 12, 1999

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

Re: Citrus County Central Landfill,
Permit No. SO09-274381, Specific Condition 33a
Leachate Treatment Plant Performance

Dear Mr. Morris:

This is to report that the landfill leachate treatment plant is back in compliance with the treatment criteria established in our FDEP operating permit. A copy of partial analytical results from last week's testing is attached. This shows that CBOD was 1.4 mg/l, well below the 20-mg/l standard.

We are hereby requesting that your office approve discharge of treated leachate plant effluent to the onsite percolation ponds, beginning as soon as permission is granted and continuing as long as compliance with permit conditions standards continues.

The following summary is an update to my March 24 letter describing conditions that lead to the non-compliant condition. Reseeding the plant second stage improved the de-nitrification treatment immediately and within a few days, onsite testing for process control indicated the plant was again in compliance for nitrate and ammonia. This was confirmed by weekly laboratory testing. Results of testing for all required parameters for the past four weeks, and preliminary results from last week are attached for your review.

After improvements in treatment results in the first and second stage, which provides nitrification and de-nitrification, the high CBOD persisted. When the plant is not in compliance, (and discharge is not allowed) the sampling location changes from after the chlorine contact chamber/ filtration unit effluent to after the second stage. We felt that lack of this final stage in treatment contributed significantly to the high CBOD. The logic was that chlorine would kill off any remaining bacteria and the sand filter would remove any carbon or bacterial remains that may have

contributed to the high CBOD. Therefore, last week we requested that we be allowed to discharge long enough to obtain a sample after the final step of treatment. Results of that testing are consistent with the assumption.

Please contact me if you have any questions. Your prompt attention to this matter is appreciated.

Yours truly,

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

CC: Kenneth E. Saunders Jr., Director, Public Works Department
Robert Butera, FDEP, Tampa

CITRUS COUNTY CENTRAL LANDFILL

PARAMETER MONITORING REPORT

Rule 62-522.900 (11)

GMS # 4009C00086

Sample Date/Lab ID: 03/10/99 9400234001

Test Site #: _____

Test Site Name: Leachate

Site Type:
[ ] Background
[ ] Site Boundary
[ ] Intermediate
[ ] Compliance
[X] Other: Leachate

Sample Method: Grab, where applicable

Storet Code	Parameter Monitored	Analysis Method	Analysis Date	Analysis Result	Units	Practical Quant. Level	Sample Filtered /Unfiltered	Preservative Added
004000	pH, Field	150.1	03/10/99	7.4	S.U.	0.20	–	–
900201	Total Suspended Solids	SM2540 D	03/10/99	1.5	mg/L	1.0	U	None
000620	Nitrate-Nitrogen	300.0	03/11/99	<0.060	mg/L	0.060	U	None
000620	Nitrite-Nitrogen	300.0	03/11/99	< 0.044	mg/L	0.044	U	None
000610	Ammonia-Nitrogen	350.1	03/15/99	4.2	mg/L	0.050	U	H_2SO_4
000625	Total Kjeldahl Nitrogen	351.2	03/16/99	4.7	mg/L	0.20	U	H_2SO_4
000600	Total Nitrogen	351.2	03/17/99	4.8	mg/L	0.20	U	H_2SO_4
000665	Total Phosphorus	365.4	03/15/99	0.89	mg/L	0.50	U	H_2SO_4
000340	COD	410.4	03/15/99	120	mg/L	5.0	U	H_2SO_4
80082	CBOD5	SM5210 B	03/10/99	61	mg/L	2.0	U	None
031616	Fecal Coliform	SM9222 D	03/10/99	17	CFU/100mL	1.0	U	$Na_2S_2O_3$

CITRUS COUNTY CENTRAL LANDFILL

PARAMETER MONITORING REPORT

Rule 62-522.900 (11)

GMS # 4009C00086

Sample Date/Lab ID: 03/17/99 9100788001

Test Site #: _____

Test Site Name: Leachate

Site Type:
[ ] Background
[ ] Site Boundary
[ ] Intermediate
[ ] Compliance
[X] Other: Leachate

Sample Method: Grab, where applicable

Storet Code	Parameter Monitored	Analysis Method	Analysis Date	Analysis Result	Units	Practical Quant. Level	Sample Filtered /Unfiltered	Preservative Added
004000	pH, Field	150.1	03/17/99	6.8	S.U.	0.20	–	–
900201	Total Suspended Solids	160.2	03/22/99	11	mg/L	2.0	U	None
000620	Nitrate-Nitrogen	300.0	03/18/99	<0.060	mg/L	0.060	U	None
000620	Nitrite-Nitrogen	300.0	03/18/99	<0.044	mg/L	0.044	U	None
000610	Ammonia-Nitrogen	350.1	03/19/99	10	mg/L	0.050	U	H_2SO_4
000625	Total Kjeldahl Nitrogen	351.2	03/22/99	11	mg/L	0.20	U	H_2SO_4
000600	Total Nitrogen	351.2	03/23/99	11	mg/L	0.20	U	H_2SO_4
000665	Total Phosphorus	365.4	03/22/99	2.6	mg/L	0.50	U	H_2SO_4
000340	COD	410.4	03/19/99	270	mg/L	5.0	U	H_2SO_4
80082	CBOD5	SM5210 B	03/18/99	25	mg/L	2.0	U	None
031616	Fecal Coliform	SM9222 D	03/17/99	80	CFU/100mL	1.0	U	$Na_2S_2O_3$

CITRUS COUNTY CENTRAL LANDFILL

PARAMETER MONITORING REPORT

Rule 62-522.900 (11)

GMS # 4009C00086

Sample Date/Lab ID: 03/24/99 9400277001

Test Site #: _____

Test Site Name: Leachate

Site Type:
[ ] Background
[ ] Site Boundary
[ ] Intermediate
[ ] Compliance
[X] Other: Leachate

Sample Method: Grab, where applicable

Storet Code	Parameter Monitored	Analysis Method	Analysis Date	Analysis Result	Units	Practical Quant. Level	Sample Filtered /Unfiltered	Preservative Added
004000	pH, Field	150.1	03/24/99	7.2	S.U.	0.20	--	--
900201	Total Suspended Solids	SM2540 D	03/24/99	32	mg/L	1.0	U	None
000620	Nitrate-Nitrogen	300.0	03/25/99	7.0	mg/L	0.060	U	None
000620	Nitrite-Nitrogen	300.0	03/26/99	47	mg/L	0.044	U	None
000610	Ammonia-Nitrogen	350.1	03/25/99	21	mg/L	0.050	U	H_2SO_4
000625	Total Kjeldahl Nitrogen	351.2	03/25/99	21	mg/L	0.20	U	H_2SO_4
000600	Total Nitrogen	351.2	03/31/99	74	mg/L	0.20	U	H_2SO_4
000665	Total Phosphorus	365.4	03/25/99	16	mg/L	0.50	U	H_2SO_4
000340	COD	410.4	03/30/99	750	mg/L	5.0	U	H_2SO_4
80082	CBOD5	SM5210 B	03/24/99	480	mg/L	2.0	U	None
031616	Fecal Coliform	SM9222 D	03/24/99	73	CFU/100mL	1.0	U	$Na_2S_2O_3$

CITRUS COUNTY CENTRAL LANDFILL
PARAMETER MONITORING REPORT
Rule 62-522.900 (11)

GMS # 4009C00086 Sample Date/Lab ID: 03/31/99 9100922001

Test Site #:

Test Site Name: Leachate

Site Type: [ ] Background
[ ] Site Boundary
[ ] Intermediate
[ ] Compliance
[X] Other: Leachate

Sample Method: Grab, where applicable

Storet Code	Parameter Monitored	Analysis Method	Analysis Date	Analysis Result	Units	Practical Quant. Level	Sample Filtered /Unfiltered	Preservative Added
004000	pH, Field	150.1	03/31/99	7.9	S.U.	0.20	–	–
900201	Total Suspended Solids	160.2	04/05/99	5.0	mg/L	2.0	U	None
000620	Nitrate-Nitrogen	300.0	04/01/99	1.1	mg/L	0.060	U	None
000620	Nitrite-Nitrogen	300.0	04/01/99	0.096	mg/L	0.044	U	None
000610	Ammonia-Nitrogen	350.1	04/06/99	<0.050	mg/L	0.050	U	H_2SO_4
000625	Total Kjeldahl Nitrogen	351.2	04/08/99	0.89	mg/L	0.20	U	H_2SO_4
000600	Total Nitrogen	351.2	04/08/99	2.1	mg/L	0.20	U	H_2SO_4
000665	Total Phosphorus	365.4	04/08/99	5.5	mg/L	0.50	U	H_2SO_4
000340	COD	410.4	04/05/99	300	mg/L	5.0	U	H_2SO_4
80082	CBOD5[J]	SM5210 B	04/01/99	25	mg/L	2.0	U	None
031616	Fecal Coliform	SM9222 D	03/31/99	110	CFU/100mL	1.0	U	$Na_2S_2O_3$

Client:	Citrus County Central Landfill			Page 2
Workorder ID	Citrus County Landfill	**Sampled**	04/07/99 09:00	
Laboratory ID	9400314001	**Received**	04/07/99 10:25	
Sample ID	Weekly Leach Eff	**Reported**	04/12/99 14:40	
Matrix	Environmental Water			

Wet Chemistry Analysis

Parameter	Method	Prep Date	Analyzed	Result	DL	Units
pH	EPA 150.1	N/A	04/07/99 LMW	7.8	0.20	SU
Nitrite as N	EPA 300.0	N/A	04/08/99 21:46 RS	<0.044	0.044	mg/L
Nitrate as N	EPA 300.0	N/A	04/08/99 21:46 RS	<0.060	0.060	mg/L
Ammonia	EPA 350.1	N/A	04/08/99 SMB	<0.050	0.050	mg/L
Total Nitrogen	EPA 351.2	04/08/99	04/12/99 MG	1.5	0.20	mg/L
Total Kjeldahl Nitrogen	EPA 351.2	04/08/99	04/09/99 SMB	1.5	0.40	mg/L
Total Phosphorus as P	EPA 365.4	04/08/99	04/09/99 SMB	15	1.0	mg/L
Total Suspended Solids	SM2540 D	N/A	04/07/99 MAB	1.5	1.0	mg/L
Cbods	SM5210 B	N/A	04/07/99 15:00 MAB	2.0	2.0	mg/L
Fecal Coliform	SM9222 B	N/A	04/07/99 MAB	12	1.0	CFU/100ml

D - Measurement was made in the field.

Client:	Citrus County Central Landfill		
Workorder ID	Citrus County Landfill	**Sampled**	04/07/99 09:00
Laboratory ID	9400314001	**Received**	04/07/99 10:25
Sample ID	Weekly Leach Eff	**Reported**	04/12/99 13:23
Matrix	Environmental Water		

Wet Chemistry Analysis

Parameter	Method	Prep Date	Analyzed	Result	DL	Units
pH	EPA 150.1	N/A	04/07/99 MAB	7.18	0.20	SU
Nitrite as N	EPA 300.0	N/A	04/08/99 21:46 RS	<0.044	0.044	mg/L
Nitrate as N	EPA 300.0	N/A	04/08/99 21:46 RS	<0.060	0.060	mg/L
Ammonia	EPA 350.1	N/A	04/08/99 SMB	<0.050	0.050	mg/L
Total Kjeldahl Nitrogen	EPA 351.2	04/08/99	04/09/99 SMB	1.3	0.40	mg/L
Total Phosphorus as P	EPA 365.4	04/08/99	04/09/99 SMB	15	1.0	mg/L
Total Suspended Solids	SM2540 D	N/A	04/07/99 MAB	2.5	1.0	mg/L
Fecal Coliform	SM9222 D	N/A	04/07/99 MAB	12	1.0	CFU/100mL

D - Measurement was made in the field.

Harbor Branch Oceanographic Institution, Inc.
Harbor Branch Environmental Laboratory
5600 U.S. 1, North
Fort Pierce, Florida 34946

ENVIRONMENTAL LABORATORY

FACSIMILE

DATE: April 12, 1999	
TO: JIM BRUNSWICK	
FAX NO:	**TELEPHONE:**
Internet: hash@hbel.com **FROM: Don Hash**	
FACSIMILE: (561) 487-1584	**800-333-4264** **TELEPHONE: (561) 465-2400, ext. 285**
Number of Pages (including cover page): 1	
CBOD for effluent....2.0 mg/L and filtered 1.4 mg/L. Later cbod sample results of 1.4 mg/L.	

HARBOR BRANCH ENVIRONMENTAL LABORATORY
5600 US 1 North, Fort Pierce, FL 34946
561-465-2400, Ext. 285

FDEP QAP 870174

April 12, 1999

Cathy Winter
Citrus County Central Landfill
Solid Waste Management
POB 340, 230 Gulf to Lake Hwy
Lecanto, FL 34460

Client : Citrus County Central Landfill
Project [Reference] : Citrus County Landfill [9400314]
Date Received : April 07, 1999

Analytical results presented in this report have been reviewed for compliance with the laboratory quality assurance plan and applicable quality control criteria. The quality control parameters evaluated have met all method and compliance criteria unless otherwise noted on a Quality Control Summary Page immediately following this cover sheet.

FDOH (HRS) Drinking Water Certification Number: 96230, 83486, 82500, 85512, 84526

FDOH (HRS) Environmental Certification Number: E96080, E83509, E82417, E85370, E84418

FDEP CompQAP Approval Number: 870174

NOTE: This report is not to be copied, except in full, without the express written consent of the Harbor Branch Environmental Laboratory.

If you have any questions regarding this report, or if we can be of further assistance, please feel free to call (561) 465-2400 ext. 285 and ask to speak with your project manager.

Don Hash
Project Manager

Preliminary results

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

Ms. Susan J. Metcalfe, P.G.
Citrus County Solid Waste Management
P.O. Box 340
Lecanto, FL 34460-0340

April 7, 1999

Re: Citrus Central Class I Landfill, Citrus County
Operating Permit No. SO09-274381

Dear Ms. Metcalfe:

The purpose of this letter is to acknowledge your conversation with John Morris yesterday regarding the latest water quality results from the leachate treatment plant. Of the options discussed for collection of additional samples, the Department prefers that effluent from the leachate treatment plant be discharged to the percolation ponds for a temporary interval to allow collection of a representative sample. The Department authorizes the discharge from the leachate treatment plant to the percolation ponds for a four-hour period to accommodate the sampling activities. It is the Department's understanding that the leachate will otherwise be pumped to the storage tank and will be hauled off-site for treatment.

Please contact John Morris at (813) 744-6100 extension 336 if you have questions or comments.

Sincerely,

Robert J. Butera

Robert J. Butera, P.E.
Solid Waste Section

cc: Kim Ford, P.E., FDEP
John Morris, P.G., FDEP

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

Ms. Susan J. Metcalfe, P.G.. April 7, 1999
Citrus County Solid Waste Management
P.O. Box 340
Lecanto, FL 34460-0340

Re: Citrus Central Class I Landfill, Citrus County
Operating Permit No. SO09-274381

Dear Ms. Metcalfe:

The purpose of this letter is to acknowledge your conversation with John Morris yesterday regarding the latest water quality results from the leachate treatment plant. Of the options discussed for collection of additional samples, the Department prefers that effluent from the leachate treatment plant be discharged to the percolation ponds for a temporary interval to allow collection of a representative sample. The Department authorizes the discharge from the leachate treatment plant to the percolation ponds for a four-hour period to accommodate the sampling activities. It is the Department's understanding that the leachate will otherwise be pumped to the storage tank and will be hauled off-site for treatment.

Please contact John Morris at (813) 744-6100 extension 336 if you have questions or comments.

Sincerely,

Robert J. Butera

Robert J. Butera, P.E.
Solid Waste Section

cc: Kim Ford, P.E., FDEP
John Morris, P.G., FDEP

FDEP	3804 Coconut Palm Drive, Tampa, FL 33619-8318

FAX

FAXED

Date: 4/7/99

Number of pages including cover sheet: 2

To:

SUSAN METCALFE
CITRUS COUNTY

Phone:

Fax phone: 352 - 527 - 1204

CC:

From:

JOHN MORRIS

Phone: (813) 744-6100 X 336

Fax phone: (813) 744-6125

REMARKS: ☐ Urgent ☒ For your ~~review~~ FILE ☐ Reply ASAP ☐ Please comment

SUSAN -

ATTACHED IS THE LETTER FROM BOB BUTERA AUTHORIZING TEMPORARY DISCHARGE TO THE PERCOLATION PONDS TO ALLOW COLLECTION OF REPRESENTATIVE SAMPLE FOR ANALYSIS. PLEASE CALL IF YOU HAVE QUESTIONS.

John

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

Ms. Susan J. Metcalfe, P.G.
Citrus County Solid Waste Management
P.O. Box 340
Lecanto, FL 34460-0340

April 7, 1999

Re: Citrus Central Class I Landfill, Citrus County
Operating Permit No. SO09-274381

Dear Ms. Metcalfe:

The purpose of this letter is to acknowledge your conversation with John Morris yesterday regarding the latest water quality results from the leachate treatment plant. Of the options discussed for collection of additional samples, the Department prefers that effluent from the leachate treatment plant be discharged to the percolation ponds for a temporary interval to allow collection of a representative sample. The Department authorizes the discharge from the leachate treatment plant to the percolation ponds for a four-hour period to accommodate the sampling activities. It is the Department's understanding that the leachate will otherwise be pumped to the storage tank and will be hauled off-site for treatment.

Please contact John Morris at (813) 744-6100 extension 336 if you have questions or comments.

Sincerely,

Robert J. Butera

Robert J. Butera, P.E.
Solid Waste Section

cc: Kim Ford, P.E., FDEP
John Morris, P.G., FDEP

Transmit Confirmation Report

No.	:	002
Receiver	:	813525271204
Transmitter	:	WASTE MGT TAMPA SWDIST
Date	:	Apr 07 99 9:48
Time	:	01'04
Mode	:	Norm
Pages	:	02
Result	:	OK

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
SOUTHWEST DISTRICT

CONVERSATION RECORD

Date 4/6/99 Subject CENTRAL LF / LEACHATE PLANT

Time 1640 Permit No.

County CITRUS

MS. SUSAN METCALFE Telephone No. 352-746-5000

Representing CITRUS COUNTY

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

Other Individuals Involved in Conversation/Meeting

Summary of Conversation/Meeting

- HAVE MOST RECENT SET OF SAMPLES COLLECTED FROM LEACHATE TREATMENT PLANT
  -RESULTS ARE ELEVATED ABOVE CONCENTRATIONS IN PERMIT FOR SUSPENDED SOLIDS / CBOD
- SHE FEELS THAT THE SAMPLING POINT WHEN NOT DISCHARGING TO PERCOLATION PONDS DOES NOT PROVIDE FULL TREATMENT
  - WHEN DISCHARGING TO PERCOLATION PONDS, THE SAMPLING POINT IS AFTER FILTRATION & CHLORINATION
  - WHEN PUMPING TO LEACHATE TANK, THE SAMPLING POINT IS BEFORE FILTRATION & CHLORINATION
  ∴ NOT GETTING REPRESENTATIVE SAMPLE OF FULL TREATMENT
- SHE WANTS TO OPERATE PLANT & DISCHARGE LONG ENOUGH TO GET REPRESENTATIVE SAMPLE FOR LAB ANALYSIS OR BE ALLOWED TO COLLECT FILTERED SAMPLE
- WILL PUMP TO LEACHATE TANK & HAUL OFF FOR TREATMENT / DISPOSAL REST OF TIME

(continue on another sheet, if necessary)

Signature J. Morris 4/7/99

Title

PA-01
1/96
pap

BOT
I NEED TO CALL SUSAN BACK THIS MORNING IF POSSIBLE. THX PJS JOE

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

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

3600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
  Suite 205
  352-527-5447 Phone
  352-527-5459 Fax
- Permits & Compliance Sec.
  Suite 204
  352-527-5448 Phone
  352-527-5319 Fax
- Project Management Sec.
  Suite 241
  352-527-5449 Phone
  352-527-5482 Fax
- Survey Section
  Suite 241
  352-527-5446 Phone
  352-527-5482 Fax

1300 S. LECANTO HIGHWAY
LECANTO, FLORIDA 34461

MAINTENANCE OPERATIONS:
- Facilities Maint. Section
  PO Box 143
  Lecanto, FL 34460
  352-527-0333 Phone
  352-527-0654 Fax
- Fleet Management Section
  PO Box 215
  Lecanto, FL 34460
  352-746-6888 Phone
  352-746-5011 Fax

AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

ROAD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

March 24, 1999

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

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION

MAR 29 1999

SOUTHWEST DISTRICT
TAMPA

Re: Citrus County Central Landfill,
Permit No. SO09-274381, Specific Condition 33a
Leachate Treatment Plant Performance

Dear Mr. Morris:

This is to report that the landfill leachate treatment plant is out of compliance with the treatment criteria established in our FDEP operating permit. The permit requires that if any measured parameter exceeds criteria for two consecutive weeks that we cease discharge of treated effluent. We have ceased discharge. Normally, we could recycle the effluent to the holding tanks and retreat. However, because we do not have sufficient onsite storage remaining, we have shipped several loads of untreated leachate to the Meadowcrest domestic wastewater plant and will need to continue that process until adequate treatment is achieved and FDEP approves use of the onsite percolation pond discharge.

The weekly effluent testing results for the past two weeks are attached and indicate that CBOD has been above the 20 mg/l maximum.

The leachate treatment plant recently was out of service to repair and repaint the interior of each of the steel tanks. This required that we cease treatment for several weeks. Leachate was retained in the storage tank for this period nearly filling them.

Since restarting treatment about three weeks ago, we have experienced some difficulty with obtaining adequate treatment. This was not unexpected. The bacterial culture to restart the plant was obtained from the County's Meadowcrest Wastewater Treatment Plant. The food source here (leachate) and the treatment process (two-stage aerobic then anoxic) is somewhat different than at domestic wastewater plants. Therefore, the bacteria must adjust through several generations to the new conditions.

The second stage (anoxic, removal of nitrate) performed adequately after the first few days, however the first stage (aerobic, conversion of ammonia to nitrate) has taken several weeks to fully treat the incoming leachate. Meanwhile, apparently, the second stage biologic community starved or suffered another shock and died off. We have re-seeded the second stage and expect the entire process to be working well within a few days. We hope that discharge of effluent onsite can be approved within one week to two weeks.

Please contact me if you have any questions.

Yours truly,

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

CC: Kenneth E. Saunders Jr., Director, Public Works Department
Robert Butera, FDEP, Tampa

CITRUS COUNTY CENTRAL LANDFILL

PARAMETER MONITORING REPORT
Rule 62-522.900 (11)

GMS # 4009C00086 Sample Date/Lab ID: 03/10/99 9400234001

Test Site #:_____

Test Site Name: Leachate

Site Type:
[ ] Background
[ ] Site Boundary
[ ] Intermediate
[ ] Compliance
[X] Other: Leachate

Sample Method: Grab, where applicable

Storet Code	Parameter Monitored	Analysis Method	Analysis Date	Analysis Result	Units	Practical Quant. Level	Sample Filtered /Unfiltered	Preservative Added
004000	pH, Field	150.1	03/10/99	7.4	S.U.	0.20	--	--
900201	Total Suspended Solids	SM2540 D	03/10/99	1.5	mg/L	1.0	U	None
000620	Nitrate-Nitrogen	300.0	03/11/99	<0.060	mg/L	0.060	U	None
000620	Nitrite-Nitrogen	300.0	03/11/99	< 0.044	mg/L	0.044	U	None
000610	Ammonia-Nitrogen	350.1	03/15/99	4.2	mg/L	0.050	U	H_2SO_4
000625	Total Kjeldahl Nitrogen	351.2	03/16/99	4.7	mg/L	0.20	U	H_2SO_4
000600	Total Nitrogen	351.2	03/17/99	4.8	mg/L	0.20	U	H_2SO_4
000665	Total Phosphorus	365.4	03/15/99	0.89	mg/L	0.50	U	H_2SO_4
000340	COD	410.4	03/15/99	120	mg/L	5.0	U	H_2SO_4
80082	CBOD5	SM5210 B	03/10/99	61	mg/L	2.0	U	None
031616	Fecal Coliform	SM9222 D	03/10/99	17	CFU/100mL	1.0	U	$Na_2S_2O_3$

Harbor Branch Oceanographic Institution, Inc.
Harbor Branch Environmental Laboratory
5600 U.S. 1, North
Fort Pierce, Florida 34946

ENVIRONMENTAL LABORATORY

FACSIMILE

DATE: March 23, 1999

TO: Jim Brunswick

FAX NO: **TELEPHONE**

Internet: hash@hbel.com
FROM: Don Hash

FACSIMILE: (561) 467-1584	**800-433-4264** **TELEPHONE: (561) 465-2400, ext. 285**

Number of Pages (including cover page): 1

Per your request for preliminary data for the leachate effluent sample collected 03/17/99

COD 270 mg/L
Fecal Coliforms 80 CFU/100 mls
Nox Not detected
Ammonia 10 mg/L
CBOD 25.2 mg/L

CITRUS CENTRAL

LOOKING EAST FROM CENTRAL ROAD; ACTIVE AREA IN UPPER RIGHT CORNER OF PICTURE

3-26-99 JRM

3 26 '99

3 26 '99

CITRUS CENTRAL

LOOKING SW TO WEST ACROSS ACTIVE AREA

3-26-99 JRM

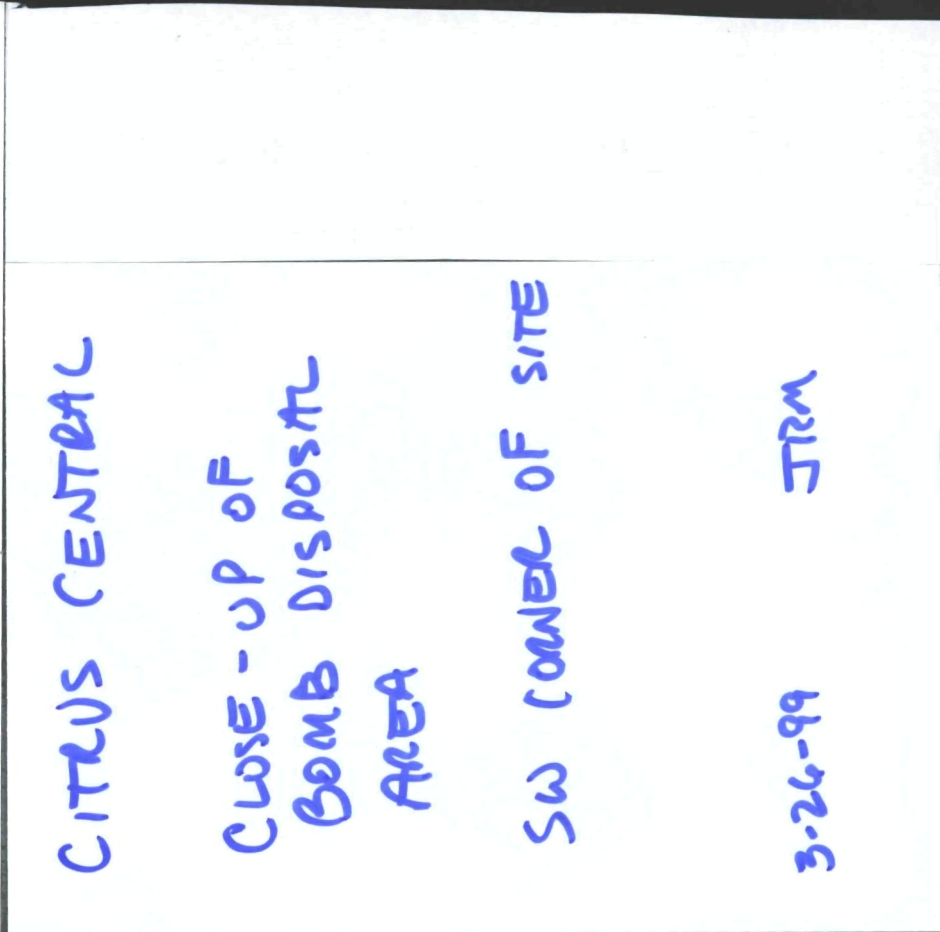
8-26-99

CITRUS CENTRAL

PROFILE OF BOMB DISPOSAL AREA

SW CORNER OF SITE

3-26-99 JRM



BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

D.E.P.

March 3, 1999

MAR 0 5 1999

Southwest District Tampa

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

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

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
MAR - 8 1999
SOUTHWEST DISTRICT TAMPA

Re: Citrus County Central Landfill,
Permit No. SSO09-274381

Dear Mr. Ford:

This is to update you on the liner tear first reported to you in my January 22 letter. The tear was repaired on January 28 by GeoPacific Lining. They placed a patch approximately two feet wide across the affected area, using extrusion welding to attach the patch to the underlying liner. Their report is attached, including testing of the repair seam. Copies of several photographs from before and after the repair are also included, along with a description of each.

The tear extended approximately 75 feet, from about 6 feet below the top of slope to about two feet above the fill and was immediately adjacent to a seam.

Please contact me if you have any questions.

Sincerely,

Susan J. Metcalfe

Susan J. Metcalfe
Director

CC: Kenneth Saunders, Director, Public Works Department

3600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
  Suite 205
  352-527-5447 Phone
  352-527-5459 Fax
- Permits & Compliance Sec.
  Suite 204
  352-527-5448 Phone
  352-527-5319 Fax
- Project Management Sec.
  Suite 241
  352-527-5449 Phone
  352-527-5482 Fax
- Survey Section
  Suite 241
  352-527-5446 Phone
  352-527-5482 Fax

1300 S. LECANTO HIGHWAY
LECANTO, FLORIDA 34461

MAINTENANCE OPERATIONS:
- Facilities Maint. Section
  PO Box 143
  Lecanto, FL 34460
  352-527-0333 Phone
  352-527-0654 Fax
- Fleet Management Section
  PO Box 215
  Lecanto, FL 34460
  352-746-6888 Phone
  352-746-5011 Fax

AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

ROAD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

GEOPACIFIC LINING, INC.

1300 Dexter Avenue North, Suite 205
Seattle, WA 98109
TEL: (206) 284-2378
FAX: (206) 283-7068

LETTER OF TRANSMITTAL

Date: 2-24-99	Job No.: CITRUS REPAIR
Attn: SUZIE M.	
Re: LINER REPAIR QC	

TO: SUZIE METCALFE
DIVISION OF SOLID WASTE MNGMT.
P.O. BOX 340
LECANTO, FL. 34460

WE ARE SENDING YOU

- [x] Attached
- [ ] Under separate cover via _____ the following items:

RECEIVED
MAR - 1 1999
CITRUS COUNTY DPW
SOLID WASTE MANAGEMENT DIV

- [ ] Shop drawings
- [ ] Copy of letter
- [ ] Prints
- [ ] Change order
- [ ] Plans
- [ ] Samples
- [ ] Specifications
- [x] Other QC Documents

COPIES	DATE	NO.	DESCRIPTION
1	2-24		REPAIR LOG
"	"		DAILY TRIAL WELD LOG
"	2-24		DESTRUCTIVE TEST RESULTS.

THESE ARE TRANSMITTED AS CHECKED BELOW:

- [x] For approval
- [x] For your use
- [ ] As requested
- [ ] For review and comment
- [ ] For record
- [ ] Approved as submitted
- [ ] Approved as noted
- [ ] Returned for corrections
- [ ] Resubmit _____ copies for approval
- [ ] Submit _____ copies for distribution
- [ ] Return _____ corrected prints
- [ ] Other _____

REMARKS:

Copy to file

Signed: Kathleen

GeoPacific Lining Inc.

REPAIR LOG

PROJECT: Citrus Co. Landfill Project No.: ____

Pg. 1 of 1

WELDING					VACUUM TEST		
Date	Repair NO.	Tech.	Mach. NO.	Location (Note Type of Repair)	Date	QC	P / F
1/28	#01	T.O	#2	4' Bead on pn1#1	1/28	K.C	P
1/28	#02	T.O	#2	4' Bead on pn1#1	1/28	K.C	P
1/28	#03	T.O	#2	100' cap seam #2 100'x2' Ext	1/28	K.C	P

QA Signature: _____

Date:

GeoPacific Lining Inc.

DAILY TRIAL WELD LOG / END OF SEAM D.S.

PROJECT: Citrus Co. Landfill PROJECT NO.: _____ Pg. 1 of 1

DATE / TRIAL NO.	OPERATOR / MACHINE	AMB	TEMP SPD	Seam No.	PEEL	PEEL	SHEAR	FTB Y/N	P/F
1/28/99	T.O	80°	500°/4[illegible]°	#1	102/116	108/112	133	Y	P

Comments:

_____

_____

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

RECEIVED
FEB 2 2 1999
GEOPACIFIC LINING

February 17, 1999

Mr. Kirk Lilleskare
GeoPacific Lining Inc.
1300 Dexter Avenue North, Suite 205
Seattle, WA 98109

fax: 206-298-5155

Dear Mr. Lilleskare:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing in support of the Citrus County Landfill project.

TRI Job Reference Number:	E2112-73-09
Date Received:	02-17-99
Material(s) Tested:	1 HDPE single extrusion weld seam
Sample ID(s):	none
Test(s) Requested:	Peel & Shear Strength (ASTM D 4437)

If you have any questions or require any additional information, please call us at 1-800-880-8378.

Sincerely,

Sam R. Allen
Vice President and Division Manager: Geosynthetics Technologies

9063 Bee Caves Road • Austin, TX 78733-6201 • (512) 263-2101 • FAX (512) 263-2558

TRI/ENVIRONMENTAL, INC.
A Texas Research International Company

QUALITY ASSURANCE TESTING
GEOMEMBRANE SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: GEOPACIFIC LINING INC.
PROJECT: CITRUS COUNTY LANDFILL
CONTACT: MR. KIRK LILLESKARE
DATE REC'D: 16-Feb-99

MATERIAL: HDPE
SEAM TYPE: SINGLE EXTRUSION WELD
TRI LOG #: E2112-73-09
DATE TESTED: 16-Feb-99

ASTM D 4437/413/3083 NSF Modified
ANALYST: SEA
REVIEW: SRA
REPORT DATE: 16-Feb-99

		PEEL EVALUATION					SHEAR EVALUATION			
SAMPLE NUMBER	SPECIMEN NUMBER	MAXIMUM TENSION (lb/in)	PEEL INCURSION (%)	LOCUS OF FAILURE	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)	MAXIMUM TENSION (lb/in)	ELONGATION @ BREAK (%)	NSF 54 FAILURE MODE	PROJECT SPEC. (lb/in)
	1	95	< 10	SE	FTB	NR	151	> 50	FTB	NR
	2	84	< 10	SE	FTB					
	3	87	< 10	SE	FTB		147	> 50	FTB	
	4	107	< 10	SE	FTB					
	5	84	< 10	SE	FTB		148	> 50	FTB	
	MEAN:	**91**								
							147	> 50	FTB	
							153	> 50	FTB	
						MEAN:	**149**			

The testing reported herein is based upon industry practice as well as the test method listed
TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

9063 Bee Caves Road • Austin, Texas 78733-6201 • (512)263-2101 • FAX (512)263-2558

TRI GEOSYNTHETICS TESTING SERVICES
QUALITY ASSURANCE SEAM TEST REPORT LEGEND

Seam Failure Modes (as per NSF 54, Appendix A)

FTB:	Film Tearing Bond
BLF:	Brittle Liner Failure
NON FTB:	Non Film Tearing Bond

Locus/Break Codes: Dielectric/Solvent Welds

CL:	Break in sheeting at clamp edge.
BRK:	Break in sheeting.
SE:	Break at seam edge.
AD-BRK:	Break in sheeting after some adhesion failure between sheets.
AD:	Failure in adhesion between sheets.

Locus/Break Codes: Fillet Weld Seams

AD1:	Failure in adhesion. Specimens delaminate under bead and break through the extruded material in outer region.
AD2:	Failure in adhesion.
AD-WL:	Break through fillet weld.
SE:	Break at seam edge.
AD-BRK:	Break in bottom sheeting after some adhesion failure between the fillet and the bottom sheet (applicable to peel only).
HT:	Break at the edge of the hot tack for specimens which could not be delaminated in the hot tack.

Locus/Break Codes: Fabric Reinforced Liner

AD:	Adhesion failure resulting in delamination in the plane of the bond.
DEL:	Delamination in the plane of the scrim (peel only).
AD-DEL:	Delamination in the plane of the scrim after some delamination in the plane of the bond (peel only).
BRK:	Break in sheet through both the fabric and the piles of the polymer.
FP:	Fabric pullout. Pullout of threads parallel to the direction of test followed by break in polymeric sheeting.

The testing reported herein is based upon industry practice as well as the test method listed. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

1

2

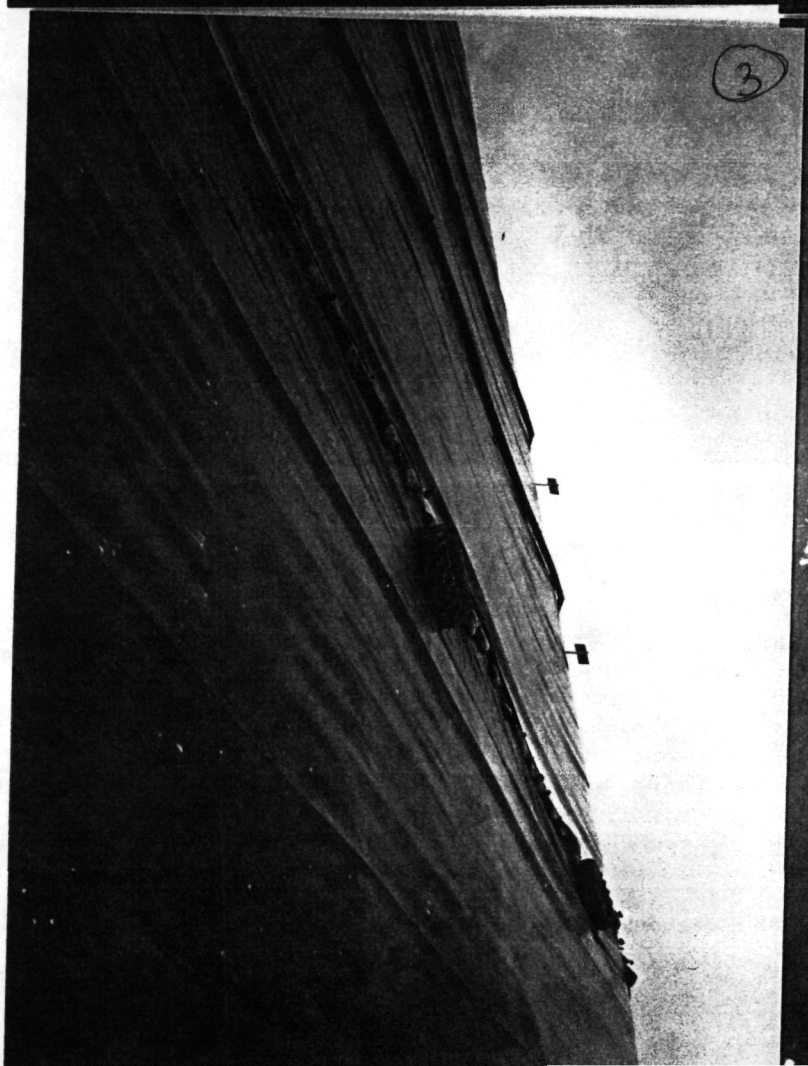

3

PHOTO 2332

January 22 1999 Tear in liner seam sandbags and tires used to stabilize liner + prevent further damage

BS 0240

(3)

PHOTO 2330

January 22 1999 Tear in liner seam Phase I west side. Looking from top of slope Tear extends under gatter material at edge of waste with intermediate cover + vegetation - Perpendicular tear at the top of failed section about 1 ft long

BS 0240

(1)

PHOTO 2331

January 22 1999 - Tear in liner seam Phase I west side. looking from top of slope Note: tear starts about 6' below top of slope

BS 0240

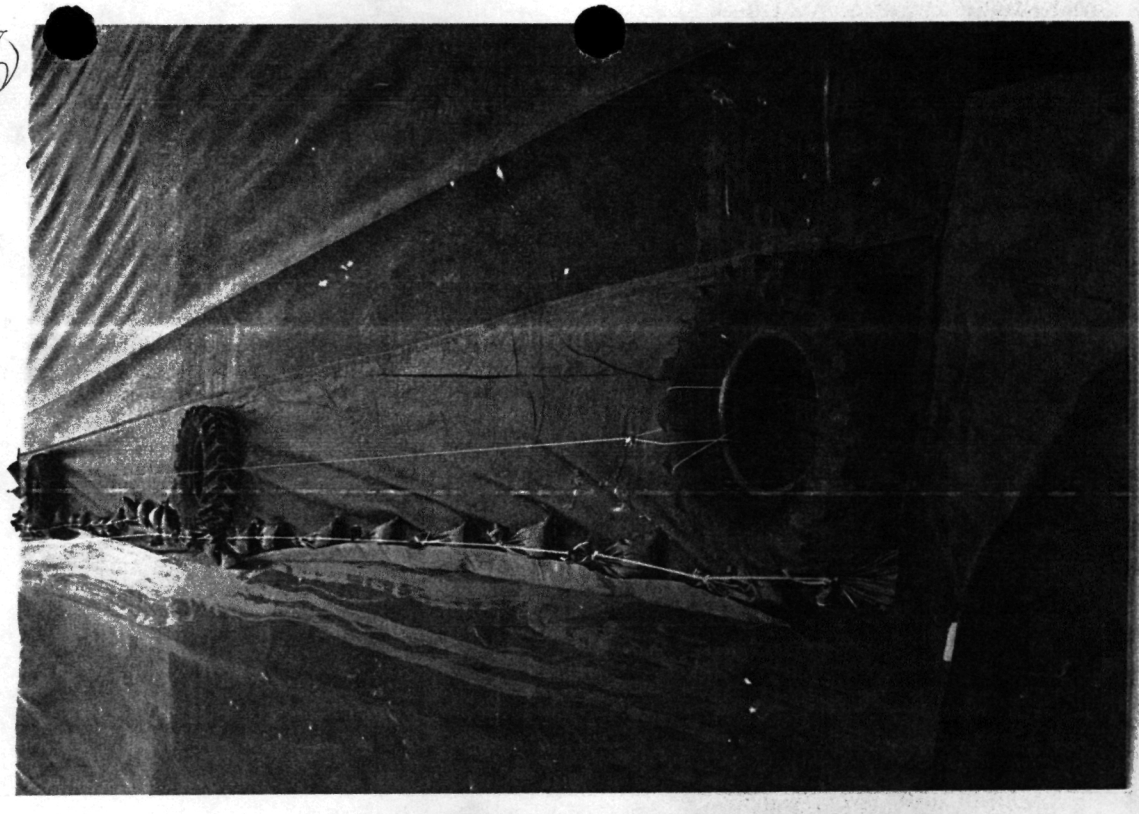
(4)

January 22, 1999
Tear in liner seam Phase I west side
N of leachate cleanout pipes
photographer standing on torn seam
looking south at leachate cleanout pipes, LF entrance road

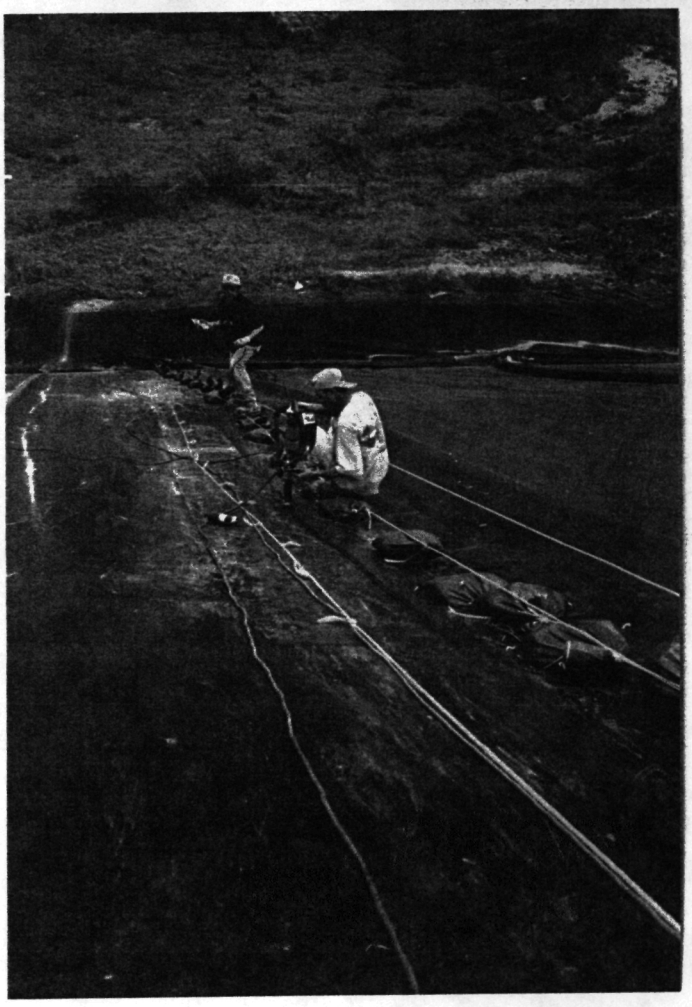
PHOTO 2334

(2)

(5)



(6)



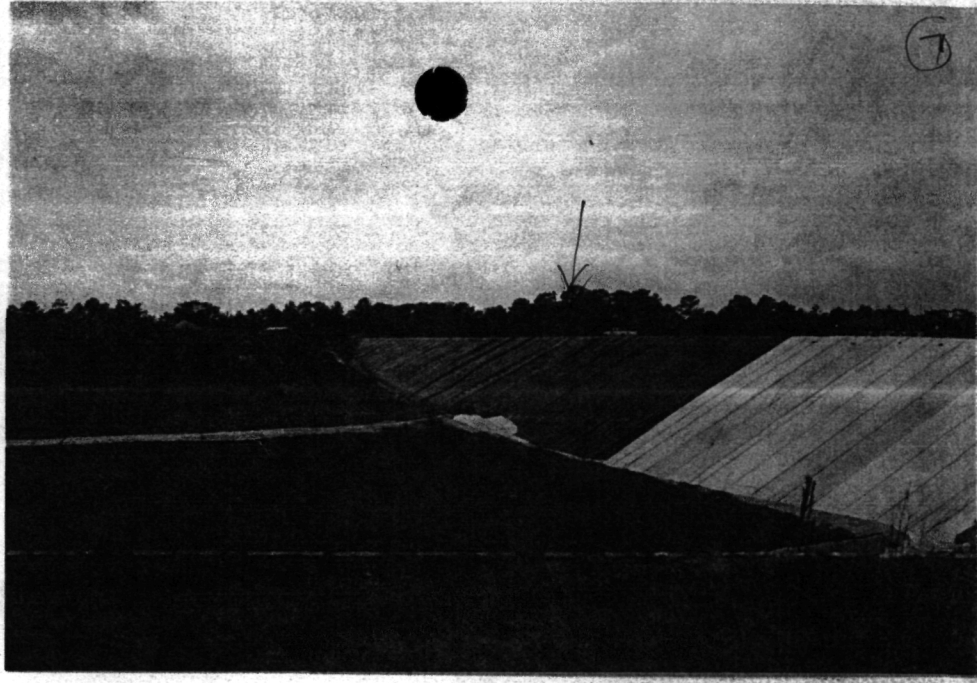
(5)

PHOTO 23 of 24

January 23, 1999. Tear in liner seam gutter material placed over failed seam to prevent rain from washing out beneath liner. Tires and sandbags to hold liner + gutter material in place

(6)

January 28 1999 Repair of 60 mil HDPE liner tear with extrusion welded patch at top of slope



(7)

January 28, 1999 Location of liner repair (see line of sandbags midway along west slope between Phase 1A (white liner) and entrance road (where fill reaches top of liner) Taken from north side of excavation

(8)

January 28 1999 Repair of liner tear Bottom of patch. Tear extruded beyond gutter liner top, but not to bottom of swale at edge of fill. Gutter runs perpendicular to seam

(9)

January 28 1999 Repair of liner tear in progress. View from top of slope

(10)

January 28, 1999 Repair of liner tear Lower section of patch. Light stain is from gutter liner material adhesive

(11)

January 28, 1999 Repair of liner tear Repair underway. Patch is about 2 ft wide + 75 ft long. Extrusion welding of patch to liner material - 60 mil HDPE smooth Looking up slope

Citrus Central

tension tear?

EL25 MGUh FF Y BUUh AIn PAC P01 CHP
JAN/26/99 11:19 ID205-164 < 9> ORL

DN

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

DEP
JAN 29 1999
Southwest District Tampa

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

3600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
  Suite 205
  352-527-5447 Phone
  352-527-5459 Fax
- Permits & Compliance Sec.
  Suite 204
  352-527-5448 Phone
  352-527-5319 Fax
- Project Management Sec.
  Suite 241
  352-527-5449 Phone
  352-527-5482 Fax
- Survey Section
  Suite 241
  352-527-5446 Phone
  352-527-5482 Fax

1300 S. LECANTO HIGHWAY
LECANTO, FLORIDA 34461

MAINTENANCE OPERATIONS:
- Facilities Maint. Section
  PO Box 143
  Lecanto, FL 34460
  352-527-0333 Phone
  352-527-0654 Fax
- Fleet Management Section
  PO Box 215
  Lecanto, FL 34460
  352-746-6888 Phone
  352-746-5011 Fax

AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

ROAD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

January 22, 1999

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

Re: Citrus County Central Landfill,
Permit No. SO- 274381

Dear Mr. Ford:

This is to report a tear in the 60-mil landfill liner at the location shown on the attached sketch. The separation follows a seam from near the top of the slope down at least to the stormwater ditch lining at the edge of waste material. The tear occurred today and the edges have been stabilized with weights to prevent additional damage.

Contractors have been contacted to determine the cost and time of repair. I will update you when we have additional information.

Please contact me if you have any questions.

Yours truly,

Susan J. Metcalfe

Susan J. Metcalfe, P.G.
Director

CC: Ken Saunders, Director, Public Works Department

Location of liner test 1/22/99

SOUTH NORTH "A"

SOUTH NORTH "B"

SOUTH NORTH "C"

N1642125.00
E516676.61
EL. 93.17

N1642050.00
E516701.61
EL. 105.55

WEST EAST "E"

N1641975.00
E516751.61
EL. 106.54

N1641900.00
E516776.61
EL. 104.85

WEST EAST "D"

WEST EAST "D1"

N1641982.38
E516800.00
EL. 97.22

N1641783.47
E516500.00
EL. 119.57

N1641784.15
E516575.00
EL. 119.57

N1641783.68
E516650.00
EL. 120.18

TYPICAL SECTION "H"

N 164

641584.99

N

0 50 100 150
SCALE 1"= 50'

LEGEND

● FIELD BENCH MARK

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

JAN 29 1999

SOUTHWEST DISTRICT
TAMPA

PRELIMINARY

CH2MHILL	DSGN G. L. DELRIO DR G.L.DELRIO OPERATIONS CHK JOHN WOOD APVD JOHN WOOD	NO.	DATE	REVISION	BY	APVD	REUSE OF DOCUMENTS THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL. ©CH2M HILL

BAR IS ONE INCH ON ORIGINAL DRAWING.
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

CITRUS COUNTY
CENTRAL LANDFILL
OPERATIONS PHASE 1
CITRUS COUNTY, FLORIDA

OPERATIONS

SITE PLAN
STEP 4C

SHEET	20
DWG NO.	OPS-1
DATE	6-18-96
PROJ NO.	134202.34.01

Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

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

December 14, 1998

RE: Citrus County Landfill Financial Assurance Cost Estimates
Permit Nos.: SO09-274381, and SF09-211030, Citrus County

Dear Ms. Metcalfe:

This letter is to acknowledge receipt of the revised cost estimates dated November 19, 1998 (received November 25, 1998), for closing and long-term care of the Citrus County Landfill (Phase 1, 1A, and old closed 60 acres). The cost estimates dated November 19, 1998 (closing $2,898,960 and long-term care $154,566/year x 30 years=$4,636,987), are **APPROVED for 1998**. The next annual update (revised or inflation-adjusted estimates) is due no later than **September 1, 1999**.

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

Sincerely,

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

sjp
cc: Gary Kuhl, P.E., Director, Citrus Co. Dept. of Public Works, PO Box 340, Lecanto, Fl. 34461
R.J. Bruner III, P.E., CH2M Hill, 3011 SW Williston Road, Gainesville, Fl. 32608-3928
Fred Wick, FDEP, Tallahassee, w/attachment
Robert Butera, P.E., FDEP Tampa
Kim Ford, P.E., FDEP Tampa

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

December 9, 1998

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

3600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
  Suite 205
  352-527-5447 Phone
  352-527-5459 Fax
- Permits & Compliance Sec.
  Suite 204
  352-527-5448 Phone
  352-527-5319 Fax
- Project Management Sec.
  Suite 241
  352-527-5449 Phone
  352-527-5482 Fax
- Survey Section
  Suite 241
  352-527-5446 Phone
  352-527-5482 Fax

1300 S. LECANTO HIGHWAY
LECANTO, FLORIDA 34461

MAINTENANCE OPERATIONS:
- Facilities Maint. Section
  PO Box 143
  Lecanto, FL 34460
  352-527-0333 Phone
  352-527-0654 Fax
- Fleet Management Section
  PO Box 215
  Lecanto, FL 34460
  352-746-6888 Phone
  352-746-5011 Fax

AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

ROAD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

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

RECEIVED
DEC 11 1998
Department of Environmental Protection
BY SOUTHWEST DISTRICT

Re: Citrus County Central Landfill,
Permit No. 126601-002-SF (Closed 60-acre site)
Permit No. SO09-274381 (Active 80-acre site)

Dear Mr. Ford:

Citrus County plans to implement two projects this fiscal year, one each on the active and closed sites for which we are requesting clarification as to whether permits will be required. The project for the closed landfill will be to complete fencing the property. The south and west sides, which are contiguous with the Withlacoochee State Forest currently do not have fencing. The firing range in the southwest corner of the site has berms for separation from the forest. The attached sketch shows the proposed alignment of the fencing.

The project for the active landfill will be to replace existing contaminated stormwater piping (PVC), in the locations outside the liner, with HDPE piping. The attached sketch shows the proposed alignment of the new piping. This will connect to PVC piping and flex hose inside the lined area. As you may recall, contaminated stormwater is pumped on an as-needed basis from the open fill area, by means of a diesel-powered hydraulic pump, through that hose and piping to the leachate storage tank.

Please contact me if you have any questions and provide a written response concerning permitting requirements, if any.

Yours truly,

Susan J. Metcalfe

Susan J. Metcalfe, P.G.
Director

14/7/98 10:10 am W/ Susan
FENCE OK
AFTER DETAILS ON PIPE CONNECTIONS/ EXISTING PIPE ALIGNMENT

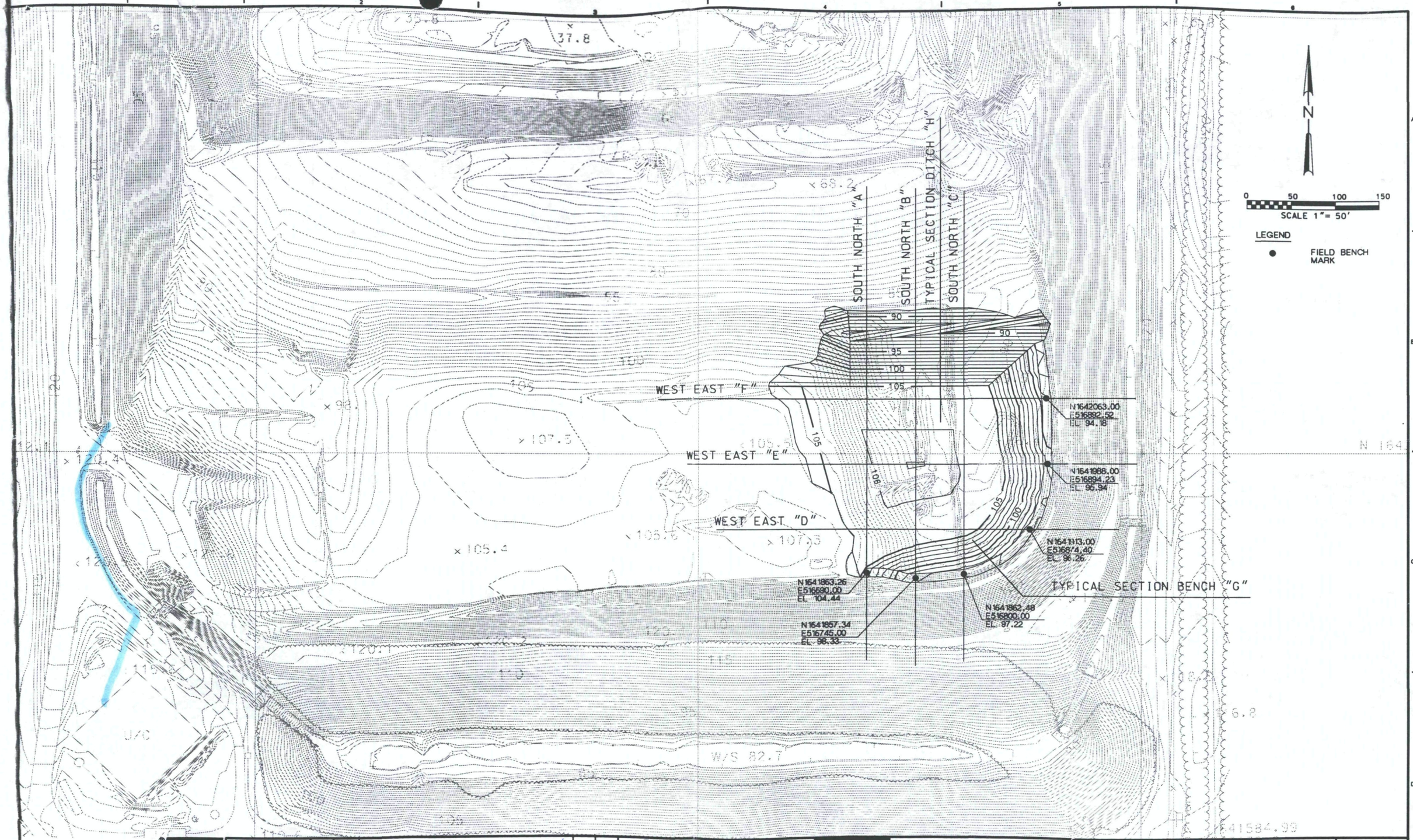
CC: Ken Saunders, Director, Public Works Department
Ken Cheek, Engineer, Utilities Division
Bob Butera, FDEP, Tampa

NOTE:
BASE MAPPING PREPARED BY I.F. ROOKS AND ASSOCIATES. INC.
ON 7-27-95.

Proposed alignment of fence

FIGURE 5
Closed 60-Acre Landfill Topography

figure5.dlv



CH2M HILL	DSGN G. L. DELRIO DR G.L.DELRIO OPERATIONS CHK JOHN WOOD APVD JOHN WOOD	NO.	DATE	REVISION	BY	APVD	**REUSE OF DOCUMENTS** THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL. ©CH2M HILL BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	CITRUS COUNTY CENTRAL LANDFILL OPERATIONS PHASE 1 CITRUS COUNTY, FLORIDA	OPERATIONS SITE PLAN	SHEET 2 DWG NO. OPS-1 DATE 6-18-96 PROJ NO. 134202.34.01

PRELIMINARY

Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

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

October 19, 1998

RE: Citrus County Landfill Financial Assurance Cost Estimates
Permit Nos.: SO09-274381 and SF09-211030, Citrus County

Dear Ms. Metcalfe:

This letter is to acknowledge receipt of the revised cost estimates dated October 1, 1998 (received October 15, 1998), prepared by CH2MHill, for closure (closing and long-term care) of the Citrus County Landfill (Phase 1, 1A, and old closed 60 acres). The cost estimates submitted are not approved. The following information is needed to fully evaluate the estimates submitted:

GENERAL:

1. The County has expressed their interest in being "exempt" from the requirement for including the costs of off-site soils for the final cover. The Department acknowledges that a large quantity of soil currently exists at the site. However, please be advised that **40 CFR 264.142** (adopted by reference in Rule 62-701.630(6), F.A.C.) states,

> (a)(1) The estimate must equal the cost of final closure at the point in the facility's active life when the extent and manner of its operation would make closure the most expensive, as indicated by its closure plan.
>
> (a)(2) The closure cost estimate must be based on the costs to the owner or operator of hiring a third party to close the facility; and
>
> (a)(3) The closure cost estimate may not incorporate any salvage value that may be realized from the sale of hazardous (solid) waste, facility structures or equipment, land, or other assets associated with the facility at the time of partial or final closure.

40 CFR Part 264.141(f) defines "assets" as "all existing and all probable future economic benefits obtained or controlled by a particular entity, and "current assets" are cash or other assets or resources commonly identified as those which are reasonably expected to be realized in cash or sold or consumed during the normal operating cycle of the business." It is clear that the on-site soils are "resources... which are reasonably expected to be... sold or consumed during the normal operating cycle of the business." As such, the value of such resources cannot be included in the closure cost estimate. Please contact Mr. Fred Wick at 850-488-0300 if further information is needed concerning this item. Please provide a revised estimate which includes the cost for material, delivery and placement of off-site soils for the final cover. Please specify if the costs provided are for "as-placed" quantities or "as delivered" quantities.

The Southwest District acknowledges that the County is continuing discussions with Department staff in Tallahassee regarding the consideration of on-site soils for determination of the financial assurance cost estimates. Please be advised that the District cannot approve the estimates submitted (which consider the value of on-site soils), prior to resolution of this issue. Please also note that the costs submitted (other than Slope & Fill, Cover Material and Top Soil) are acceptable.

The Department requests that all information be provided to the Solid Waste Section, FDEP, Tampa office within thirty (30) days of this notice. If you have any questions, you may contact me at (813) 744-6100 ext. 386.

Sincerely,

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

sjp
cc: Gary Kuhl, P.E., Director, Citrus Co. Dept. of Public Works, PO Box 340, Lecanto, Fl. 34461
R.J. Bruner III, P.E., CH2M Hill, 3011 SW Williston Road, Gainesville, Fl. 32608-3928
Fred Wick, FDEP, Tallahassee, w/attachment
Robert Butera, P.E., FDEP Tampa
Kim Ford, P.E., FDEP Tampa

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

3600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
  Suite 205
  352-527-5447 Phone
  352-527-5459 Fax
- Permits & Compliance Sec.
  Suite 204
  352-527-5448 Phone
  352-527-5319 Fax
- Project Management Sec.
  Suite 241
  352-527-5449 Phone
  352-527-5482 Fax
- Survey Section
  Suite 241
  352-527-5446 Phone
  352-527-5482 Fax

1300 S. LECANTO HIGHWAY
LECANTO, FLORIDA 34461

MAINTENANCE OPERATIONS:
- Facilities Maint. Section
  PO Box 143
  Lecanto, FL 34460
  352-527-0333 Phone
  352-527-0654 Fax
- Fleet Management Section
  PO Box 215
  Lecanto, FL 34460
  352-746-6888 Phone
  352-746-5011 Fax

AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

ROAD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

October 12, 1998

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

Susan J. Pelz, P.E.
Solid Waste Section
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

D.E.P.
OCT 1 5 1998

Re: Citrus County Central Landfill, Financial Assurance Cost Estimates
Permit No. SO09-274381, Phase 1operation
Permit No. SSF09-211030, Closed 60-acre site

Dear Ms. Pelz:

Attached please find two copies of a response to your letter of September 16 concerning our August 28 submittal of the required annual report of landfill closure and long term care costs for the referenced facilities. A revised set of tables presenting costs and required escrow deposit is also included. This report was prepared for Citrus County by CH2M HILL and is signed and sealed by R. J. Bruner,III, P.E.

Citrus County staff continues to have discussions with FDEP staff in Tallahassee concerning the onsite vs. offsite soil costs, therefore no changes were made from our August 28 submittal which used onsite soil costs.

Please contact me if you have any questions.

Yours truly,

Susan J. Metcalfe

Susan J. Metcalfe, P.G.
Director

CC: Ken Saunders, Director, Public Works Department (with attachments)
R.J. Bruner III, CH2M HILL, Gainesville (w/o attachments)
John Wood, CH2M HILL, Deerfield (w/o attachments)
Bob Butera, FDEP, Tampa (w/o attachments
Kim Ford, FDEP Tampa (w/o attachments)

FDEP	3804 Coconut Palm Drive, Tampa, FL 33619-8318

FAX

Date: 9/21/98

Number of pages including cover sheet: 3

To: SUSAN METCALFE

CITRUS SW DEPT

Phone: 352 746500

Fax phone: 352 527 1204

CC:

From: Jim FORD

Phone: (813) 744-6100 X382

Fax phone: (813) 744-6125

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

FINANCIAL -
NOT RESOLVED

Department of
Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

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

September 16, 1998

RE: Citrus County Landfill Financial Assurance Cost Estimates
Permit Nos.: SO09-274381 and SF09-211030, Citrus County

Dear Ms. Metcalfe:

This letter is to acknowledge receipt of the revised cost estimates dated August 27, 1998 (received August 31, 1998), prepared by CH2MHill, for closure (closing and long-term care) of the Citrus County Landfill (Phase 1, 1A, and old closed 60 acres). The cost estimates submitted are not approved. The following information is needed to fully evaluate the estimates submitted:

GENERAL:

1. The information indicates that the County wishes to be "exempt" from the requirement for including the costs of off-site soils for the final cover. The Department acknowledges that a large quantity of soil currently exists at the site. However, please be advised that **40 CFR 264.142** (adopted by reference in Rule 62-701.630(6), F.A.C.) states,

> (a)(1) The estimate must equal the cost of final closure at the point in the facility's active life when the extent and manner of its operation would make closure the most expensive, as indicated by its closure plan.
>
> (a)(2) The closure cost estimate must be based on the costs to the owner or operator of hiring a third party to close the facility; and
>
> (a)(3) The closure cost estimate may not incorporate any salvage value that may be realized from the sale of hazardous (solid) waste, facility structures or equipment, land, or other assets associated with the facility at the time of partial or final closure.

40 CFR Part 264.141(f) defines "assets" as "all existing and all probable future economic benefits obtained or controlled by a particular entity, and "current assets" are cash or other assets or resources commonly identified as those which are reasonably expected to be realized in cash or sold or consumed during the normal operating cycle of the business." It is clear that the on-site soils are "resources... which are reasonably expected to be... sold or consumed during the normal operating cycle of the business." As such, the value of such resources cannot be included in the closure cost estimate. Please contact Mr. Fred Wick at 850-488-0300 if further information is needed concerning this item. Please provide a revised estimate which includes the cost for material, delivery and placement of off-site soils for the final cover. Please specify if the costs provided are for "as-placed" quantities or "as delivered" quantities.

2. Several of the estimates submitted have apparently been inflation-adjusted based on inflation factor derived from the percent change in the Gross Domestic Product Implicit Price Deflator from 4th quarter 1996 to 4th quarter 1997. The resulting inflation factor was 1.018 (1.8%). However, 40 CFR 264.142(b) requires,

> The [inflation] adjustment may be made by recalculating the maximum costs of closure in current dollars, or by using an inflation factor 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 correct inflation adjustment factor for 1997 to 1998 costs is 1.02 (2%). Please provide revised estimates which use this inflation adjustment factor. For future submittals, please contact Mr. Fred Wick at 850-488-0300 for the correct inflation factor.

CLOSING COSTS:

3. Revegetation, Hydroseeding $914.76/AC. It appears that the cost for "installation of seed and mulch" listed on the Orange County Bid, Attachment 2C is $0.29/SY ($1403.60/AC). Please clarify the cost for hydroseeding. The Bid submitted appears to be for 1997. These costs must be updated for inflation, at a minimum, or copies of current (1998) third-party quotes must be provided which support the costs submitted.

LONG-TERM CARE COSTS:

4. Groundwater Monitoring, $325/well/event, $7,800/year. Rule 62-701.630(4)(b), F.A.C., requires that the cost estimates shall be updated annually for "inflation and changes in the closing and long-term care plan." The costs submitted in Attachment 2E appear to be based on 1997 bids. These costs must be updated for inflation, at a minimum, or copies of current (1998) third-party quotes must be provided which support the costs submitted. Purchase Order control number 35011 shows the total cost for groundwater monitoring to be $8013/year (excluding the background testing). This cost does not appear to correlate with the cost estimate submitted. Please clarify the costs submitted.

5. Leachate Monitoring. Rule 62-701.630(4)(b), F.A.C., requires that the cost estimates shall be updated annually for "inflation and changes in the closing and long-term care plan." The costs submitted in Attachment 2E appear to be based on 1997 bids. These costs must be updated for inflation, at a minimum, or copies of current (1998) third-party quotes must be provided which support the costs submitted.

The Department requests that all information be provided to the Solid Waste Section, FDEP, Tampa office within thirty (30) days of this notice. If you have any questions, you may contact me at (813) 744-6100 ext. 386.

Sincerely,

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

sjp
cc: Gary Kuhl, P.E., Director, Citrus Co. Dept. of Public Works, PO Box 340, Lecanto, Fl. 34461
R.J. Bruner III, P.E., CH2M Hill, 3011 SW Williston Road, Gainesville, Fl. 32608-3928
Fred Wick, FDEP, Tallahassee, w/attachment
Robert Butera, P.E., FDEP Tampa
Kim Ford, P.E., FDEP Tampa

Transmit Confirmation Report

No.	:	008
Receiver	:	813525271204
Transmitter	:	WASTE MGT TAMPA SWDIST
Date	:	Sep 21 98 11:22
Time	:	01'45
Mode	:	Norm
Pages	:	03
Result	:	OK

Transmit Confirmation Report

No.	:	009
Receiver	:	8-1-352-527-1204
Transmitter	:	WASTE MGT TAMPA SWDIST
Date	:	Sep 21 98 11:50
Time	:	00'49
Mode	:	Norm
Pages	:	01
Result	:	OK

Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

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

September 16, 1998

RE: Citrus County Landfill Financial Assurance Cost Estimates
Permit Nos.: SO09-274381 and SF09-211030, Citrus County

Dear Ms. Metcalfe:

This letter is to acknowledge receipt of the revised cost estimates dated August 27, 1998 (received August 31, 1998), prepared by CH2MHill, for closure (closing and long-term care) of the Citrus County Landfill (Phase 1, 1A, and old closed 60 acres). The cost estimates submitted are not approved. The following information is needed to fully evaluate the estimates submitted:

GENERAL:

1. The information indicates that the County wishes to be "exempt" from the requirement for including the costs of off-site soils for the final cover. The Department acknowledges that a large quantity of soil currently exists at the site. However, please be advised that **40 CFR 264.142** (adopted by reference in Rule 62-701.630(6), F.A.C.) states,

> (a)(1) The estimate must equal the cost of final closure at the point in the facility's active life when the extent and manner of its operation would make closure the most expensive, as indicated by its closure plan.
>
> (a)(2) The closure cost estimate must be based on the costs to the owner or operator of hiring a third party to close the facility; and
>
> (a)(3) The closure cost estimate may not incorporate any salvage value that may be realized from the sale of hazardous (solid) waste, facility structures or equipment, land, or other assets associated with the facility at the time of partial or final closure.

40 CFR Part 264.141(f) defines "assets" as "all existing and all probable future economic benefits obtained or controlled by a particular entity, and "current assets" are cash or other assets or resources commonly identified as those which are reasonably expected to be realized in cash or sold or consumed during the normal operating cycle of the business." It is clear that the on-site soils are "resources... which are reasonably expected to be... sold or consumed during the normal operating cycle of the business." As such, the value of such resources cannot be included in the closure cost estimate. Please contact Mr. Fred Wick at 850-488-0300 if further information is needed concerning this item. Please provide a revised estimate which includes the cost for material, delivery and placement of off-site soils for the final cover. Please specify if the costs provided are for "as-placed" quantities or "as delivered" quantities.

2. Several of the estimates submitted have apparently been inflation-adjusted based on inflation factor derived from the percent change in the Gross Domestic Product Implicit Price Deflator from 4th quarter 1996 to 4th quarter 1997. The resulting inflation factor was 1.018 (1.8%). However, 40 CFR 264.142(b) requires,

> The [inflation] adjustment may be made by recalculating the maximum costs of closure in current dollars, or by using an inflation factor 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 correct inflation adjustment factor for 1997 to 1998 costs is 1.02 (2%). Please provide revised estimates which use this inflation adjustment factor. For future submittals, please contact Mr. Fred Wick at 850-488-0300 for the correct inflation factor.

CLOSING COSTS:

3. Revegetation, Hydroseeding $914.76/AC. It appears that the cost for "installation of seed and mulch" listed on the Orange County Bid, Attachment 2C is $0.29/SY ($1403.60/AC). Please clarify the cost for hydroseeding. The Bid submitted appears to be for 1997. These costs must be updated for inflation, at a minimum, or copies of current (1998) third-party quotes must be provided which support the costs submitted.

LONG-TERM CARE COSTS:

4. Groundwater Monitoring, $325/well/event, $7,800/year. Rule 62-701.630(4)(b), F.A.C., requires that the cost estimates shall be updated annually for "inflation and changes in the closing and long-term care plan." The costs submitted in Attachment 2E appear to be based on 1997 bids. These costs must be updated for inflation, at a minimum, or copies of current (1998) third-party quotes must be provided which support the costs submitted. Purchase Order control number 35011 shows the total cost for groundwater monitoring to be $8013/year (excluding the background testing). This cost does not appear to correlate with the cost estimate submitted. Please clarify the costs submitted.

5. Leachate Monitoring. Rule 62-701.630(4)(b), F.A.C., requires that the cost estimates shall be updated annually for "inflation and changes in the closing and long-term care plan." The costs submitted in Attachment 2E appear to be based on 1997 bids. These costs must be updated for inflation, at a minimum, or copies of current (1998) third-party quotes must be provided which support the costs submitted.

The Department requests that all information be provided to the Solid Waste Section, FDEP, Tampa office within thirty (30) days of this notice. If you have any questions, you may contact me at (813) 744-6100 ext. 386.

Sincerely,

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

sjp
cc: Gary Kuhl, P.E., Director, Citrus Co. Dept. of Public Works, PO Box 340, Lecanto, Fl. 34461
R.J. Bruner III, P.E., CH2M Hill, 3011 SW Williston Road, Gainesville, Fl. 32608-3928
Fred Wick, FDEP, Tallahassee, w/attachment
Robert Butera, P.E., FDEP Tampa
Kim Ford, P.E., FDEP Tampa

Department of
Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

July 27, 1998

Ms. Susan Metcalfe, P.G.
Citrus County
Solid Waste Management
P. O. Box 340
Lecanto, FL 34460-0340

Re: Emergency Detonation or Thermal Treatment
Citrus County Central Landfill, Citrus County

Dear Ms. Metcalfe:

Thank you for your December 19, 1997 response to DEP's September 18, 1997 letter concerning compliance with Florida Administrative Code Rule 62-730.320 (attached) and potential impacts upon the related solid waste facility. The location shown by a **X** is not approved. The Solid Waste Section has no objections to the location shown by a **Y** as described in your response subject to the following specific conditions:

(a) All other local, state, and federal approvals and licenses required for the activities allowed in this authorization shall be obtained.

(b) Visible residual materials shall be recovered from the site and properly disposed of in accordance with Department rules.

(c) Adequate fire protection to assure confinement and control of any fire resulting from the operation shall be provided.

(d) The local Department representative or their designee shall be notified and may be present to observe the treatment or detonation.

(e) Prior to treatment or detonation, the site shall be secured and no site access allowed except by authorized personnel. The area around the site shall be visually inspected to assure that no unauthorized personnel are present. The securing and inspection of the site shall be made to at least the following distances:

POUNDS OF WASTE EXPLOSIVE	MINIMUM DISTANCE
0 to 100	204 meters (670 feet)
101 to 1,000	380 meters (1250 feet)
1,001 to 10,000	530 meters (1730 feet)
10,001 to 30,000	690 meters (2260 feet)

(f) Thermal treatment or detonation shall be conducted only at the times and place specified in the permittee's notice to the Department.

(g) The Department may require, as a condition of its approval, that soil sampling be conducted before and after the detonation or treatment.

(h) Within 30 days of the emergency detonation or thermal treatment, the authorized person shall submit to the Department a complete written summary of the detonation or treatment which shall include actual procedures used, disposition of any residues from the process, and other pertinent information.

Be advised: the Department continues to require that "the person having custody of the waste contacts the Department and obtains oral or written permission prior to the detonation or treatment" pursuant to Rule 62-730.320(1)(a). Compliance with this rule requires permission from the Department's Hazardous Waste Section.

In addition to compliance with FAC 62-730.320 requirements the Department requests the following:

(1) The permittee be informed and cognizant of all detonation activities to assure that detonations occur at locations in compliance with the set back requirements indicated on the attached site plan.

(2) All detonation occurrences be documented and retained on site which includes at a minimum, the name of the person responsible for the detonation, location and date of the detonation.

(3) The Department requests that all future construction such as closure construction, installation of passive or active gas control systems, buildings, leachate pump stations that occurs on site which may encroach on the set back distances specified in FAC 62-730.320 be submitted to the Department for review and guidance.

Your continued cooperation is appreciated. If you have any questions concerning this letter, you may contact Kim Ford or myself at (813) 744-6100, extensions 382 or 451.

Sincerely,

Robert J. Butera

Robert J. Butera, P.E.
Solid Waste Manager
Division of Waste Management

KBF/ab
Attachment
cc: Stanley Tam, P.E., FDEP Tampa/Hazardous Waste Section

take action within the 20 day period shall constitute final agency action to not release the information and the requestor may seek judicial review provided below.

(7) The requestor or the party asserting the claim of trade secret or confidential records may file an action in circuit court pursuant to Section 119.11, F.S.

Specific Authority: 403.704, 403.722, F.S.
Law Implemented: 403.704, 403.722, F.S.
History: New 7-9-82; Formerly 17-30.31; Amended 9-23-87, 6-28-88, Formerly 17-30.310, Amended 10-7-93, Formerly 17-730.310.

62-730.320 Emergency Detonation or Thermal Treatment of Certain Hazardous Waste

(1) Certain hazardous wastes, due to their origin, age, and storage conditions have become a hazard to their surroundings. Because of the flammable, shock sensitive and explosive nature of the wastes, there is an immediate danger and imminent hazard to persons and property in the surrounding area. Therefore, an authorization is granted for the emergency detonation or treatment of reactive hazardous wastes, as defined in F.A.C. Chapter 62-730, provided:

(a) The person having custody of the waste contacts the Department and obtains oral or written permission prior to detonation or treatment. If the permission is oral it must be followed within five days by a written order. Written orders shall be accompanied by the publication of public notice.

(b) The waste is highly reactive, shock sensitive, or explosive and can only be safely disposed of through its prompt detonation or treatment.

(c) The type and amount of waste to be detonated is specified to the Department. Only those wastes specified may be disposed of under this permit.

(d) The detonation or treatment is conducted or supervised by local law enforcement officials, bomb squads, or other officials or agencies experienced in the handling and disposal of explosives.

(e) The time and place of the detonation or treatment is specified in the notice to the Department.

(f) The procedures for the detonation or treatment is specified in the notice to the Department.

(g) Permission granted under this rule shall not exceed 90 days.

(h) Permission granted under this rule shall include all applicable requirements of Chapter 62-730 to the extent possible and not inconsistent with the emergency situation.

(2) This authority shall be subject to the following specific conditions:

62-730.310(6)(cont'd.) - 62-730.320(2)

(a) All other local, state, and federal approvals and licenses required for the activities allowed in this authorization shall be obtained.

(b) Visible residual materials shall be recovered from the site and properly disposed of in accordance with Department rules.

(c) Adequate fire protection to assure confinement and control of any fire resulting from the operation shall be provided.

(d) The local Department representative or their designee shall be notified and may be present to observe the treatment or detonation.

(e) Prior to treatment or detonation, the site shall be secured and no site access allowed except by authorized personnel. The area around the site shall be visually inspected to assure that no unauthorized personnel are present. The securing and inspection of the site shall be made to at least the following distances:

POUNDS OF WASTE EXPLOSIVE	MINIMUM DISTANCE
0 to 100	204 meters (670 feet)
101 to 1,000	380 meters (1250 feet)
1,001 to 10,000	530 meters (1730 feet)
10,001 to 30,000	690 meters (2260 feet)

(f) Thermal treatment or detonation shall be conducted only at the times and place specified in the permittee's notice to the Department.

(g) The Department may require, as a condition of its approval, that soil sampling be conducted before and after the detonation or treatment.

(h) Within 30 days of the emergency detonation or thermal treatment, the authorized person shall submit to the Department a complete written summary of the detonation or treatment which shall include actual procedures used, disposition of any residues from the process, and other pertinent information.

Specific Authority: 403.704, 403.721, F.S.
Law Implemented: 403.061, 403.704, 403.721, 403.726, F.S.
History: New 9-30-85; Formerly 17-30.32, 17-30.320, Formerly 17-730.320, Amended 1-5-95.

62-730.330 Research Development and Demonstration Permits.

(1) The Department may issue a research, development, and demonstration permit for any hazardous waste treatment facility which proposes to utilize an innovative and experimental hazardous waste treatment technology or process for which permit standards for such experimental activity

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

Post-it Fax Note 7673 | Date 7/22 | # of pages 2
To Kim Ford
Fax 813-744-6125
From Susan Metcalfe
Phone# 352 746-5000

3600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
  Suite 205
  352-527-5447 Phone
  352-527-5459 Fax
- Permits & Compliance Sec.
  Suite 204
  352-527-5448 Phone
  352-527-5319 Fax
- Project Management Sec.
  Suite 241
  352-527-5449 Phone
  352-527-5482 Fax
- Survey Section
  Suite 241
  352-527-5446 Phone
  352-527-5482 Fax

3300 S. LECANTO HIGHWAY
LECANTO, FLORIDA 34461

MAINTENANCE OPERATIONS:
- Facilities Maint. Section
  PO Box 143
  Lecanto, FL 34460
  352-527-0333 Phone
  352-527-0494 Fax
- Fleet Management Section
  PO Box 215
  Lecanto, FL 34460
  352-746-6888 Phone
  352-746-5011 Fax

AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

ROAD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

SOLID MANAGEMENT
3[illegible] S to Lake Highway
PO [illegible] 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

July 10, 1998

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

Re: Citrus County Central Landfill - Permit No. SO09-274381
Leachate Generation and Daily Precipitation Report

Dear Mr. Ford:

In compliance with Specific Condition 17. c. of the above permit, enclosed please find the Semi-Annual Leachate Generation and Daily Precipitation Report for the months of January, February, March, April, May and June, 1998, together with the Year to Date Leachate Tracking Summary.

Please note that the meters on the secondary leachate pumping system frequently show a few gallons or a few tens of gallons of flow. We believe that these are false positive flow readings. Considering the current pump settings, any flow less than about 250 to 300 gallons is a physical impossibility. All leachate meters installed as part of Phase 1A construction are going to be replaced.

If you should need additional information, please let me know.

Sincerely,

Susan J. Metcalfe

Susan J. Metcalfe
Director, Citrus County
Division of Solid Waste Management

SJM:CJW:cjw
Enclosure

CC: Kenneth E. Saunders, Jr., Director, Dept. Public Works (w/Y-T-D summary)
(SWM/CJW/Winfile/DEP/FordLea.Doc)

1998 YEAR TO DATE LEACHATE TRACKING SUMMARY
CITRUS COUNTY CENTRAL LANDFILL
LEACHATE GALLONS

MONTH	RAIN DATA	7-ACRE TOTAL OF LEACHATE	80-ACRE TOTAL OF PRIMARY LEACHATE PHASE 1 & 1A	80-ACRE TOTAL OF SECONDARY LEACHATE PHASE 1A	SURFACE LEACHATE OR SPECIAL PROJECT	TOTAL LEACHATE	LEACHATE (RAW) DISPOSAL OFF-SITE	EFFLUENT DISPOSAL ON-SITE	EFFLUENT DISPOSAL OFF-SITE	TOTAL DISPOSAL	BALANCE
JANUARY	3.50	86644	453496	1186	0	541326	0	695066	0	695066	-153740
FEBRUARY	9.50	93334	610812	2327	0	706473	36331	655998	0	892329	14144
MARCH	6.10	94362	583587	1631	0	679580	24069	746407	0	770476	-90896
APRIL	0.84	114676	213636	921	0	329233	0	340776	0	340776	-11543
MAY	0.26	138683	161179	644	0	300506	0	292808	0	292808	7698
JUNE	2.33	123991	189383	443	0	313817	0	162572	0	162572	151245
JULY	0.00	0	0	0	0	0	0	0	0	0	0
AUGUST	0.00	0	0	0	0	0	0	0	0	0	0
SEPTEMBER	0.00	0	0	0	0	0	0	0	0	0	0
OCTOBER	0.00	0	0	0	0	0	0	0	0	0	0
NOVEMBER	0.00	0	0	0	0	0	0	0	0	0	0
DECEMBER	0.00	0	0	0	0	0	0	0	0	0	0
											0
YTD TOTAL	22.53	651690	2212093	7152	0	2870935	60400	2893827	0	2954027	-83092

07/22/98 14:18 ☎904 7465000 5271204 SOLID WASTE MGT 002

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

30 DAY FILE

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

December 19, 1997

D.E.P.
JUL - 1 1998
SOUTHWEST DISTRICT
TAMPA

Richard D. Garrity, Ph.D., Director of District Management
Florida Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

Re: Emergency Detonation or Thermal Treatment of Certain Hazardous Waste, 62-730.320 FAC

Dear Dr. Garrity:

In response to your letter of September 18 requsting that each solid waste facility designate a location for emergency detonations, Citrus County proposes to use the location shown with an X on the attached diagram (SC23 ZOD). This location is near the southwest corner of the closed 60-acre landfill. This area was filled in 1975 and gas monitoring wells in the area have not detected explosive concentrations of gas. This area is owned by the State, but is leased to the Withlacoochee Technical Institute for law enforcement training. The area has earthen berms on three sides (West, South and East) about 15 feet tall which would prevent flying debris from escape from the site. At least two feet of soil covers the plastic cap used for closure. There are no confined spaces for accumulation of methane gas in the area. The location of the gas vents, flares, leachate sumpsand occupied buildings are shown on the site plan.

A location on the adjacent active landfill property in an area that has not been filled is proposed as an alternate if the Department finds that preferable. This location, shown by a Y on the attached diagram is between the soil stockpile and the fill area and is protected on the north by the soil stockpile in excess of 50 feet high. The location of features of the active site is depicted on the enclosed figure ES-1

Please contact me if you have any additional questions.

Sincerely,

Susan J. Metcalfe

Susan J. Metcalfe
Director

CC: Kenneth Saunders, Director, Public Works Department

3600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
  Suite 205
  352-527-5447 Phone
  352-527-5459 Fax
- Permits & Compliance Sec.
  Suite 204
  352-527-5448 Phone
  352-527-5319 Fax
- Project Management Sec.
  Suite 241
  352-527-5449 Phone
  352-527-5482 Fax
- Survey Section
  Suite 241
  352-527-5446 Phone
  352-527-5482 Fax

1300 S. LECANTO HIGHWAY
LECANTO, FLORIDA 34461

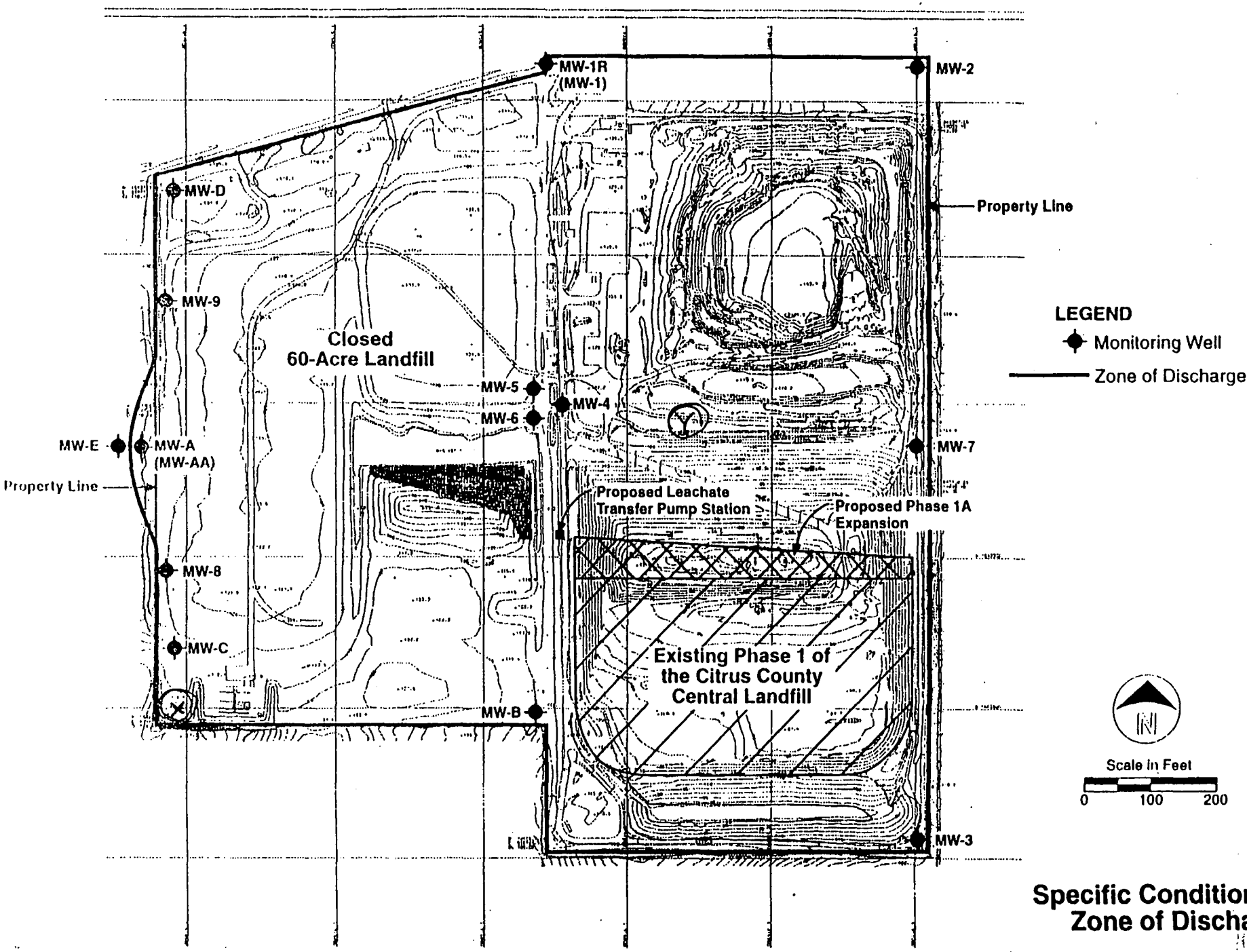
MAINTENANCE OPERATIONS:
- Facilities Maint. Section
  PO Box 143
  Lecanto, FL 34460
  352-527-0333 Phone
  352-527-0654 Fax
- Fleet Management Section
  PO Box 215
  Lecanto, FL 34460
  352-746-6888 Phone
  352-746-5011 Fax

AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

ROAD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
-1676 Fax

SO[illegible]STE MANAGEMENT
[illegible] Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460



Specific Condition 33
Zone of Discharge

CH2MHILL

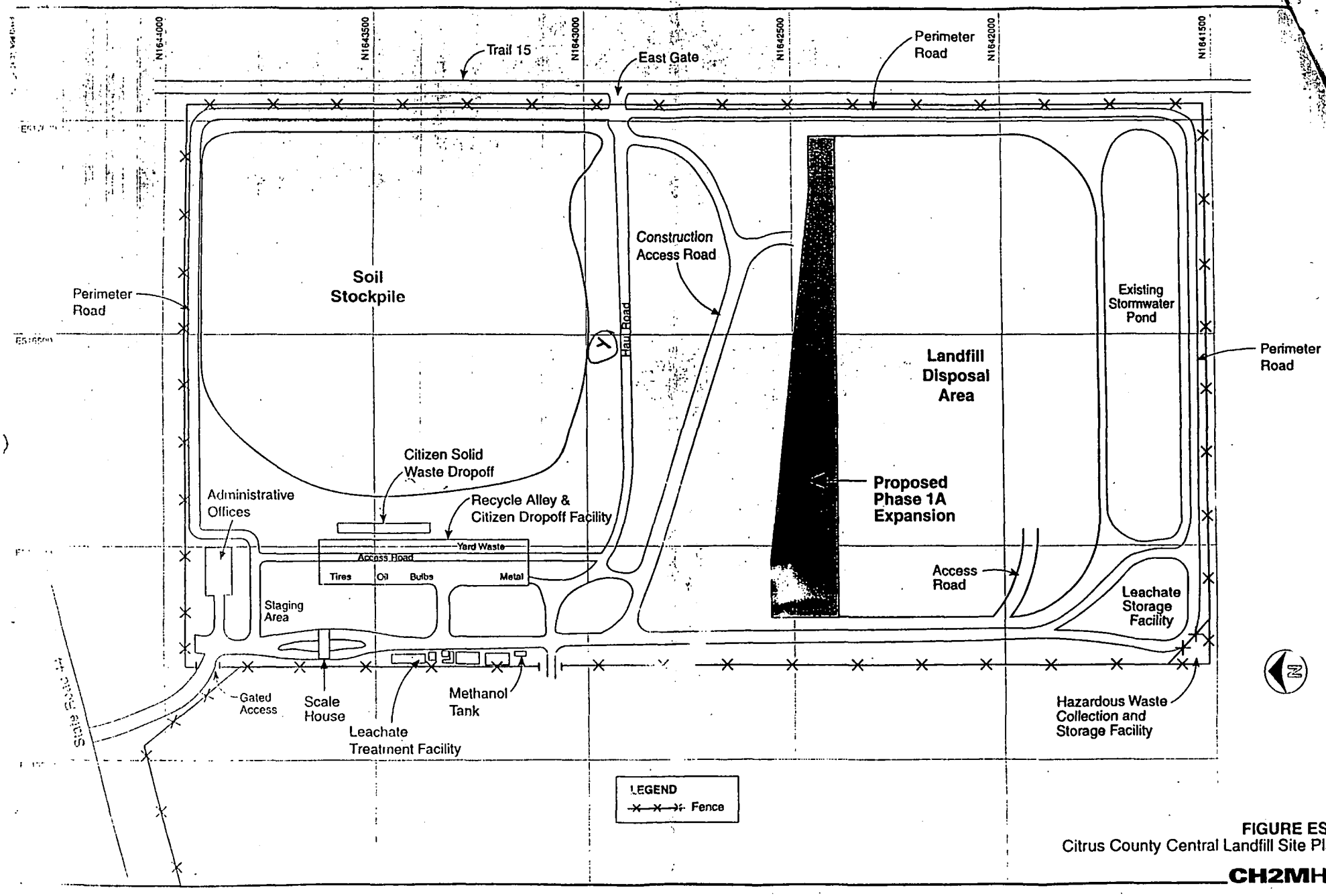


FIGURE ES-1
Citrus County Central Landfill Site Plan

CH2MHILL

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

3600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
  Suite 205
  352-527-5447 Phone
  352-527-5459 Fax
- Permits & Compliance Sec.
  Suite 204
  352-527-5448 Phone
  352-527-5319 Fax
- Project Management Sec.
  Suite 241
  352-527-5449 Phone
  352-527-5482 Fax
- Survey Section
  Suite 241
  352-527-5446 Phone
  352-527-5482 Fax

1300 S. LECANTO HIGHWAY
LECANTO, FLORIDA 34461

MAINTENANCE OPERATIONS:
- Facilities Maint. Section
  PO Box 143
  Lecanto, FL 34460
  352-527-0333 Phone
  352-527-0654 Fax
- Fleet Management Section
  PO Box 215
  Lecanto, FL 34460
  352-746-6888 Phone
  352-746-5011 Fax

AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

ROAD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

June 30, 1998

RECEIVED
JUL 02 1998
D E P

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

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

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

Dear Mr. Ford:

This is to report several malfunctions of electronic equipment possibly related to recent power fluctuations experienced at the site. During the extremely hot dry conditions in the past month, power supply to the landfill apparently was reduced (brownout condition) every afternoon between 3 PM and 6 PM causing alarm conditions at leachate lift station, stormwater lift station, and leachate treatment plant; the breakers which control the blowers at the leachate storage tank also trip out. Other than resetting, and having the integrity of components checked, no other action has been necessary to return equipment to operating status.

The low -level sensor on the methanol storage tank at the leachate treatment plant failed June 17, leaving the system in alarm condition. The cause was not determined. This component causes the second stage treatment process to stop. Because there is a sight gauge on the tank and an operator in attendance every day the system is in operation, this sensor is not required for proper plant operation. We have chosen not to replace this part at this time. On June25 the control panel was rewired to remove the stop- process function.

A weekend lightning strike on June 20-21 burned out the leachate flow meter indicator for pumps #1-4 (all 80-acre pumps). Flows can be determined from direct reading of the meters in the vault. Replacement of the indicator will take place when the meters are replaced. This job must be bid and will take at least 30 days to select a contractor; implementation may take several weeks beyond that in order to obtain parts.

The first rainfall in months at the site occurred Saturday June 27. The stormwater lift station did not operate automatically. When staff visited the control panel, the

methane detector alarm was on, which had locked out the pumps. After using a portable methane detector, it was determined that this was a false alarm. The system was operated manually over the weekend for two storm events. Until the apparently faulty methane detector can be repaired/replaced, the portable meter will be used to periodically test the lift station. The shutoff feature of the methane alarm has been disabled. We have not yet located a firm that will service the part, however the intent is to return the lift station to its original function as soon as possible.

Please call me if you have any questions.

Yours truly,

Susan J. Metcalfe

Susan J. Metcalfe, P.G.
Director

CC: Ken Saunders, Director, Public Works Department
Bob Butera, FDEP, Tampa
John Morris, FDEP, Tampa

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

3600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
  Suite 205
  352-527-5447 Phone
  352-527-5459 Fax
- Permits & Compliance Sec.
  Suite 204
  352-527-5448 Phone
  352-527-5319 Fax
- Project Management Sec.
  Suite 241
  352-527-5449 Phone
  352-527-5482 Fax
- Survey Section
  Suite 241
  352-527-5446 Phone
  352-527-5482 Fax

1300 S. LECANTO HIGHWAY
LECANTO, FLORIDA 34461

MAINTENANCE OPERATIONS:
- Facilities Maint. Section
  PO Box 143
  Lecanto, FL 34460
  352-527-0333 Phone
  352-527-0654 Fax
- Fleet Management Section
  PO Box 215
  Lecanto, FL 34460
  352-746-6888 Phone
  352-746-5011 Fax

AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

ROAD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

June 30, 1998

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

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

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

Dear Mr. Ford:

This is to report several malfunctions of electronic equipment possibly related to recent power fluctuations experienced at the site. During the extremely hot dry conditions in the past month, power supply to the landfill apparently was reduced (brownout condition) every afternoon between 3 PM and 6 PM causing alarm conditions at leachate lift station, stormwater lift station, and leachate treatment plant; the breakers which control the blowers at the leachate storage tank also trip out. Other than resetting, and having the integrity of components checked, no other action has been necessary to return equipment to operating status.

The low -level sensor on the methanol storage tank at the leachate treatment plant failed June 17, leaving the system in alarm condition. The cause was not determined. This component causes the second stage treatment process to stop. Because there is a sight gauge on the tank and an operator in attendance every day the system is in operation, this sensor is not required for proper plant operation. We have chosen not to replace this part at this time. On June25 the control panel was rewired to remove the stop- process function.

A weekend lightning strike on June 20-21 burned out the leachate flow meter indicator for pumps #1-4 (all 80-acre pumps). Flows can be determined from direct reading of the meters in the vault. Replacement of the indicator will take place when the meters are replaced. This job must be bid and will take at least 30 days to select a contractor; implementation may take several weeks beyond that in order to obtain parts.

The first rainfall in months at the site occurred Saturday June 27. The stormwater lift station did not operate automatically. When staff visited the control panel, the

methane detector alarm was on, which had locked out the pumps. After using a portable methane detector, it was determined that this was a false alarm. The system was operated manually over the weekend for two storm events. Until the apparently faulty methane detector can be repaired/replaced, the portable meter will be used to periodically test the lift station. The shutoff feature of the methane alarm has been disabled. We have not yet located a firm that will service the part, however the intent is to return the lift station to its original function as soon as possible.

Please call me if you have any questions.

Yours truly,

Susan J. Metcalfe

Susan J. Metcalfe, P.G.
Director

CC: Ken Saunders, Director, Public Works Department
Bob Butera, FDEP, Tampa
John Morris, FDEP, Tampa

Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

June 26, 1998

Ms. Susan J. Metcalfe, P.G.
Citrus County Solid Waste Management
P.O. Box 340
Lecanto, FL 34460-0340

Re: Citrus Central Landfill, Long-Term Care Permit Renewal
Pending Permit No. 126601-002-SF, Citrus County

Dear Ms. Metcalfe:

This letter is to acknowledge that your submittal entitled *Closed Landfill Long-Term Care Permit Renewal Application* for the referenced facility was received by the Department on May 28, 1998. This letter constitutes notice that a permit will be required for your project pursuant to Chapter 403, Florida Statutes.

Your application for a permit is incomplete. This letter represents the first request for additional information in support of your permit application. Evaluation of your proposed project will be delayed until all requested information has been received. The following information is needed in support of the solid waste application [Chapter 62-701, Florida Administrative Code (F.A.C.)] and is referenced to sections of the application permit and/or Specific Conditions of the current Long-Term Care or Operations Permits:

1. B.18.: The permit application identifies 12 monitor wells. Specific Condition No. 34 of Permit No. SO09-274381 lists 14 wells in the ground water monitoring plan for the facility. Please clarify the number of monitor wells.

2. N.3.d./N.5.f.: Gas monitoring requirements are identified in Specific Condition No. 4 of Permit No. SF09-211030 and Specific Condition Nos. 18 through 20 of Permit No. SO09-274381. The results of quarterly monitoring of the gas probe locations indicate several areas along the eastern boundary of the closed 60-acre landfill area that are reported at 100 percent of the LEL for methane. These values are not considered sufficient to trigger gas remediation activities as they occur along the boundary that is contiguous with the active 80-acre landfill. However the Department will continue to review gas monitoring data along the landfill boundaries and within site structures. Please provide a summary of actual or potential gas migration at the closed 60-acre landfill, and verify that procedures described in Appendix G of the Citrus County Central Landfill Operations Plan reflect currently implemented gas monitoring activities.

3. N.3.e.: Exhibit G of the permit renewal application, entitled *Assessment of the Effectiveness of Landfill Closure Design and Maintenance*, is incomplete. Definitive, conclusive statements and recommendations regarding existing conditions and any corrective actions, if required, must be signed and sealed by a Professional Engineer. Items requiring clarification include gas migration evaluation and the condition of the cover (top liner and/or 2-foot soil cover). Please avoid the use of such terms as "generally". Please provide a schedule of general maintenance activities conducted at the closed 60-acre landfill.

4. N.5.e.: Ground water monitoring requirements are identified in Specific Condition No. 8 of Permit No. SF09-211030 and Specific Condition Nos. 29 through 30 and Nos. 34 through 40 of Permit No. SO09-274381. Please indicate if the Conclusions and Recommendations presented in the document entitled *Contamination Assessment Report, Citrus County Central Landfill* (CH2M-Hill, April 1996) and if the Conclusions presented

in the document entitled *Two-Year Monitoring Report, Citrus County Central Landfill* (CH2M-Hill, August 1997) are representative of current conditions at the closed 60-acre landfill. Please provide a discussion of water quality data collected from new downgradient detection wells MW-8 and MW-9.

5. O.6.: The reference to Figure 3 is unclear. Should the application form reference Figure 1 which is discussed in Section 1.1.7? It is understood that anticipated uses such as the proposed soil stockpile, proposed yard waste area, proposed leachate disposal sprayfield, proposed citizen waste drop off and recycle alley, and proposed administrative offices, facilities and parking are subject to change. Please be advised that all future uses of the closed 60-acre landfill require Department approval prior to implementation. Please provide a response to the May 21, 1998 correspondence from Mr. Kim Ford, P.E., regarding the permit modification to construct a firing range at the southwest corner of the facility (attached).

6. Exhibit F: The information in this Exhibit fulfills the requirements of Specific Condition No. 7 of Permit No. SF09-211030. Please provide an update of the status of the investigation into the flow meter sizing and related affects of flow volume estimates. A definitive statement regarding the need to replace the flow meter is needed. Please provide the leachate generation reports for the months of January through June 1998 as required by Specific Condition No. 17.c. of Permit No. SO09-274381.

Please provide three copies of all permit application responses to the Department for review. Please provide all responses that relate to engineering or geological interpretation signed and sealed by the respective Florida-licensed professional.

"NOTICE! Pursuant to the provisions of Section 120.600, F.S. and Chapter 62-4.070(5), F.A.C., if the Department does not receive a complete response to this request for information within 30 days of the date of this letter, the Department may issue a final order denying your application. You need to **respond within 30 days** after you received this letter, responding to all of the information requests and indicating when a response to any unanswered questions will be submitted. If the response will require longer than 30 days to develop, you should develop a specific time table for the submission of the requested information for Department review and consideration. Failure to comply with a time table accepted by the Department may be grounds for the Department to issue a Final Order of Denial for lack of a timely response. A denial for lack of information or response will be unbiased as to the merits of the application. The applicant may reapply as soon as the requested information is available."

If you have any questions about this request for additional information please contact me at (813) 744-6100, extension 336.

Sincerely,

John R. Morris, P.G.
Solid Waste Section

Attachment

cc: Kou-Roung Chang, Ph.D., P.E., CH2M-Hill, 3011 S.W. Williston Road, Gainesville, Florida 32608
Robert Butera, P.E., FDEP
Kim Ford, P.E., FDEP
Steve Morgan, FDEP

Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

May 21, 1998

Ms. Susan Metcalfe, P.G.
Citrus County
Solid Waste Management
P O Box 340
Lecanto, FL 34460-0340

Re: Firing Range on Closed Landfill
Modification No.: 126601-001-SF
Permit Nos.: SF09-211030, Citrus County

Dear Ms. Metcalfe:

This is to acknowledge receipt of your request for a permit modification received April 27, 1998 to construct a firing range on the Closed Citrus County Central Landfill.

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

Your request for a permit modification is incomplete. Please provide the information listed below promptly. Evaluation of your proposed project will be delayed until all requested information has been received.

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

1. Recent topographic information with elevations in the vicinity of all related activities and structures.

2. Description of construction and related activities to demonstrate compliance with the requirements of F.A.C. Rule 62-701.610(7) for the use of closed landfill areas.

3. Foundation analysis to demonstrate the structure will not affect the integrity of the closed landfill cover/liner.

4. Site plans drawn to scale showing all related work, existing and proposed elevations, and the closed landfill cover/liner.

5. Project specifications with construction methods to demonstrate the integrity of the closed landfill cover/liner will not be affected.

6. Confirmation that explosives will not be stored on site.

7. Response to DEP's September 18, 1997 letter, and description to demonstrate compliance with FAC Rule 62-730.320 regarding detonation and thermal treatment of explosives (attachments).

Please provide all responses signed and sealed by a professional engineer.

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

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

Sincerely,

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

KBF/ab
Attachments

cc: Ken Saunders, Citrus County
Robert Butera, P.E., FDEP Tampa

Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

CERTIFIED MAIL
RETURN RECEIPT

SEP 1 8 1997

Ms. Susan J. Metcalfe
Director, Div. of Solid Waste Management
Citrus County Solid Waste Management
Post Office Box 340
LeCanto, FL 34461-0340

Re: Emergency Detonation or Thermal Treatment of Certain Hazardous Waste, 62-730.320 FAC (enclosed)

Dear Ms. Metcalfe:

The purpose of this letter is to encourage active coordination between the Solid Waste Operation at landfills (where treatment of the referenced materials occur), and the persons (Fire Department, Bomb Squad, etc.) responsible for the safe detonation of explosives and this Department.

It has been brought to my attention by Waste Management staff that the referenced treatment may be occurring at some solid waste landfills permitted by this Department. The Department is concerned that the referenced treatment may be occurring at locations in the landfill which may be in close proximity to methane gases escaping from passive vents and/or flares at actively vented landfills. Two recent explosions occurring at leachate sumps at solid waste landfills resulted in injury to personnel. These explosions occurred at pump stations where leachate was being removed from the sumps and the methane gases contained within the pump station were exposed to an ignition source. In addition the Department is concerned with landfill fires, possible damage to HDPE liners utilized in closures and depressions in intermediate cover exposing waste.

The Department requests that the responsible solid waste operation submit (within 90 days of receipt of this letter) a scale site plan of the facility identifying the specific location where the referenced treatment will occur. You are requested to include sites where detonations occur on properties adjacent to solid waste landfills. If no detonations occur at your facility please respond accordingly. The site plan should include the locations of flares, passive vents, leachate sumps, all occupied buildings on site, and their respective distances from the location of these detonations.

SEP 1 8 1997

Ms. Susan J. Metcalfe
Citrus County Solid Waste Management

The Department's Solid Waste and Hazardous Waste Sections will review these submittals and respond to the Solid Waste Permittee as to the approved locations for that particular facility. The Solid Waste Section should be contacted for authorization for all further modifications to the gas vent, building, and sump relocations.

In accordance with 62-730.320(1) "Certain hazardous wastes, due to their origin, age, and storage conditions have become a hazard to their surroundings. Because of the flammable, shock sensitive and explosive nature of the wastes, there is an immediate danger and imminent hazard to persons and property in the surrounding area. Therefore an authorization is granted for the emergency detonation or treatment of reactive hazardous wastes, as defined in FAC Chapter 62-730." The Department requests that all authorizations be requested in accordance with 62-730.320(1)(a) which states "The person having custody of the waste contacts the Department and obtains oral or written permission prior to the detonation or treatment."

The authorized person for detonating the waste such as the Fire Department, Bomb Squad, etc. should coordinate with the solid waste operation to assure all further detonations will occur at the Department approved locations. The Department requests your cooperation on this matter and thanks you in advance for protecting the environment and providing a safe area within the landfill. If you have any questions concerning this letter you may contact Bob Butera in the Solid Waste Section at 813-744-6100, Ext. 451 or William Crawford in the Hazardous Waste Section at 813-744-6100, Ext. 372.

Sincerely,

Richard D. Garrity, Ph.D.
Director of District Management
Southwest District

Attachment

cc: Robert Butera, P.E., FDEP
William Crawford, FDEP
Kim Ford, P.E., FDEP
Danielle Nichols, FDEP
Allison Amram, P.G., FDEP
Randy Messer, Code Enforcement, Citrus County

take action within the 20 day period shall constitute final agency action to not release the information and the requestor may seek judicial review provided below.

(7) The requestor or the party asserting the claim of trade secret or confidential records may file an action in circuit court pursuant to Section 119.11, F.S.

Specific Authority: 403.704, 403.722, F.S.
Law Implemented: 403.704, 403.722, F.S.
History: New 7-9-82; Formerly 17-30.31; Amended 9-23-87, 6-28-88, Formerly 17-30.310, Amended 10-7-93, Formerly 17-730.310.

62-730.320 Emergency Detonation or Thermal Treatment of Certain Hazardous Waste

(1) Certain hazardous wastes, due to their origin, age, and storage conditions have become a hazard to their surroundings. Because of the flammable, shock sensitive and explosive nature of the wastes, there is an immediate danger and imminent hazard to persons and property in the surrounding area. Therefore, an authorization is granted for the emergency detonation or treatment of reactive hazardous wastes, as defined in F.A.C. Chapter 62-730, provided:

(a) The person having custody of the waste contacts the Department and obtains oral or written permission prior to detonation or treatment. If the permission is oral it must be followed within five days by a written order. Written orders shall be accompanied by the publication of public notice.

(b) The waste is highly reactive, shock sensitive, or explosive and can only be safely disposed of through its prompt detonation or treatment.

(c) The type and amount of waste to be detonated is specified to the Department. Only those wastes specified may be disposed of under this permit.

(d) The detonation or treatment is conducted or supervised by local law enforcement officials, bomb squads, or other officials or agencies experienced in the handling and disposal of explosives.

(e) The time and place of the detonation or treatment is specified in the notice to the Department.

(f) The procedures for the detonation or treatment is specified in the notice to the Department.

(g) Permission granted under this rule shall not exceed 90 days.

(h) Permission granted under this rule shall include all applicable requirements of Chapter 62-730 to the extent possible and not inconsistent with the emergency situation.

(2) This authority shall be subject to the following specific conditions:

62-730.310(6)(cont'd.) - 62-730.320(2)

(a) All other local, state, and federal approvals and licenses required for the activities allowed in this authorization shall be obtained.

(b) Visible residual materials shall be recovered from the site and properly disposed of in accordance with Department rules.

(c) Adequate fire protection to assure confinement and control of any fire resulting from the operation shall be provided.

(d) The local Department representative or their designee shall be notified and may be present to observe the treatment or detonation.

(e) Prior to treatment or detonation, the site shall be secured and no site access allowed except by authorized personnel. The area around the site shall be visually inspected to assure that no unauthorized personnel are present. The securing and inspection of the site shall be made to at least the following distances:

POUNDS OF WASTE EXPLOSIVE	MINIMUM DISTANCE
0 to 100	204 meters (670 feet)
101 to 1,000	380 meters (1250 feet)
1,001 to 10,000	530 meters (1730 feet)
10,001 to 30,000	690 meters (2260 feet)

(f) Thermal treatment or detonation shall be conducted only at the times and place specified in the permittee's notice to the Department.

(g) The Department may require, as a condition of its approval, that soil sampling be conducted before and after the detonation or treatment.

(h) Within 30 days of the emergency detonation or thermal treatment, the authorized person shall submit to the Department a complete written summary of the detonation or treatment which shall include actual procedures used, disposition of any residues from the process, and other pertinent information.

Specific Authority: 403.704, 403.721, F.S.
Law Implemented: 403.061, 403.704, 403.721, 403.726, F.S.
History: New 9-30-85; Formerly 17-30.32, 17-30.320, Formerly 17-730.320, Amended 1-5-95.

62-730.330 Research Development and Demonstration Permits.

(1) The Department may issue a research, development, and demonstration permit for any hazardous waste treatment facility which proposes to utilize an innovative and experimental hazardous waste treatment technology or process for which permit standards for such experimental activity

FDEP	3804 Coconut Palm Drive, Tampa, FL 33619-8318

FAX

Date: JUNE 1, 1998

Number of pages including cover sheet: 1

To:

SUSAN METCALFE

Phone:

Fax phone: 352 - 527 - 1204

CC:

From:

JOHN MORRIS

Phone: (813) 744-6100 X 336

Fax phone: (813) 744-6125

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

YOU JUST NEVER KNOW WHEN PEOPLE ARE GOING TO RE-APPEAR FROM YOUR PAST! IT SEEMS LIKE OLD SRI DAYS, I'VE RUN ACROSS BOB WESTLY AND JOHN MILLER RECENTLY, AND NOW YOU. I HOPE THINGS ARE GOING WELL FOR YOU. I AM SUBSTITUTING FOR ALLISON WHILE SHE IS ON MATERNITY LEAVE, THAT'S WHY I GOT YOUR FAX MESSAGE. THE REQUESTED NUMBERS FOLLOW FOR CITRUS CENTRAL LF:

WELL NO.	GMS SITE ID NO.
MW 7	4009 A 17663
MW 8R	4009 A 17664
MW 9	4009 A 17665

TAKE CARE,

John

Transmit Confirmation Report

No.	:	008
Receiver	:	813525271204
Transmitter	:	WASTE MGT TAMPA SWDIST
Date	:	Jun 01 98 17:17
Time	:	00'37
Mode	:	Norm
Pages	:	01
Result	:	OK

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

3600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
Suite 205
352-527-5447 Phone
352-527-5459 Fax
- Permits & Compliance Sec.
Suite 204
352-527-5448 Phone
352-527-5519 Fax
- Project Management Sec.
Suite 241
352-527-5449 Phone
352-527-5482 Fax
- Survey Section
Suite 241
352-527-5446 Phone
352-527-5482 Fax

1300 S. LECANTO HIGHWAY
LECANTO, FLORIDA 34461

MAINTENANCE OPERATIONS:
- Facilities Maint. Section
PO Box 143
Lecanto, FL 34460
352-527-0333 Phone
352-527-0654 Fax
- Fleet Management Section
PO Box 215
Lecanto, FL 34460
352-746-6888 Phone
352-746-5011 Fax

AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

ROAD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1300 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

MESSAGE

TO: Allison Amram - Department of Environmental Protection
(Fax 813/744-6084)

FROM: Susan J. Metcalfe, Director
Citrus County, Division of
Solid Waste Management
Fax #352/527-1204 - Phone 352/746-5000

Re: Groundwater Monitoring

OF PAGES 1 including cover

DATE OF TRANSMITTAL: 5/29/98

Message:

We would like to receive the well identification no.s for monitoring wells 7, 8-R and 9 for the Citrus County Central Landfill, if you have them yet.

If you should have any questions, please let me know.

Thank you.

/cjw

Ford.Fax. Word Doc

Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

April 23, 1998

Ms. Susan Metcalfe, P.G.
Citrus County
Solid Waste Management
P. O. Box 340
Lecanto, FL 34460-0340

Re: Aquatic Weed Handling
Permit #SO09-274381, Citrus County

Dear Ms. Metcalfe:

The Department has no objection to an experiment of storage and use of the aquatic weeds as described in your April 16, 1998 letter. If odors occur, they shall be controlled by temporarily covering the storage pile with soil, discontinuing the experiment and disposing of the material in the Class I disposal unit. The Department requests an assessment report be provided at the conclusion of the experiment.

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

Sincerely,

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

KBF/ab

cc: Robert Butera, P.E., FDEP Tampa

Bob

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
SOUTHWEST DISTRICT

CONVERSATION RECORD

Date 4/22/98 Subject AQUATIC WEEDS

Time 11:05 Permit No.

County CITRUS

M SUSAN METCALFE Telephone No.

Representing CITRUS

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

Other Individuals Involved in Conversation/Meeting

Summary of Conversation/Meeting

SUE SAID AQUATIC WEEDS WILL BE PLACE EAST OF OLD RIVER ROCK, ABOUT 300' EAST OF RECYCLE ALLEY. IT WILL BE BEHIND THE ROCK PILE OUT OF VIEW TO THE EAST.

SUE SAID (ALSO IN LETTER) IF ODORS THEY WILL COVER WITH DIRT OR DISCONTINUE AND DISPOSE OF MATERIAL.

(continue on another sheet, if necessary)

Signature

Title

PA-01
1/96
pap

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

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

April 16, 1998

RECEIVED
APR 20 1998
Department of Environmental Protection
BY SOUTHWEST DISTRICT

3600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
  Suite 205
  352-527-5447 Phone
  352-527-5459 Fax
- Permits & Compliance Sec.
  Suite 204
  352-527-5448 Phone
  352-527-5319 Fax
- Project Management Sec.
  Suite 241
  352-527-5449 Phone
  352-527-5482 Fax
- Survey Section
  Suite 241
  352-527-5446 Phone
  352-527-5482 Fax

1300 S. LECANTO HIGHWAY
LECANTO, FLORIDA 34461

MAINTENANCE OPERATIONS:
- Facilities Maint. Section
  PO Box 143
  Lecanto, FL 34460
  352-527-0333 Phone
  352-527-0654 Fax
- Fleet Management Section
  PO Box 215
  Lecanto, FL 34460
  352-746-6888 Phone
  352-746-5011 Fax

AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

ROAD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

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

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

Dear Mr. Ford:

Citrus County would like experiment with handling aquatic weeds in a manner similar to that used for yard trash for approximately six months. Depending on the outcome of this experiment, we may wish to continue, modify the procedures or terminate the experiment.

The Citrus County Aquatic Services Division, either through County staff and equipment or with contracted services, maintains navigation trails on the lakes, interconnecting channels and river in eastern Citrus County. All work is done to maintain access to these Class 3 waters of the state. One method is mechanical harvesting of weeds which block access from the shore to open water. Aquatic Services is proposing to deliver the harvested weeds to the landfill property for us to complete treatment and hopefully reuse.

The rule appears to be silent on the classification of aquatic vegetation. Therefore, we are proposing to accept it as yard trash rather than solid waste. In the past we had accepted small amounts of aquatic weeds and used it either alone or in combination with mulch to establish vegetation on slopes with intermediate cover. As fresh material, it was somewhat difficult to handle, however, it did help hold moisture until vegetation was established.

The material is very wet when received; although free liquid has drained, the moisture content of the plants may represent up to 80-90% of the weight of the material. Because of the moisture, it is very difficult to handle, heavy and slippery. The harvesting process may include some eels, fish or other aquatic animals in very small amounts, which may contribute an odor. For these reasons, we do not feel that it should be mixed with the regular yard waste during the

storage period, which currently is three to six months. In addition, if wet, it would interfere with the operation of the tub grinder used to process yard waste. Reports from Aquatics Services staff indicate that after standing for several months, the material tends to naturally decay and is then quite easy to spread, turn and break up. We may then be able to avoid the cost of running the material in the tub grinder.

We propose to accept this material, store it separately but nearby to the yard waste and attempt to mix it after a few months with yard waste mulch. Initially we would propose to use the resulting material onsite to assist in establishing vegetation on slopes with intermediate cover. If successful, we might offer the mix free to the public. If odor becomes a problem during storage, three possible solutions would be to move the storage area farther away from the public access area, to use minor amounts of dirt cover on the storage pile or to discontinue the experiment and dispose of the material as solid waste.

I believe that this activity could be accommodated within the current permit conditions for the landfill. Please let me know if you concur. If you have any questions, please give me a call.

Yours truly,

Susan J. Metcalfe

Susan J. Metcalfe, P.G.
Director

CC: Ken Saunders, Director, Public Works Department
Tom Dick, Director, Aquatic Services Division
Bob Butera, FDEP, Tampa

Bob RB

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
SOUTHWEST DISTRICT

CONVERSATION RECORD

Date 4/15/98 Subject CITRUS LANDFILL

Time 9:25 Permit No.

County CITRUS

M SUSIE METCALFE Telephone No.

Representing CITRUS County

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

Other Individuals Involved in Conversation/Meeting

Summary of Conversation/Meeting

DISCUSSED AQUATIC WEED CONTROL
WANTS TO BRING HARVESTED VEGETATION TO
LANDFILL. SUE WANTS TO STOCKPILE
AND USE AS SOURCE OF TOPSOIL. MIX LATER
ASKED FOR A PROPOSAL
TO EXPLAIN HOW IT WOULD BE PROCESSED ETC

SUE ASKED IF OK TO EXPAND SLAB BEHIND
HAZW SHED TO STORE EMPTY, NEW, UNUSED
DRUMS, I GAVE OK

(continue on another sheet, if necessary)

Signature

Title

PA-01
1/96
pap

Citrus SO permit
F. 6

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
SOUTHWEST DISTRICT

CONVERSATION RECORD

Date 3/23/98 Subject Leachate

Time 10:10 Permit No.

County Citrus

M. Susie Metcalfe Telephone No.

Representing Citrus Co.

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

Other Individuals Involved in Conversation/Meeting

Summary of Conversation/Meeting

1,4 - dioxane in leachate detected July '97 ~ 300 ug/l

- Not on Appendix I list

- Resample in Jan '98 showed <100 ug/l
Lab says they can't get below 100 ug/l as MDL -- even though the guidance conc. for gw is 5 ug/l. Can they quit analyzing for 1,4-dioxane?

Yes, if it showed up <100 ug/l & that is as low as the lab can detect it.

(continue on another sheet, if necessary)

Signature AAmram

Title PG I

PA-01
1/96
pap

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

3600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
  Suite 205
  352-527-5447 Phone
  352-527-5459 Fax
- Permits & Compliance Sec.
  Suite 204
  352-527-5448 Phone
  352-527-5319 Fax
- Project Management Sec.
  Suite 241
  352-527-5449 Phone
  352-527-5482 Fax
- Survey Section
  Suite 241
  352-527-5446 Phone
  352-527-5482 Fax

1300 S. LECANTO HIGHWAY
LECANTO, FLORIDA 34461

MAINTENANCE OPERATIONS:
- Facilities Maint. Section
  PO Box 143
  Lecanto, FL 34460
  352-527-0333 Phone
  352-527-0654 Fax
- Fleet Management Section
  PO Box 215
  Lecanto, FL 34460
  352-746-6888 Phone
  352-746-5011 Fax

AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

ROAD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

RECEIVED
MAR 09 1998
DEP

March 5, 1998

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

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

Re: Citrus County Central Landfill
Permit No. SO09-274381
Leachate Flow Meter Indicators, Fence repairs

Dear Mr. Ford:

My letter of February 18 indicated that we had a malfunction in the leachate flow meters. The electrical wiring has been replaced, however we have observed a continuing problem with false readings (the meters show flow, even when the pumps are off). The problem is particularly aggravating with the secondary (leachate detection) pumps where the errors are large in comparison to total flow. We are investigating methods to correct this situation. We are also tracking flow using hour meters .The monthly leachate reports will be footnoted to indicate this situation until it is corrected.

The fence on the east side of the landfill has blown down several times in the past month due to high winds. We propose to remove the privacy slats from the section of fence on the south half of the east side of the site in order to reduce wind resistance. This section is adjacent to Forest Trail 15, which is closed to traffic. With no human access on that section, we feel that keeping the integrity of the fence is more important than visual barriers. Please contact me if you have additional questions.

Yours truly,

Susan J. Metcalfe

Susan J. Metcalfe, P.G.
Director

CC: Ken Saunders, Director, Public Works Department
Bob Butera, FDEP, Tampa
Allison Amram, FDEP, Tampa

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

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

3600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
  Suite 205
  352-527-5447 Phone
  352-527-5459 Fax
- Permits & Compliance Sec.
  Suite 204
  352-527-5448 Phone
  352-527-5319 Fax
- Project Management Sec.
  Suite 241
  352-527-5449 Phone
  352-527-5482 Fax
- Survey Section
  Suite 241
  352-527-5446 Phone
  352-527-5482 Fax

1300 S. LECANTO HIGHWAY
LECANTO, FLORIDA 34461

MAINTENANCE OPERATIONS:
- Facilities Maint. Section
  PO Box 143
  Lecanto, FL 34460
  352-527-0333 Phone
  352-527-0654 Fax
- Fleet Management Section
  PO Box 215
  Lecanto, FL 34460
  352-746-6888 Phone
  352-746-5011 Fax

AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

ROAD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

February 18, 1998

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

D.E.P.
FEB 23 1998
SOUTHWEST DISTRICT
TAMPA

Re: Citrus County Central Landfill
Permit No. SO09-274381
Leachate Flow Meter Indicators

Dear Mr. Ford:

During your site visit on February 11, we discussed damage to leachate flow meters in the Phase 1A meter vault. Beginning on February 9th, a probable malfunction of secondary system flow meters was discovered. The damage was caused when an employee was working in the meter vault, slipped and damaged wiring for all 5 flow meters (Phase 1A primary #1 and #2 pumps, Secondary #1 and #2 pumps and 7-acre leachate). The damage was repaired by February 13. Leachate flows were estimated for that time period by using hour meters for each pump, manually alternating pumping systems and verifying flow into the lift station with additional checks of holding tank levels. The monthly leachate report for February will include notations of the alternate methods for flow calculation.

Please contact me if you have additional questions.

Yours truly,

Susan J. Metcalfe, P.G.
Director

CC: Ken Saunders, Director, Public Works Department
Bob Butera, FDEP, Tampa
Allison Amram, FDEP, Tampa

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
SOUTHWEST DISTRICT

CONVERSATION RECORD

Date 2/25/98 Subject well construction

Time 2 Permit No.

County Citrus

M Susie Metcalfe Telephone No. 352/746-5000

Representing Citrus

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

Other Individuals Involved in Conversation/Meeting

Summary of Conversation/Meeting Left message for her to call me

There was some confusion of well seal + filter pack thickness -- need vertical th, not horizontal for wells 7, 8R + 9

Can show on diagrams previously submitted

2/26 She will submit the info.
1110

(continue on another sheet, if necessary)

Signature

Title PG I

PA-01
1/96
pap

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

3600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
  Suite 205
  352-527-5447 Phone
  352-527-5459 Fax
- Permits & Compliance Sec.
  Suite 204
  352-527-5448 Phone
  352-527-5319 Fax
- Project Management Sec.
  Suite 241
  352-527-5449 Phone
  352-527-5482 Fax
- Survey Section
  Suite 241
  352-527-5446 Phone
  352-527-5482 Fax

1300 S. LECANTO HIGHWAY
LECANTO, FLORIDA 34461

MAINTENANCE OPERATIONS:
- Facilities Maint. Section
  PO Box 143
  Lecanto, FL 34460
  352-527-0333 Phone
  352-527-0654 Fax
- Fleet Management Section
  PO Box 215
  Lecanto, FL 34460
  352-746-6888 Phone
  352-746-5011 Fax

AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

ROAD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

FEB 11 1998
SOUTHWEST DISTRICT
TAMPA

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

February 11, 1998

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

Re: Citrus County Central Landfill,
Permit No: SO09-274381
SC 36 Groundwater Monitoring Well Construction

Dear Ms. Amram:

This is in response to your letter of February 6 related to new groundwater monitoring well construction.

SC 36a - All new monitoring wells were placed in 6-inch diameter holes, therefore the annular space for filter pack and well seal between the open hole and the 2-inch casing is nominally 4 inches.

Copies of the SWFWMD permits for construction and completion reports for MW-7, MW-8R and MW-9 and for abandonment of MW-8 are attached and indicate the permit numbers.

All wells monitor the unconfined Floridan aquifer, the first aquifer beneath the site.

The labels on the well completion log are, in fact, as you interpreted.

The groundwater monitoring plan proposal prepared in September 1995, did include 10-slot screen and 20/30 sand pack. The change to 6-slot screen and 60/45 sand pack was made when the silty nature of the sediments in the saturated zone was discovered. There was discussion with the driller and a decision by County staff to use the smaller screen size and finer filter medium. The primary advantage is that fine-grained sediment from the aquifer would be less likely to be brought into the well. This would result in less turbid groundwater samples. We are, after all, trying to sample the water, not the sediment.

High turbidity has been a problem with many of the other wells on the site; field filtration of groundwater samples for metals and radionuclides is allowed at this site because of the high turbidity levels. For analysis of other parameters, for which filtration is not allowed, the samples are still turbid. This causes problems for the laboratory when a "dirty" liquid sample is introduced into their analytical instruments.

SC36c - One full size and two reduced size copies of the groundwater monitoning well survey sheet are attached . The only change was to switch the latitude and longitude labels on the table of locations.

Please contact me if you have any questions.

Yours truly,

Susan J. Metcalfe

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

CC: Ken Saunders, Director, Public Works Department
Bob Butera, FDEP, Tampa
Kim Ford, FDEP, Tampa

STATE OF FLORIDA PERMIT APPLICATION TO CONSTRUCT, REPAIR, MODIFY, OR ABANDON A WELL

Permit No. 5HY701.03

Florida Unique I.D.

Permit Stipulations Required (See attached) No

62-524 well ☐

CUP/WUP Application No.

ABOVE THIS LINE FOR OFFICIAL USE ONLY

☒ Southwest
☐ Northwest
☐ St. Johns River
☐ South Florida
☐ Suwannee River

CHECK BOX FOR APPROPRIATE DISTRICT. ADDRESS ON BACK OF PERMIT FORM. WP#3310

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.

1. Citrus County 107 Dr. Martin Luther King Jr. Ave Inverness Florida 34450
Owner, Legal Name of Entity if Corporation — Address — City — Zip — Telephone Number

2. 3 miles East of Lecanto on SR44 Central Landfill
Well Location — Address, Road Name or Number, City

3. Douglas A. Leonhardt — 2406 — 407 245-3532
Well Drilling Contractor — License No. — Telephone No.

4712 Old Winter Garden rd.
Address

4. NW (smallest) 1/4 of SE (biggest) 1/4 of Section 01
(Indicate Well on Chart)

Orlando FL 32811
City — State — Zip

5. Township 19S Range 18E.

NW NE SW SE

6. Citrus
County — Subdivision Name — Lot — Block — Unit

Fold at this line in order that address is visible through envelope window

7. Number of proposed wells 3 Check the use of well: (See back of permit for additional choices) ____ Domestic Monitor (type) Landfill

____ Irrigation (type) (See Back) Public Water Supply (type) ____ (See Back) List Other ____

Distance from septic system NA ft. Description of facility Landfill Estimated start of construction date 3/24/97

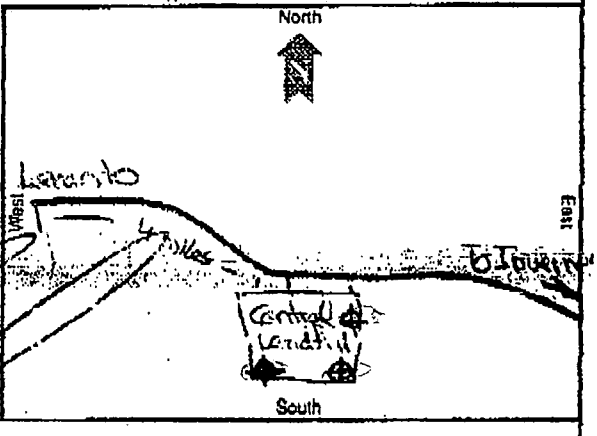
8. Application for: X New Construction ____ Repair/Modify ____ Abandonment ____
(Reason for Abandonment)

Southwest Florida Water Management District
MAR 20 1997
BROOKSVILLE PERMITTING

9. Estimated: Well Depth 130' Casing Depth 110' Screen Interval from 110 to 130'
Casing Material: Blk-Steel / Gal / PVC Casing Diameter 2" Seal Material Neat Cement

10. If applicable: Proposed Grouting Interval From 0' to 108' Seal Material Neat Cement
From ____ to ____ Seal Material ____
From ____ to ____ Seal Material ____

Draw a map of well location and indicate well site with an "X". Identify known roads and landmarks; provide distances between well and landmarks.



11. Telescope Casing NA or Liner ____ (check one) Diameter ____
Blk-Steel / Galvanized / PVC Other (specify): ____

12. Method of Construction: ____ Rotary ____ Cable Tool ____ Combination
X Auger ____ Other (specify:) ____

13. Indicate total No. of wells on site 8 List number of unused wells on site NA

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
(If yes, complete the following) CUP/WUP No. ____
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 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 for 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 — License No. 2406 — Owner's or Agent's Signature — Date 3/17/97

DO NOT WRITE BELOW THIS LINE — FOR OFFICIAL USE ONLY

Approval Granted By: ____ Issue Date: 3/20/97 Hydrological Approval ____ Initials

Owner Number: 106667 Fee Received: $ 0 Receipt No. 97-028570 Check No. 1855

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.***

FORM 41.10 – 410 (1) REV. 4/95

WHITE: ORIGINAL FILE
YELLOW: DRILLING CONTRACTOR
PINK: OWNER

WELL COMPLETION REPORT (Please complete in black ink or type.) Form 25-18 Rev. 4/94

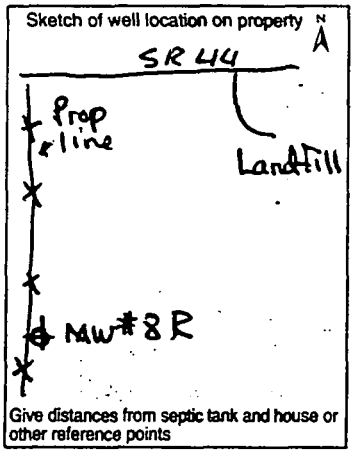
PERMIT NUMBER 598541-C
WATER WELL CONTRACTOR'S SIGNATURE
COMPLETION DATE 10/22/97
WELL USE: Public ____ Irrigation ____ 17-524 ____ Domestic ____ Monitor X Other ____

OWNER'S NAME Citrus County
LICENSE # 2406
DRILL METHOD [X] Rotary [ ] Cable Tool [ ] Combination [ ] Jet [ ] Auger Other ____

Neat Cement: No. of Bags		From (Ft.)	To (Ft.)
20	20	0'	105'
Bentonite: No. of Bags	1		

WELL LOCATION: County Citrus
Qtr: NW Qtr: SE Sec: 01 Twp: 19S Rge: 18E

DATE STAMP
Official Use Only

Sketch of well location on property


Give distances from septic tank and house or other reference points

CHEMICAL ANALYSIS
Iron: ____ ppm Sulfate: ____ ppm
Chlorides: ____ ppm
[ ] Lab Test [ ] Field Test Kit

Pump Type
[ ] Centrifugal [ ] Jet [ ] Submersible [ ] Turbine
Horsepower ____ Capacity ____ G.P.M. ____
Intake/Injection Depth ____ Ft.

Measured Static Water Level 111
Measured Pumping Water Level NA
After ____ Hours at ____ G.P.M.
Measuring Pt. (Describe): Ground Surface
Which is / Ft. [ ] Above [ ] Below Land Surface
Casing: [ ] Black Steel [ ] Galv. [X] PVC Other ____

[ ] Casing [X] Screen Diameter & Depth (Ft.)	Depth (Ft.) From	To	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.
Diameter 2"	0'	20'	Brn. Sand
From 0	20'	40'	Lt. Tan Sand
To 108	40'	60'	" "
	60'	80'	" "
Diameter 2"	80'	100'	Brn. Clayey Sand
From 108'	100	128	Brn Sand w/ limestone Frags
To 128'			
Diameter ____			
From ____			
To ____			

I certify that the information provided in this report is accurate and true.
Driller's Name: (print or type) Douglas W. Heath

WELL COMPLETION REPORT (Please complete in black ink or type.) Form 25-18 Rev. 4/94

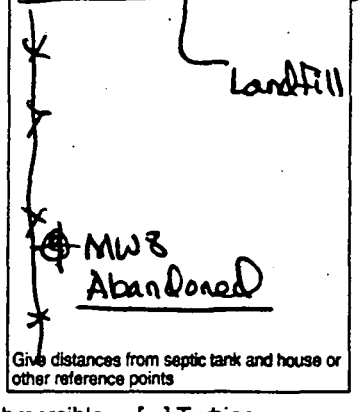
PERMIT NUMBER 598540-01
WATER WELL CONTRACTOR'S SIGNATURE
COMPLETION DATE 10/22/97
WELL USE: Public ____ Irrigation ____ 17-524 ____ Domestic ____ Monitor ____ Other ____

OWNER'S NAME Citrus County
LICENSE # 2406
DRILL METHOD [ ] Rotary [ ] Cable Tool [ ] Combination [ ] Jet [ ] Auger Other ____

Neat Cement: No. of Bags		From (Ft.)	To (Ft.)
	2	0	115'
Bentonite: No. of Bags	1/2		

WELL LOCATION: County Citrus
Qtr: NW Qtr: SE Sec: 01 Twp: 19S Rge: 18E

DATE STAMP
Official Use Only

Sketch of well location on property


Give distances from septic tank and house or other reference points

CHEMICAL ANALYSIS
Iron: ____ ppm Sulfate: ____ ppm
Chlorides: ____ ppm
[ ] Lab Test [ ] Field Test Kit

Pump Type
[ ] Centrifugal [ ] Jet [ ] Submersible [ ] Turbine
Horsepower ____ Capacity ____ G.P.M. ____
Intake/Injection Depth ____ Ft.

Measured Static Water Level NA
Measured Pumping Water Level ____
After ____ Hours at ____ G.P.M.
Measuring Pt. (Describe): NA
Which is ____ Ft. [ ] Above [ ] Below Land Surface
Casing: [ ] Black Steel [ ] Galv. [ ] PVC Other ____

[ ] Casing [ ] Screen Diameter & Depth (Ft.)	Depth (Ft.) From	To	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.
Diameter ____			
From ____			
To ____			NA.
Diameter ____			
From ____			
To ____			
Diameter ____			
From ____			
To ____			

I certify that the information provided in this report is accurate and true.
Driller's Name: (print or type) Douglas W. Heath

WELL COMPLETION REPORT (Please complete in black ink or type.)

PERMIT NUMBER 589701.03
WATER WELL CONTRACTOR'S SIGNATURE
COMPLETION DATE 4/1/97
WELL USE: Public ____ Irrigation ____ 17-524 ____ Domestic ____ Monitor X Other ____

OWNER'S NAME Citrus County
LICENSE # 2406
DRILL METHOD [ ] Rotary [ ] Cable Tool [ ] Combination [ ] Jet [X] Auger Other ____

Neat Cement: No. of Bags		From (Ft.)	To (Ft.)
	23	0	100
Bentonite: No. of Bags	1	100	101

WELL LOCATION: County Citrus
Qtr: NW Qtr: SE Sec: 01 Twp: 19S Rge: 18E

DATE STAMP
Official Use Only

Sketch of well location on property
SR 44
Central MW9
Landfill
Give distances from septic tank and house or other reference points

CHEMICAL ANALYSIS
Iron: ____ ppm Sulfate: ____ ppm
Chlorides: ____ ppm
[ ] Lab Test [ ] Field Test Kit

Pump Type
[ ] Centrifugal [ ] Jet [ ] Submersible [ ] Turbine
Horsepower ____ Capacity ____ G.P.M. ____
Intake/Injection Depth ____ Ft.

Measured Static Water Level 104.5'
Measured Pumping Water Level ____
After ____ Hours at ____ G.P.M.
Measuring Pt. (Describe): ____
Which is ____ Ft. [ ] Above [ ] Below Land Surface
Casing: [ ] Black Steel [ ] Galv. [X] PVC Other ____

[X] Casing [ ] Screen Diameter & Depth (Ft.)	Depth (Ft.) From	To	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.)
Diameter 2" From 0 To 101'	0	20'	Orange Sand
	20'	40'	Brown Clayey Sand
	40'	60'	Lt Brown Sand
Screen	60'	80'	Limestone
Diameter 2" From 101' To 121'	80'	100'	Same
	100'	120'	Lt Brown Sand
Diameter ____ From ____ To ____			

I certify that the information provided in this report is accurate and true.
Driller's Name: (print or type) Doug Heath

WELL COMPLETION REPORT (Please complete in black ink or type.)

Form 25-18 Rev. 4/94

PERMIT NUMBER 589701.03
WATER WELL CONTRACTOR'S SIGNATURE
COMPLETION DATE 3/30/97
WELL USE: Public ____ Irrigation ____ 17-524 ____ Domestic ____ Monitor X Other ____

OWNER'S NAME Citrus County
LICENSE # 2406
DRILL METHOD [ ] Rotary [ ] Cable Tool [ ] Combination [ ] Jet [X] Auger Other ____

Neat Cement: No. of Bags		From (Ft.)	To (Ft.)
24		0	100
Bentonite: No. of Bags	1	100	101

WELL LOCATION: County Citrus
Qtr: NW Qtr: SE Sec: 01 Twp: 19S Rge: 18E

DATE STAMP
Official Use Only

Sketch of well location on property
SR 44
Central
Landfill
MW8
Give distances from septic tank and house or other reference points

CHEMICAL ANALYSIS
Iron: ____ ppm Sulfate: ____ ppm
Chlorides: ____ ppm
[ ] Lab Test [ ] Field Test Kit

Pump Type
[ ] Centrifugal [ ] Jet [ ] Submersible [ ] Turbine
Horsepower ____ Capacity ____ G.P.M. ____
Intake/Injection Depth ____ Ft.

Measured Static Water Level 100'
Measured Pumping Water Level ____
After ____ Hours at ____ G.P.M.
Measuring Pt. (Describe): ____
Which is ____ Ft. [ ] Above [ ] Below Land Surface
Casing: [ ] Black Steel [ ] Galv. [X] PVC Other ____

[X] Casing [ ] Screen Diameter & Depth (Ft.)	Depth (Ft.) From	To	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.)
Diameter 2" From 0 To 101'	0	20'	Orange Sand
	20'	40'	Same
	40'	60'	Same
Screen	60'	80'	Same
Diameter 2" From 101' To 121'	80'	100'	Lt Brown Sand
	100'	120'	Soft Limerock
Diameter ____ From ____ To ____			

I certify that the information provided in this report is accurate and true.
Driller's Name: (print or type) Doug Heath

WELL COMPLETION REPORT (Please plete in black ink or type.)

PERMIT NUMBER 589701.03

WATER WELL CONTRACTOR'S SIGNATURE

COMPLETION DATE 3/25/97

WELL USE: Public ___ Irrigation ___ 17-524 ___ Domestic ___ Monitor X Other ___

OWNER'S NAME Citrus County

LICENSE # 2406

DRILL METHOD [ ] Rotary [ ] Cable Tool [ ] Combination [ ] Jet [X] Auger Other ___

Neat Cement: No. of Bags		From (Ft.)	To (Ft.)
18		0	116
Bentonite: No. of Bags	1	116	117

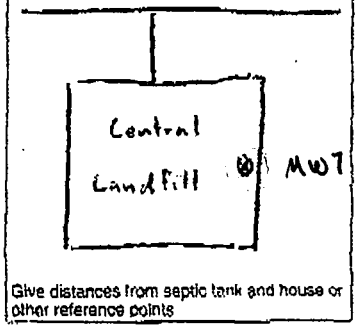
WELL LOCATION: County Citrus

Qtr: NW Qtr: SE Sec: 01 Twp: 19S Rge: 18E

DATE STAMP

Official Use Only

Sketch of well location on property



Give distances from septic tank and house or other reference points

CHEMICAL ANALYSIS

Iron: ___ ppm Sulfate: ___ ppm

Chlorides: ___ ppm

[ ] Lab Test [ ] Field Test Kit

Pump Type

[ ] Centrifugal [ ] Jet [ ] Submersible [ ] Turbine

Horsepower ___ Capacity ___ G.P.M. ___

Intake/Injection Depth ___ Ft.

Measured Static Water Level 115'

Measured Pumping Water Level ___

After ___ Hours at ___ G.P.M.

Measuring Pt. (Describe): ___

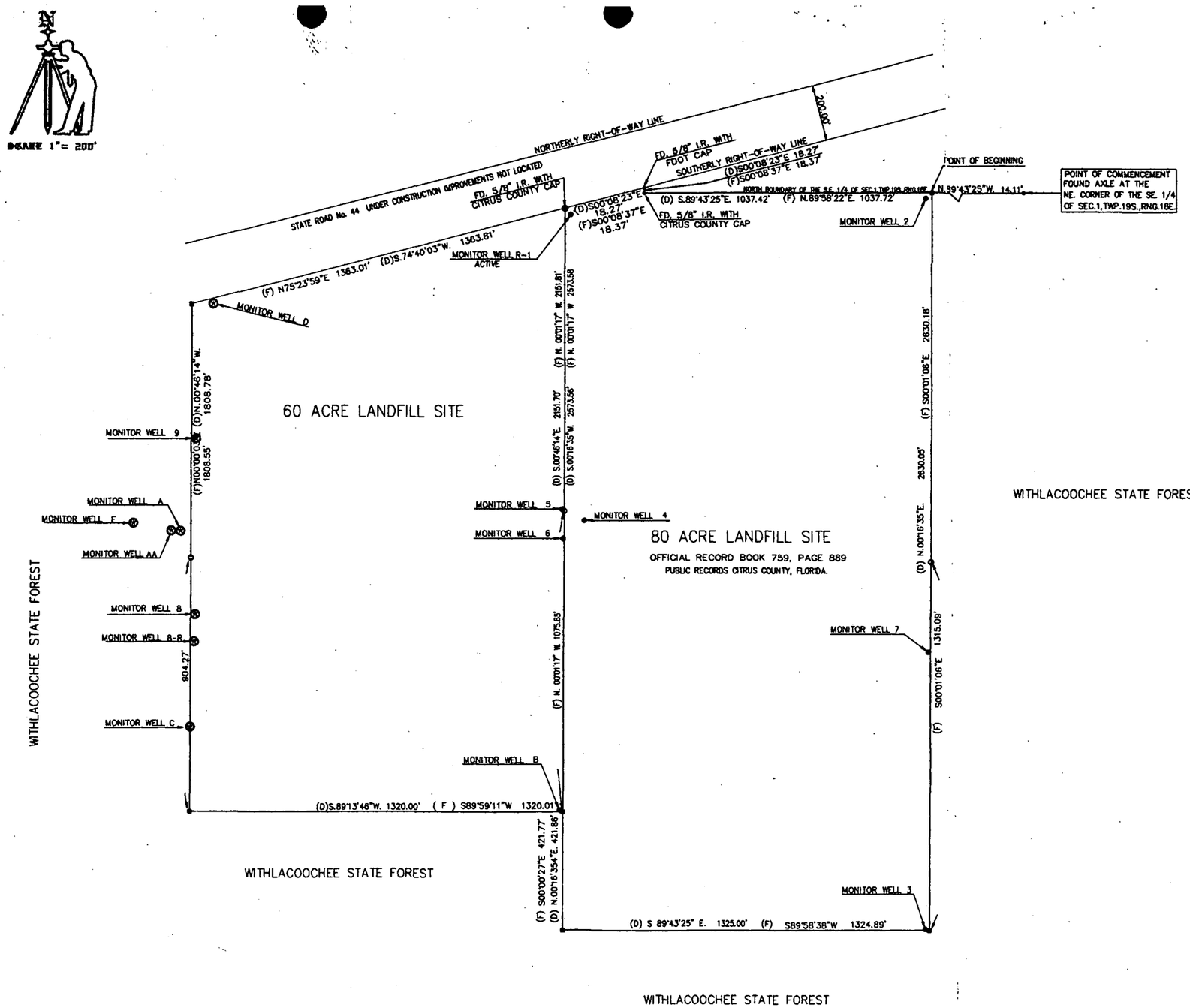
Which is ___ Ft. [ ] Above [ ] Below Land Surface

Casing: [ ] Black Steel [ ] Galv. [X] PVC Other ___

[X] Casing [ ] Screen Diameter & Depth (Ft.)	Depth (Ft.) From	To	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.
Diameter 2" From 0 To 117'	0	20'	Orange Sand
	20'	40'	Same
	40'	60'	Lt Brown Sand
Screen	60'	80'	Lt Brown Clayey Sand
Diameter 2" From 117' To 137'	80'	100'	Same
	100'	112'	Same
	112'	137'	Lt Brown Sand
Diameter ___ From ___ To ___			

I certify that the information provided in this report is accurate and true.

Driller's Name: *(print or type)* Doug Heath



1. THIS SURVEY IS OF VISIBLE SURFACE FEATURES ONLY, UNDERGROUND ENCROACHMENTS, IF ANY, WERE NOT LOCATED.
2. THIS SURVEY IS BASED ON EXISTING MONUMENTATION FOUND IN PLACE, RECORDS OF WHICH ARE MAINTAINED IN THIS OFFICE.
3. LANDS SHOWN HEREON WERE NOT ABSTRACTED FOR DEED EASEMENTS OR RIGHTS-OF-WAY OF RECORD.
4. ATTENTION IS DIRECTED TO THE FACT THAT THESE PLANS MAY HAVE BEEN REDUCED IN SIZE BY REPRODUCTION THIS MUST BE CONSIDERED WHEN OBTAINING SCALE DATA.
5. REFERENCE BENCHMARK, FLORIDA DEPARTMENT OF TRANSPORTATION BENCHMARK No. 54, ELEVATION 115.05' N.G.V.D. 1929
6. THERE ARE INTERAL IMPROVEMENTS THAT WAS NOT LOCATED BY THIS SURVEY.
7. BEARINGS AND DISTANCES SHOWN HEREON ARE MEASURED AND BASED ON THE STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 83 UNLESS OTHERWISE SHOWN, THE NORTH BOUNDARY OF THE SOUTHEAST 1/4 OF SECTION 1, TOWNSHIP 19 SOUTH, RANGE 18 EAST, BEING N. 89°58'22" E.

DESCRIPTION

A PORTION OF SECTION 1, TOWNSHIP 19 SOUTH, RANGE 18 EAST, TALLAHASSEE MERIDIAN, CITRUS COUNTY, FLORIDA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE NORTHEAST CORNER OF THE SOUTHEAST 1/4 OF SECTION 1, TOWNSHIP 19 SOUTH, RANGE 18 EAST, TALLAHASSEE MERIDIAN; THENCE N.89°43'25"W. ALONG THE NORTH BOUNDARY OF THE SOUTHEAST 1/4 OF SAID SECTION 1, A DISTANCE OF 14.11 FEET TO THE POINT OF BEGINNING SAID POINT BEING THE NORTHEAST CORNER OF THOSE LANDS DESCRIBED IN OFFICIAL RECORD BOOK 759, PAGE 889, PUBLIC RECORDS OF CITRUS COUNTY, FLORIDA; THENCE S.00°16'35"E. ALONG THE EAST BOUNDARY OF THE SOUTHEAST 1/4 OF SAID SECTION 1, A DISTANCE OF 2,630.05 FEET; THENCE N.89°43'25"W. PARALLEL WITH THE NORTH BOUNDARY OF THE SOUTHEAST 1/4 OF SAID SECTION 1, A DISTANCE OF 1,325.00 FEET; THENCE N.00°16'35"E., A DISTANCE OF 2,573.56 FEET TO A POINT ON THE SOUTH RIGHT-OF-WAY LINE OF STATE ROAD No. 44, SAID POINT BEING 150.00 FEET FROM, WHEN MEASURED AT RIGHT ANGLES TO THE CENTERLINE OF SAID STATE ROAD No. 44; THENCE N.75°41'50"E. ALONG SAID SOUTH RIGHT-OF-WAY LINE, A DISTANCE OF 297.01 FEET; THENCE DEPARTING SAID SOUTH RIGHT-OF-WAY LINE S.00°08'23"E., A DISTANCE OF 18.27 FEET TO A POINT ON THE NORTH BOUNDARY OF THE SOUTHEAST 1/4 OF SAID SECTION 1; THENCE S.89°43'25"E. ALONG THE NORTH BOUNDARY OF THE SOUTHEAST 1/4 OF SAID SECTION 1, A DISTANCE OF 1,037.42 FEET TO THE POINT OF BEGINNING. CONTAINING 79.87 ACRES MORE OR LESS.

MONITOR WELL No.	X COORDINATE	Y COORDINATE	LONGITUDE	LATITUDE	ELEVATION TOP OF WELL CASING
A ABANDONED 3-22-94	514359.520	1642944.584	82°26'34.75084" W.	28°51'09.22841" N.	105.32'
B ACTIVE	515703.188	1641952.201	82°26'19.59919" W.	28°50'59.45084" N.	111.94
C ACTIVE	514397.582	1642247.058	82°26'34.29378" W.	28°51'02.32191" N.	115.18'
D ACTIVE	514472.380	1643753.584	82°26'33.51558" W.	28°51'17.24014" N.	109.77'
R-1 ABANDONED 9-26-94	515746.387	1644088.835	82°26'19.20218" W.	28°51'20.60614" N.	118.25'
2 ACTIVE	517018.947	1644134.0121	82°26'04.91534" W.	28°51'21.09969" N.	138.29'
3 ACTIVE	517026.689	1641528.493	82°26'04.69852" W.	28°50'55.30387" N.	120.47'
AA ACTIVE	514330.1915	1642944.6946	82°26'35.08066" W.	28°51'09.22643" N.	106.11'
5 ACTIVE	515706.7199	1643027.5870	82°26'19.60416" W.	28°51'10.08772" N.	121.14'
6 ACTIVE	515710.8712	1642921.8127	82°26'19.55309" W.	28°51'09.05065" N.	118.48'
4 ACTIVE	515787.5197	1642887.2443	82°26'18.69384" W.	28°51'09.70125" N.	122.82'
R-1 ACTIVE	515734.4675	1644075.0314	82°26'19.33566" W.	28°51'20.46904" N.	118.08'
1 ABANDONED 2-09-94	515745.434	1644077.441	82°26'19.21242" W.	28°51'20.49330" N.	117.57'
E ACTIVE	514187.411	1642978.872	82°26'36.88776" W.	28°51'09.55952" N.	109.88'
7 ACTIVE	517032.495	1642518.150	82°26'04.67396" W.	28°51'05.10226" N.	128.66'
8 ABANDONED 10-22-97	514411.282	1642648.328	82°26'34.15632" W.	28°51'06.29522" N.	117.76
9 ACTIVE	514411.959	1643276.437	82°26'34.17505" W.	28°51'12.51388" N.	113.55'
8-R ACTIVE	514408.379	1642551.088	82°26'34" W.	28°51'15" N.	118.13'

D.E.P.
FEB 11 1998
SOUTHWEST DISTRICT
TAMPA

FIELD DATE: MARCH 14,1994
REVISION DATE: MARCH 22,1994
ADD MONITOR WELLS No. AA, 4, 5 & 6

FIELD DATE: JUNE 15, 1994
REVISION DATE: JUNE 16,1994
DELETE MONITOR WELL No. 1, ADD MONITOR WELL No. R-1
CHANGE MONITOR WELL No. 4 TO MONITOR WELL No. 5
CHANGE MONITOR WELL No. 5 TO MONITOR WELL No. 6
CHANGE MONITOR WELL No. 6 TO MONITOR WELL No. 4

FIELD DATE: SEPTEMBER 29,1994
REVISION DATE: SEPTEMBER 30,1994
DELETE MONITOR WELL R-1 ABANDONED, ADD MONITOR WELL R-1 ACTIVE

FIELD DATE: NOVEMBER 18,1994
REVISION DATE: NOVEMBER 21,1994
ADD MONITOR WELL No. E

FIELD DATE: JULY 27,1995
REVISION DATE: JULY 28,1995
ADD AERIAL TARGET

REVISION DATE: JULY 22,1996
REVISE BOUNDARY SURVEY TO NEW LEGAL DESCRIPTION

FIELD DATE: APRIL 16,1997
REVISION DATE: APRIL 21,1997
ADD MONITOR WELL No. 7, 8 AND 9

REVISION DATE: SEPTEMBER 9,1997
CHANGE MONITOR WELL No. 8 TO MONITOR WELL No. 9
CHANGE MONITOR WELL No. 9 TO MONITOR WELL No. 8

FIELD DATE: NOVEMBER 5,1997
REVISION DATE: NOVEMBER 7,1997
ADD MONITOR WELL No. 8-R

A BOUNDARY SURVEY FOR CITRUS COUNTY, FLORIDA
OF PROPERTY IN THE SOUTHEAST 1/4 OF SECTION 1, TOWNSHIP 19 SOUTH, RANGE 18 EAST, CITRUS COUNTY, FLORIDA.

Proj. No. 89-615
Drawn by: P.I.H.
Approved by:
Date:
Scale: 1"= 200'
Sheet No. 1 OF 1
Field Date: JUNE 18, 1992
Field Book: 8-8 8-C
Pages: 14-18 1-2
SEC. 1 TWP. 19S. RNG. 18E

Citrus County
Department of Technical Services
Division of Engineering
P.O. BOX 440 Lecanto, FL. 34461
Phone: (904)746-2694

SURVEYOR'S CERTIFICATION

I hereby certify that the herein described land survey and plat are true and correct and was prepared under my direction and supervision and conforms to the minimum technical standards set forth by the Florida Board of Professional Land Surveyors in Chapter 61G17-6, Florida Administrative Code, pursuant to Section 472.027, Florida Statutes.

Dated this ____day of _____1997

Patrick L. Henson Professional Surveyor Mapper No. 4547
Not valid without an original signature and seal.

⊞ FOUND 4"X4" CONCRETE MONUMENT
□ SET 4"X4" CONCRETE MONUMENT COUNTY CAP
△ DESCRIPTIVE POINT
⊙ FOUND IRON ROD
○ SET 5/8" DIA. IRON ROD COUNTY CAP
⊙ FOUND IRON ROD SET 4"X4" CONCRETE MONUMENT
ELEVATION
R/W RIGHT-OF-WAY
℄ CENTERLINE
PP = POWER POLE
BM = BENCHMARK
W = WELL
GP = GUY POLE

P.O.B. = POINT OF BEGINNING
P.O.C. = POINT OF COMMENCEMENT
P.R.C.C.F. = PUBLIC RECORDS OF CITRUS COUNTY, FLORIDA
(P)= PLAT, (D) = DEED, (F) FIELD
O.R.B. = OFFICIAL RECORD BOOK
P.B. = PLAT BOOK
P.R.M. = PERMANENT REFERENCE MONUMENT
T.B.M. = TEMPORARY BENCHMARK
P.C.P. = PERMANENT CONTROL POINT
C.B.S. = CONCRETE BLOCK STRUCTURE
C/S = CONCRETE SLAB

Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

February 19, 1998

NOTICE OF PERMIT

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

Dear Ms. Metcalfe:

Enclosed is a Modification Number 21375-001 to Operation Permit Number **SO09-274381**, issued pursuant to Section(s) 403.087(1), Florida Statues.

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

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

The agreement to mediate must include the following:

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

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

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

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

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

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

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

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

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

The petition for an administrative hearing must conform to the requirements of Chapters 62-103 and 28-5.201, F.A.C., and must be filed (received) in the Department's Office of General Counsel, 2600 Blair Stone Road, Tallahassee, 32399-2400, within fourteen (14) days of receipt of this notice. Failure to file a petition within fourteen (14) days constitutes a waiver of any right such person has to an administrative determination (hearing) pursuant to Section 120.57, Florida Statutes. This permit is final and effective on the date filed with the Clerk of the Department unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition and conforms to Rule 62-103.070, F.A.C. Upon timely filing of a petition or a request for an extension of time this permit will not be effective until further Order of the Department.

When the Order (Permit) is final, any party to the Department has the right to seek judicial review of the Order pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, 32399-2400; 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: Gary Kuhl, P.E., Citrus County
Bill Korn, Division of Forestry
Robert Butera, P.E., FDEP Tampa
Danielle Nichols, FDEP Tampa

CERTIFICATE OF SERVICE

This is to certify that this NOTICE OF PERMIT and all copies were mailed before the close of business on FEB 19, 1998 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.

Anna Black
Clerk

2/19/98
Date

RULES OF THE ADMINISTRATION COMMISSION, MODEL RULES OF PROCEDURE
CHAPTER 28-5, DECISIONS DETERMINING SUBSTANTIAL INTERESTS
PART II, FORMAL HEARINGS
A) PREHEARING PROCEDURES

28-5.201 Initial of Formal Proceedings.

(1) Initiation of formal proceedings shall be made by petition to the Agency responsible for rendering final Agency action. The term petition as used herein includes any application or other document which expresses a request for formal proceedings. Each petition should be printed, typewritten or otherwise duplicated in legible form on white paper of standard legal size. Unless printed, the impression shall be on one side of the paper only and lines shall be double-spaced and indented.

(2) All petitions filed under these rules should contain:

(a) The name and address of each Agency affected and each Agency's file or identification number, if known;

(b) The name and address of the petitioner or petitioners, and an explanation of how his/her substantial interests will be affected by the Agency determination;

(c) A statement of when and how petitioner received notice of the Agency decision of intent to render a decision;

(d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;

(e) A concise statement of the ultimate facts alleged, as well as the rules and statutes which entitle the petitioner to relief;

(f) A demand for relief to which the petitioner deems himself entitled; and

(g) Other information which the petitioner contends is material.

(3) Upon receipt of a petition for formal proceedings, the Agency shall either accept or deny the petition, and if accepted shall elect either to conduct the hearing itself through the Agency head, or member thereof, assign a person authorized by Subsection 120.57(1)(a) or other authority, or request that a Hearing Officer from the Division of Administrative Hearings be assigned to conduct the hearing.

(a) A petition may be denied if the petitioner does not state adequately a material factual allegation, such as a substantial interest in the Agency determination, or if the petition is untimely.

(b) The Agency shall promptly give written notice to all parties of the action taken on the petition, and shall state with particularity its reasons therefore.

(4) If the Agency elects to request that a Hearing Officer of the Division of Administrative Hearings be assigned to conduct the hearing, the Agency shall forward the petition, and all materials filed with the Agency, to the Division of Administrative hearings, and shall notify all parties of its action.

Specific Authority: 120.53(1), 120.54(10), F.S.
Law Implemented: 120.57, F.S.
History: New 3-23-80

SECTION 62-103.155, FLORIDA ADMINISTRATIVE CODE
RULES OF ADMINISTRATIVE PROCEDURE
FINAL AGENCY ACTION (NON-RULEMAKING) AND APPEAL

62-103.155 Petition for Administrative Hearing; Waiver of Right to Administrative Proceeding.

(1)(a) Any person whose substantial interests may be affected by proposed or final agency action by the Department may file a petition for formal administrative hearing in accordance with this rule if the person disputes the material facts upon which the Department's action is based.

(b) Any person whose substantial interests may be affected by proposed or final action by the Department may file a petition for informal administrative hearing in accordance with this rule if the person objects to the Department's action but does not dispute the material facts upon which the Department's action is based.

(2) A petition for formal or informal administrative hearing pursuant to section 120.57, F.S., shall contain the following information:

) The name, address, and telephone number of each petitioner. If the petitioner challenges a Department action or proposed action on a permit application, the applicant's name and address, the Department permit file number and the county in which the project is proposed shall also be included;

(b) A statement of how and when each petitioner received notices of the Department action or proposed action;

(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;

(d) A statement of those material facts (i.e., those facts upon which the Department's action or proposal is based) is disputed by petitioner. If no facts are disputed, petitioner shall so state;

(e) A statement of 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;

(g) A statement of relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

(3)(a) A petition shall be in the form required by this rule and must be filed (received) in the Office of General Counsel of the Department within the following number of days after receipt or publication (whichever occurs first) of notice of proposed agency action or of notice of agency action:

1. Petitions concerning Department action or proposed action on applications for permits (except permits for hazardous waste facilities): 14 days;

2. Petitions concerning Department action or proposed action on applications for hazardous waste facility permits: 45 days;

3. Petitions concerning notices of violation when no informal conference is held: 20 days after receipt of the notice of violation;

4. Petitions concerning notices of violation when an informal conference is held: 10 days after receipt of notice of completion of the informal conference;

5. Petitions concerning other Department actions or proposed actions: 21 days.

The petitioner shall also serve a copy of the petition on all other parties to the proceeding, as identified in the published notice, at the time of filing.

(b) Failure to timely file a petition within the applicable time period after receipt of notice of agency action or receipt of notice of proposed agency action, whichever notice first occurs, shall constitute a waiver of any right to request an administrative proceeding under Chapter 120, F.S.

(4) If a petition is filed that does not substantially comply with the requirements of subsection (2) of this rule, the Department shall issue an order dismissing the petition with leave to file an amended petition complying with the requirements of this rule within 15 days of service of the order. If an amended petition complying with this rule is not filed (received) within 15 days of service of the order, the petitioner's right to a proceeding under Section 120.57, F.S., is waived.

(5) When there has been no publication of notice of agency action or notice of proposed agency action as prescribed in Rule 62-103.150, F.A.C., a person who has actual knowledge of the agency action or has knowledge which would lead a reasonable person to conclude that the Department has taken final agency action, has a duty to make further inquiry within 14 days of obtaining such knowledge by contacting the Department to ascertain whether action has occurred. The Department shall upon receipt of such an inquiry, if agency action has occurred, promptly provide the person with notice as prescribed by Rule 62-103.150, F.A.C. Failure of the person to make inquiry with the Department within 14 days after obtaining such knowledge may stop the person from obtaining an administrative proceeding on the agency action.

(6)(a) "Receipt of notice of agency action" means receipt of written notice of final agency action, as prescribed by Department rule, or the publication, pursuant to Department rule, of notice of final agency action, whichever first occurs.

(b) "Receipt of notice of proposed agency action" means receipt of written notice (such as a letter of intent) that the Department proposes to take certain action, or the publication pursuant to Department rule of notice of proposed agency action, whichever first occurs.

(7) Notwithstanding any other provision in this Chapter, should a substantially affected person who fails to timely request a hearing under Section 120.57, F.S., administratively appeal the final Department action or order, the record on appeal shall be limited to:

(a) the application and accompanying documentation submitted by the applicant prior to the issuance of the agency's intent to issue or deny the requested permit.

(b) the materials and information relied upon by the agency in determining the final agency action or order;

(c) any notices issued or published; and

(d) the final agency action or order entered concerning the permit application.

(8) In such cases where persons do not timely exercise their rights accorded by Section 120.57(1), Florida Statutes, the allegations of fact contained in or incorporated by the final agency action shall be deemed uncontested and true, and appellants may not dispute the truth of such allegations upon subsequent appeal.

(9) Any applicant may challenge the Department's request for additional information by filing with the Office of General Counsel an appropriate petition for administrative proceeding pursuant to Section 120.60, F.S., following receipt by the applicant of the Department's notification pursuant to Section 403.0876, F.S., that additional information is required.

Specific Authority: 120.53, 403.0876, 403.815, F.S.
Law Implemented: 120.53, F.S.
History: New 9-20-79; Amended 4-28-81; Transferred from 17-1.62 and Amended 6-1-84; Amended 10-19-88, Formerly 17-103.155.

Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

February 19, 1998

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

Re: Modification #21375-001 to existing Operation Permit
Permit No.: SO09-274381, Citrus County
Citrus County Central Class I Landfill

Dear Ms. Metcalfe:

We are in receipt of your August 14, 1997 request for permit modification. This modifies your solid waste operation permit #SO09-274381.

SPECIFIC CONDITIONS	FROM	TO	TYPE OF MODIFICATION
2.	Existing	Amended	Operation of Phase 1A
3.	Existing	Amended	Operation of Phase 1A
17.	Existing	Amended	Leachate Reports
21.	Existing	Amended	Stormwater Systems
44.	Existing	Amended	Current Rule Referenced
45.	New		Air Requirements

This letter and its attachments constitute a complete permit and replace all previous permits and permit modifications for the above referenced facility.

Sincerely

Richard D. Garrity, Ph.D.
Director of District Management
Southwest District

RDG/kbfb
Attachments

Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

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

PERMIT/CERTIFICATION
GMS ID No: 4009C00086
Permit No: **SO09-274381**
Date of Issue: **10/28/1996**
Expiration Date: **10/25/2001**
County: Citrus
Lat/Long: 28°51'08"N
82°26'38"W
Sec/Town/Rge: 1/19S/21E
Project: Citrus County Central Class I Landfill

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

To operate and maintain a landfill with leachate storage and treatment, and related facilities (approximately 80 acres), referred to as the Citrus County Central Class I Landfill, subject to the specific and general conditions attached, for management and disposal of solid waste and leachate, near S.R. 44, 3 miles east of Lecanto, Citrus County, Florida.

1. Class I Landfill, Leachate Storage and Treatment Facility

Replaces Permit No.: SO09-187229, SC09-272928 and SC09-282375

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.

Printed on recycled paper.

GENERAL CONDITIONS:

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

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

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

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

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

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

GENERAL CONDITIONS:

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

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

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

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

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

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

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

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

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

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

GENERAL CONDITIONS:

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

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

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

13. This permit also constitutes:

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

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

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

(d) Compliance with New Source Performance Standards

14. The permittee shall comply with the following:

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

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

GENERAL CONDITIONS:

(c) Records of monitoring information shall include:

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

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

SPECIFIC CONDITIONS:

1. **Landfill Designation.** This site shall be classified as a Class I landfill and shall be operated in accordance with all applicable requirements of Chapters 62-4, 62-330, 62-520, 62-522, 62-701 and 62-703, Florida Administrative Code (F.A.C.) and all applicable requirements of Department rules.

2. **Permit Application Documentation.** This permit is valid for operation of Phases 1 and 1A of the Class I landfill and related facilities in accordance with the reports, plans and other information as follows:

- Groundwater Monitoring Plan by Hydro Q dated April 1995 received July 3, 1995, and revised pages received September 19, 1995;
- October 20, 1995 Operation Permit Application and supporting information by CH2M Hill received October 27, 1995;
- October 1996 Operations Plan by CH2M Hill received September 26, 1996 (and October 22, 1996 for Appendix B - Phase 1 Filling Plans and Appendix G - Gas Monitoring Program);
- Supporting information by Citrus County dated October 8 and December 19, 1997 received October 10 and December 24, 1997, respectively;
- and in accordance with all applicable requirements of Department rules.

Amended FEB 19, 1998.

3. **Permit Modifications.** This permit does not authorize landfill closure or operation of the temporary transfer station. The proposed transfer station will require a minor permit modification approved by FDEP prior to construction and operation. The construction and operation will be required to be substantially in accordance with FDEP letter dated January 13, 1995 to Mr. Gary Kuhl, P.E., Director of Public Works. Any activities not previously approved as part of this permit may require a separate Department permit unless the Department determines a permit modification to be more appropriate. Permits shall be modified in accordance with the requirements of 62-4.080, F.A.C. A modification which is reasonably expected to lead to substantially different environmental impacts which require a detailed review by the Department is considered a substantial modification.
Amended FEB 19, 1998.

4. **Permit Renewal.** No later than **one hundred eighty (180) days** before the expiration of the Department Permit, the permittee shall apply for a renewal of a permit on forms and in a manner prescribed by the Department, in order to assure conformance with all applicable Department rules. Permits shall be renewed at least every five years as required by F.A.C. 62-701.330(3).

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

SPECIFIC CONDITIONS:

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

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

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

c. Yard trash accepted at the site shall be processed and recycled, or disposed of within twelve months.

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

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

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

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

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

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

SPECIFIC CONDITIONS:

e. The household hazardous waste collection/storage ("HHW C/S") facility shall be operated in accordance with the October 1996 Operations Plan, Appendix N, by CH2M Hill and as follows:

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

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

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

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

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

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

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

7. **Landfill Operation Requirements.** The permittee shall operate this facility in accordance with F.A.C. 62-701.500, Landfill Operation Requirements, and the October 1996 Operations Plan by CH2M Hill.

8. **Operating Personnel.** As required by F.A.C. 62-701.500(1), at least one operator, trained in accordance with F.A.C. 62-703, shall be at the landfill at all times when the landfill receives waste.

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

SPECIFIC CONDITIONS:

10. **Method and Sequence of Filling.** The method and sequence of filling shall be in accordance with the October 1996 Operations Plan, Section 2 and Appendix B, by CH2M Hill.

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

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

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

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

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

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

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

b. Alternate initial cover materials shall be approved by the Department prior to use at the facility. For those areas where solid waste will be deposited on the working face within 18 hours, initial cover may consist of a temporary cover or tarpaulin. Waste tires that have been cut into sufficiently small parts, which means that 70 percent of the waste tire material is cut into pieces of 4 square inches or less and 100 percent of the waste tire material is 32 square inches or less, and applied in a six (6) inch compacted layer, may be used as initial cover within the bermed working area.

SPECIFIC CONDITIONS:

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

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

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

17. **Leachate Management.** Leachate shall be managed in accordance with the requirements of F.A.C. 62-701.500(8) and the October 1996 Operations Plan, Section 8 and Appendix O, by CH2M Hill.

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

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

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

d. No later than **one hundred and eighty (180) days prior to permit expiration**, the entire leachate collection and removal system, force mains and gravity pipelines, shall be visually or video inspected and pressure tested where possible to verify adequate performance. Components not performing adequately shall be cleaned and/or repaired. The results of the inspection and testing shall be submitted to the Solid Waste Section of the Southwest District Office to demonstrate adequate performance prior to permit renewal.
Amended FEB 19, 1998.

SPECIFIC CONDITIONS:

18. **Gas Monitoring.** Landfill gas shall be monitored as required by F.A.C. 62-701.500(9), 62-701.400(10), and the October 1996 Operations Plan, Appendix G, by CH2M Hill. The results of quarterly monitoring shall be submitted by **January 15th, April 15th, July 15th** and **October 15th** each year. Gas probes GS-1S and GS-1E shall be installed and sampled, and the construction details and sampling results submitted **by February 15, 1997.**

19. **Gas Monitoring Locations.** The following gas monitoring locations shall be sampled **quarterly** for the Lower Explosive Limit (LEL) of methane, as described in F.A.C. Rule 62-701.400(10)(c).

Monitoring Point	Locations:
Active Landfill	GS-1S and GS-1E, see Figure 1
Closed 60-acre Landfill	See Figure 1 (attached)
Scalehouse	See Figure 3 (attached)

20. **Gas Remediation.** In the event that 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 of detection,** 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.

21. **Stormwater System Management.** Stormwater shall be managed as required by F.A.C. 62-701.500(10) to meet applicable standards of F.A.C. 62-302 and 62-330. The system shall minimize stormwater from entering waste filled areas and avoid the mixing of stormwater with leachate in accordance with Figure 11 (attached) by CH2M Hill. All stormwater conveyances shall be inspected at least weekly to verify adequate performance. Conveyances not performing adequately shall be repaired within three (3) working days. Documentation of all inspections and repairs shall be kept on file at the facility.
Amended FEB 19, 1998 .

22. **Recordkeeping.** Records shall be maintained as required by F.A.C. 62-701.500(13).

23. **Waste Burning.** Open burning of solid waste is prohibited except in accordance with F.A.C. 62-701.520(2). Controlled burning of solid waste is prohibited at this site except for clean vegetative and wood wastes which may be burned in a permitted air curtain incinerator in accordance with F.A.C. 62-296.401(6). Any accidental fires which require longer than one (1) hour to extinguish must be promptly reported to the Department of Environmental Protection.

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

SPECIFIC CONDITIONS:

25. **Financial Assurance.** The permittee shall provide financial assurance for this landfill site in accordance with F.A.C. 62-701.630. All costs for closure and long-term care shall be adjusted and submitted **annually, by September 1 each year,** to: Solid Waste Manager, Solid Waste Section, Department of Environmental Protection, 3804 Coconut Palm Drive, Tampa, Florida 33619-8318. Proof that the financial assurance has been funded adequately shall be submitted **annually** to: Financial Coordinator, Solid Waste Section, Department of Environmental Protection, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.

26. **Control of Nuisance Conditions.** The operating authority shall be responsible for the control of odors and fugitive particulates arising from this 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 so as to protect the public health and welfare.

27. **Liner Location.** The top edge of the geomembrane liner shall be clearly flagged in as many locations as required to prevent waste disposal and leachate runoff outside the geomembrane liner. The flagging or staking markers shall be maintained at all times.

28. **Facility Maintenance and Repair.** The site shall be properly maintained including erosion control, maintenance of grass cover, prevention of ponding, groundwater monitoring system repairs, gas monitoring system repairs, repair and maintenance of leachate collection and removal systems, and maintenance of the leachate storage and treatment facilities. In the event of damage to any portion of the landfill site facilities or failure of any part of the landfill systems, 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.

29. **Water Quality Monitoring Quality Assurance.**

a. All field and laboratory work done in connection with the facility's Water Quality Monitoring Plan shall be conducted by a firm possessing a Comprehensive Quality Assurance Plan approved by the Department to meet the requirements of F.A.C. 62-160. 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 **annually** to the Department with the groundwater sampling report due **January 15th.** Documentation shall include the completed signature page and the Table of Contents of the approved plan.

SPECIFIC CONDITIONS:

b. 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 F.A.C. 62-4.246 and 62-160. Approved methods published by the Department or as published in Standard Methods, A.S.T.M., or EPA methods shall be used.

30. **Zone of Discharge.**

a. The zone of discharge for the site landfills and the percolation ponds for treated leachate shall extend horizontally as shown on the figure labelled "Specific Condition 30, Zone of Discharge" (attached), prepared by Citrus County shall extend vertically to the bottom of the first occurring 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 F.A.C. 62-520.420.

c. The permittee must record the dimensions of the zone of discharge on the property record of the adjacent land as required by F.A.C. Rule 62-522.500(3)(e). Documentation from the County Clerk of this addition to the property record must be submitted to the FDEP Solid Waste Section, 3804 Coconut Palm Drive, Tampa, Florida, by **January 31, 1997.**

31. **Leachate Sampling.** Leachate shall be sampled from the leachate holding tank until the master lift station is installed, at which time leachate shall be sampled from the master lift station. Leachate shall be analyzed **every 6 months** for the following monitoring parameters:

Field parameters	Laboratory parameters
Specific Conductivity	Total Ammonia - N
pH	Bicarbonate
Dissolved oxygen	Chlorides
Colors, sheens (by observation)	Iron
	Mercury
	Nitrate
	Sodium
	Total Dissolved Solids (TDS)
	Those parameters listed in 40 CFR Part 258, Appendix I

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

SPECIFIC CONDITIONS:

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

33. **Leachate Treatment Plant Testing.** Prior to on-site discharge into the percolation ponds, the permittee shall demonstrate 3 consecutive months of acceptable leachate treatment based on the results from the following daily and weekly sampling, submit the sampling results and obtain Department for approval prior to discharge. The effluent shall be tested once during the 3 month demonstration period for the parameters listed in Appendix II, 40 CFR Part 258. These test parameters shall meet the Florida Groundwater Standards and minimum criteria listed in F.A.C. 62-520.400 and 62-520.420 with the exception of sodium, chloride and total dissolved solids (TDS). These parameters shall meet the standards listed in FAC 62-520.420 at the edge of the zone of discharge (as described in Specific Condition #30).

a. The following effluent testing schedule shall be conducted. Results shall be submitted quarterly. The 1st quarter of a year shall be submitted by **April 15th**, the 2nd quarter by **July 15th**, the 3rd quarter by **October 15th** and 4th quarter by **January 15th.**

Parameter	Unit	Minimum	Maximum	Frequency
flow	gpd	N/A	30,000	Daily
pH	STD UN	6.00	8.50	Daily
Chlorine Residual	mg/l	N/A	N/A	Daily, if using chlorine
$CBOD_5$	mg/l	N/A	20	Weekly
COD	mg/l	(acceptable $CBOD_5$:COD ratio)		Weekly
TSS	mg/l	N/A	20	Weekly
Total Phosphorous	mg/l	N/A	N/A	Weekly
Ammonia Nitrogen	mg/l	N/A	N/A	Weekly
Nitrate-N	mg/l	N/A	12	Weekly
Total Nitrogen	mg/l	N/A	N/A	Weekly
Fecal Coliform	#/100	N/A	200	Weekly
Chloride	mg/l	N/A	N/A	Quarterly
Sodium	mg/l	N/A	N/A	Quarterly
TDS	mg/l	N/A	N/A	Quarterly
Arsenic	mg/l	N/A	N/A	Quarterly
Barium	mg/l	N/A	N/A	Quarterly
Cadmium	mg/l	N/A	N/A	Quarterly
Chromium	mg/l	N/A	N/A	Quarterly
Iron	mg/l	N/A	N/A	Quarterly
Mercury	mg/l	N/A	N/A	Quarterly
Lead	mg/l	N/A	N/A	Quarterly
Selenium	mg/l	N/A	N/A	Quarterly

SPECIFIC CONDITIONS:

Parameter	Unit	Minimum	Maximum	Frequency
Silver	mg/l	N/A	N/A	Quarterly
Total THMs	mg/l	N/A	N/A	Quarterly
Benzene	mg/l	N/A	N/A	Quarterly
Toluene	mg/l	N/A	N/A	Quarterly
Ethylbenzene	mg/l	N/A	N/A	Quarterly
Total Xylenes	mg/l	N/A	N/A	Quarterly
Ethylene dibromide(EDB)	mg/l	N/A	N/A	Quarterly

Annually, the effluent shall be tested for the Appendix II parameters listed in 40 CFR Part 258.

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

b. Waste sludge from the leachate treatment plant shall be sampled and analyzed **annually** under an approved Quality Assurance Plan for the following parameters:

Toxic Characteristic Leaching Potential Test (TCLP) for organics, metals and pesticides
pH (standard units)
Solids (percent)

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

34. **Groundwater Monitoring Well Locations.** The Groundwater Monitoring System is designed and constructed in accordance with the "Groundwater Monitoring Plan for the 80-acre Landfill Expansion, Citrus County Central Landfill", report dated April 1995 and revised September 19, 1995 prepared by Hydro Q. The groundwater monitoring wells are located as per Figure 48 of this report:

Well Number	Aquifer	Location
MW-1(R)	Floridan (background)	Figure 48, attached
MW-2	Floridan (background)	Figure 48, attached
MW-3	Floridan (background)	Figure 48, attached
MW-B	Floridan (detection)	Figure 48, attached
MW-4	Floridan (intermediate)	Figure 48, attached
MW-5	Floridan (intermediate)	Figure 48, attached
MW-6	Floridan (intermediate)	Figure 48, attached
MW-AA	Floridan (detection)	Figure 48, attached
MW-C	Floridan (detection)	Figure 48, attached
MW-D	Floridan (detection)	Figure 48, attached
MW-E	Floridan (compliance)	Figure 48, attached
MW-7*	Floridan (background)	Figure 48, attached

SPECIFIC CONDITIONS:

Well Number	Aquifer	Location
MW-8*	Floridan (detection)	Figure 48, attached
MW-9*	Floridan (detection)	Figure 48, attached

*Wells to be constructed prior to use of Phase 1A.

35. **Groundwater Sampling.** All detection and background wells, intermediate well MW-6, and compliance well MW-E shall be sampled in accordance with F.A.C. 62-701.510(6)(c) and analyzed **every 6 months** for the groundwater monitoring parameters listed as follows:

Field parameters	Laboratory parameters
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

Water levels shall be measured in all site wells listed in Specific Conditions No. 34.

Additional samples, wells, and parameters may be required based upon subsequent analysis.

36. **Groundwater Monitoring Well Construction.** Any new wells constructed must be approved by the Department through permit modification. The following information shall be submitted to the Department by within 90 days of well completion:

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.
Well seal and filter pack type and thickness	

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).

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

SPECIFIC CONDITIONS:

corner monument markers at the site. The survey shall be conducted by a Florida Registered Surveyor.

d. Prior to utilization of Phase 1A, the information required in a-c (above) must be submitted for monitoring wells MW-7, MW-8 and MW-9. These wells are to be constructed as proposed in the groundwater monitoring plan referenced in Specific Condition No. 34.

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

38. **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 from receipt of the sampling results to resample the monitor well(s) to verify the original analysis. Should the permittee choose not to resample, the Department will consider the water quality analysis representative of current groundwater conditions at the facility, and assessment monitoring/corrective action as described in F.A.C. 62-701.510(7) shall be initiated.

39. **Water Quality and Leachate Reporting Requirements.** All ground water quality monitoring and leachate and sludge analyses shall be reported on the Department Form 62-522.900(2), Ground Water Monitoring Report (attached). This report shall include the items listed in F.A.C. 62-701.510(9)(a). The permittee shall submit to the Department the results of the water quality and leachate analysis **July 15th** and **January 15th** for the semi-annual periods January-June and July-December, respectively. Sludge results shall be submitted **annually** by **January 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, and to the Solid Waste Section, Department of Environmental Protection, 2600 Blair Stone Road, M.S. 4565, Tallahassee, FL 32399-2400.

SPECIFIC CONDITIONS:

40. **Groundwater Monitoring Plan Evaluation.**

Every two years and prior to **180 days before the expiration** of the Department Permit, the permittee shall submit an evaluation of the Groundwater Monitoring Plan as described in F.A.C. 62-701.510(9)(b). The evaluation shall include the applicable information as required by F.A.C. 62-701.510(9), 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 15, 1997.**

41. **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.

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

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

44. **Regulations.** F.A.C. 62-701, effective April 23, 1997, is incorporated into this permit by reference. In the event that the regulations governing this permitted operation are revised, the Department shall notify the permittee, and the permittee shall request modification of those specific conditions which are affected by the revision of regulations to incorporate those revisions.
Amended FEB 19, 1998.

45. **Air Requirements.**

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

SPECIFIC CONDITIONS:

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

c. The landfill shall comply with the requirements of 40 CFR 60, Subpart WWW and CC, as adopted by reference at Rule 62-204.800, F.A.C. Any amended design capacity report and any Non-Methane Organic Compound (NMOC) emission rate report, as applicable, pursuant to 40 CFR 60.757(a)(3) and (b) shall be submitted to be Division of Air Resources Management, Department of Environmental Protection, Mail Station 5500, 2600 Blair Stone Road, Tallahassee, FL 32399-2400.
New FEB 19, 1998 .

Attachment 1

SPECIFIC CONDITION	SUBMITTAL DUE DATE	REQUIRED ITEM
4., 17.d.	180 days prior to permit expiration	Permit Renewal Application LCRS Inspection
18. and 33.a	Quarterly, by January 15th, April 15th, July 15th, and October 15th	Gas monitoring results, Leachate treatment results
25.	Annually, by September 1st	Financial assurance cost estimates
29.a.	Annually, by January 15th	Water quality QAP documentation
31.	Every 6 months	Leachate sampled/analyzed
31.	Annually	Leachate sampled/analyzed for 40 CFR Part 258, Appendix II parameters
33.b.	Annually	Leachate treatment - Sludge results
35.	Every 6 months	Groundwater wells sampled/ analyzed
39.	Semi-annually, by January 15th, and July 15th	Water quality and leachate monitoring results
39.	Annually, by January 15th	Leachate treatment plant sludge analyses
40.	Every two years by July 15th and 180 days prior to permit expiration	Evaluation of groundwater monitoring plan

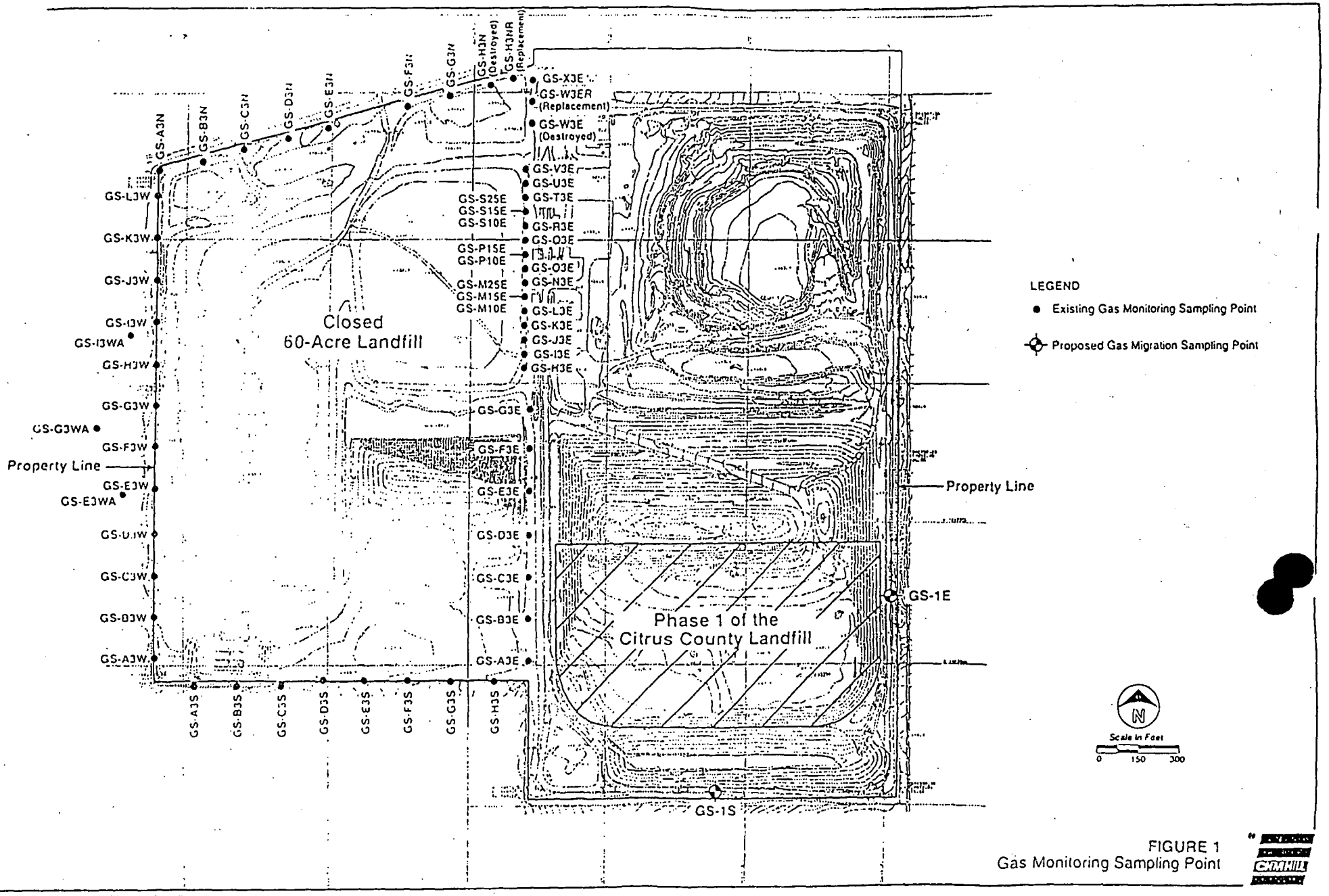
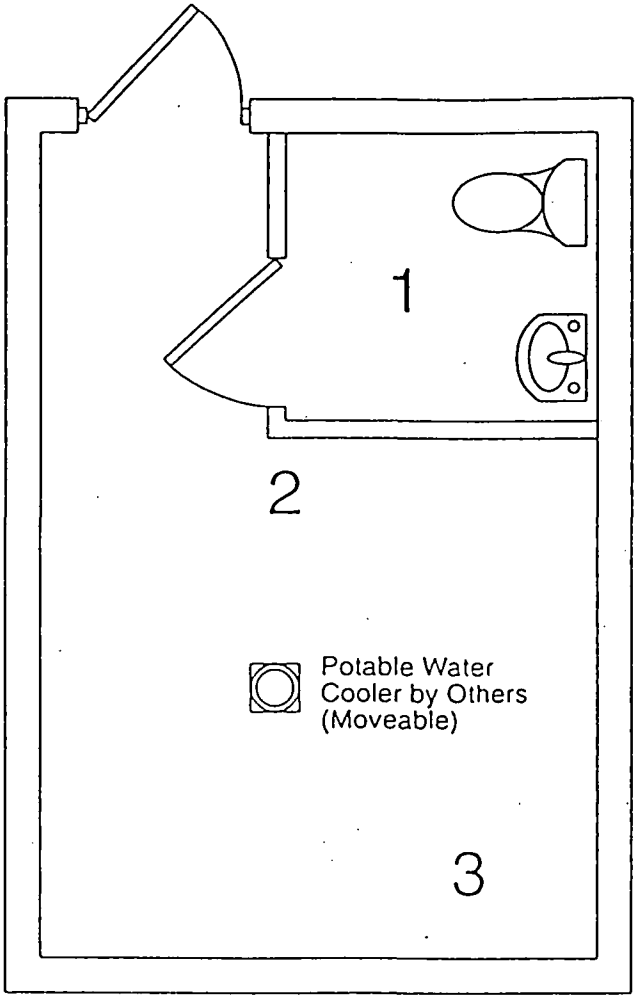
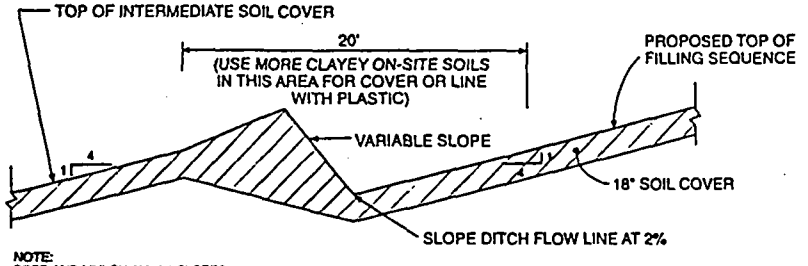


FIGURE 1
Gas Monitoring Sampling Point

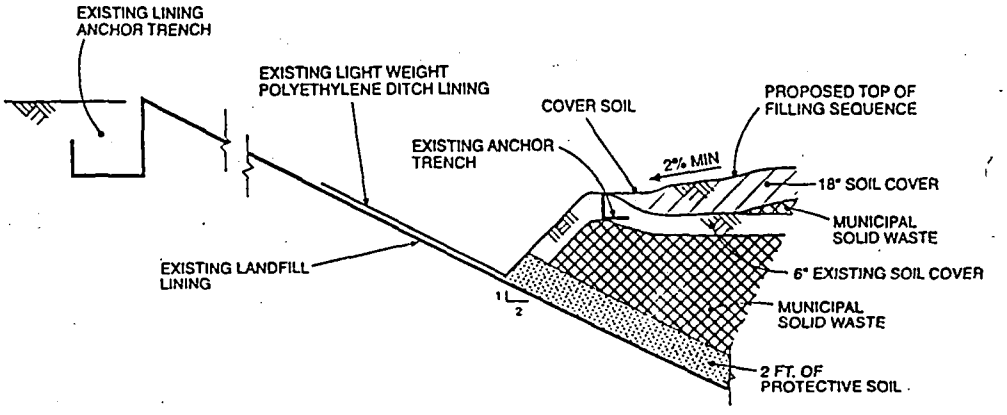


1 - Bathroom Floor Drain
2 - Electric Connections for Scale Meter - West Side
3 - Electric Conections for Scale Meter - East Side

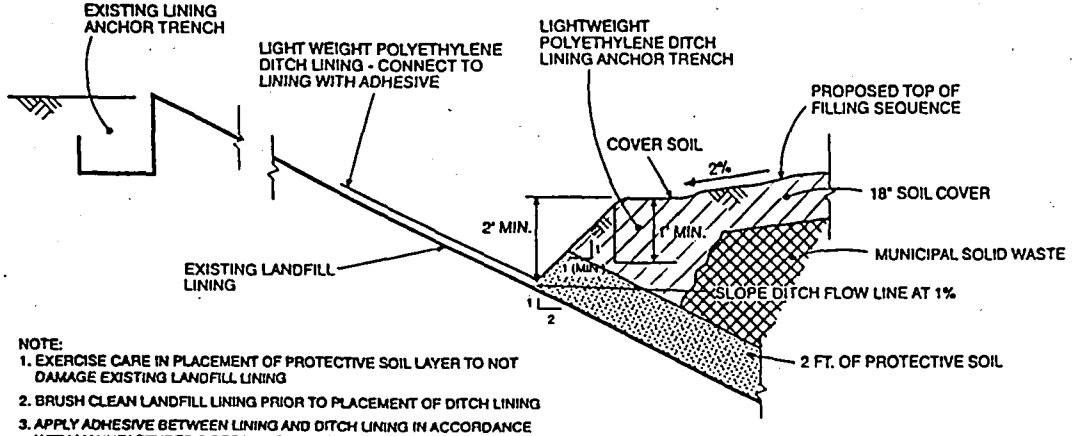
FIGURE 3
Scalehouse Gas Monitoring Points



DITCHES ON NORTHERN FACE
NTS

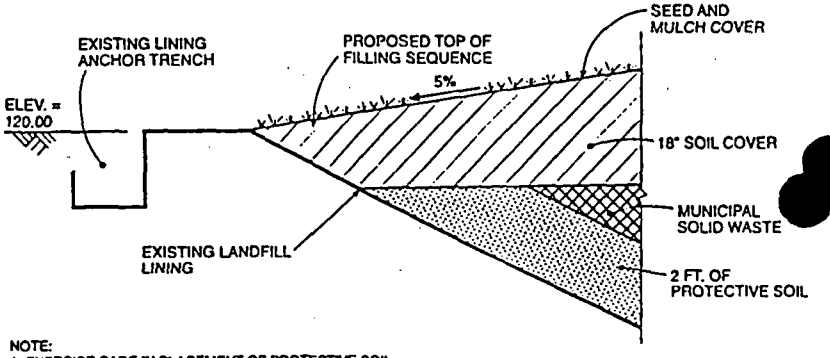


CONNECTION TO EXISTING LINED DITCH
NTS



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

NEW LINED DITCH
NTS

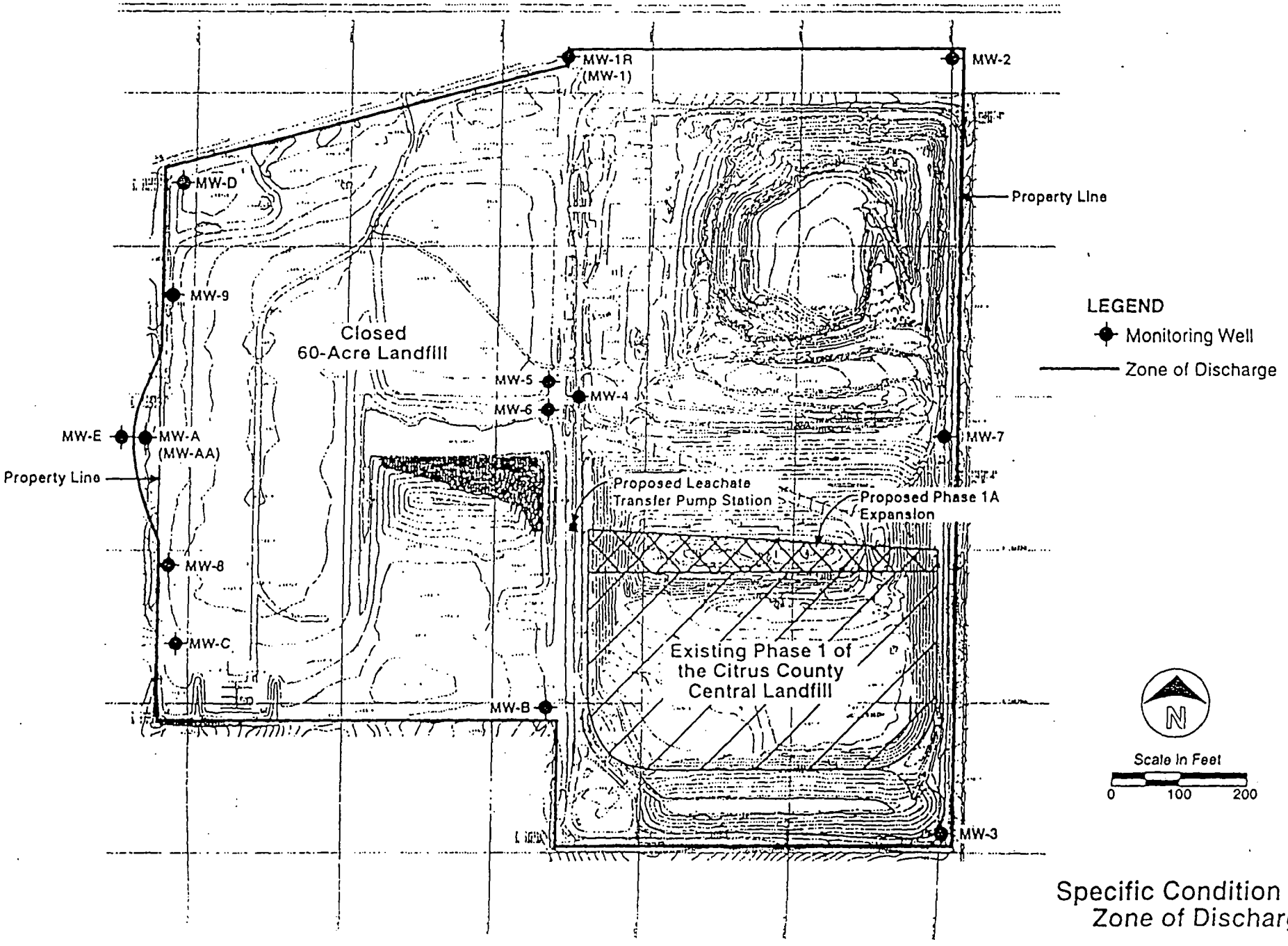


NOTE:
1. EXERCISE CARE IN PLACEMENT OF PROTECTIVE SOIL LAYER TO NOT DAMAGE EXISTING LANDFILL LINING
2. DO NOT ALLOW SOIL COVER TO MIX WITH UNDERLYING WASTE DURING PLACEMENT

EXISTING ANCHOR TRENCH DETAIL
NTS

Figure 11
Typical Sections

CH2MHILL



Specific Condition 30
Zone of Discharge

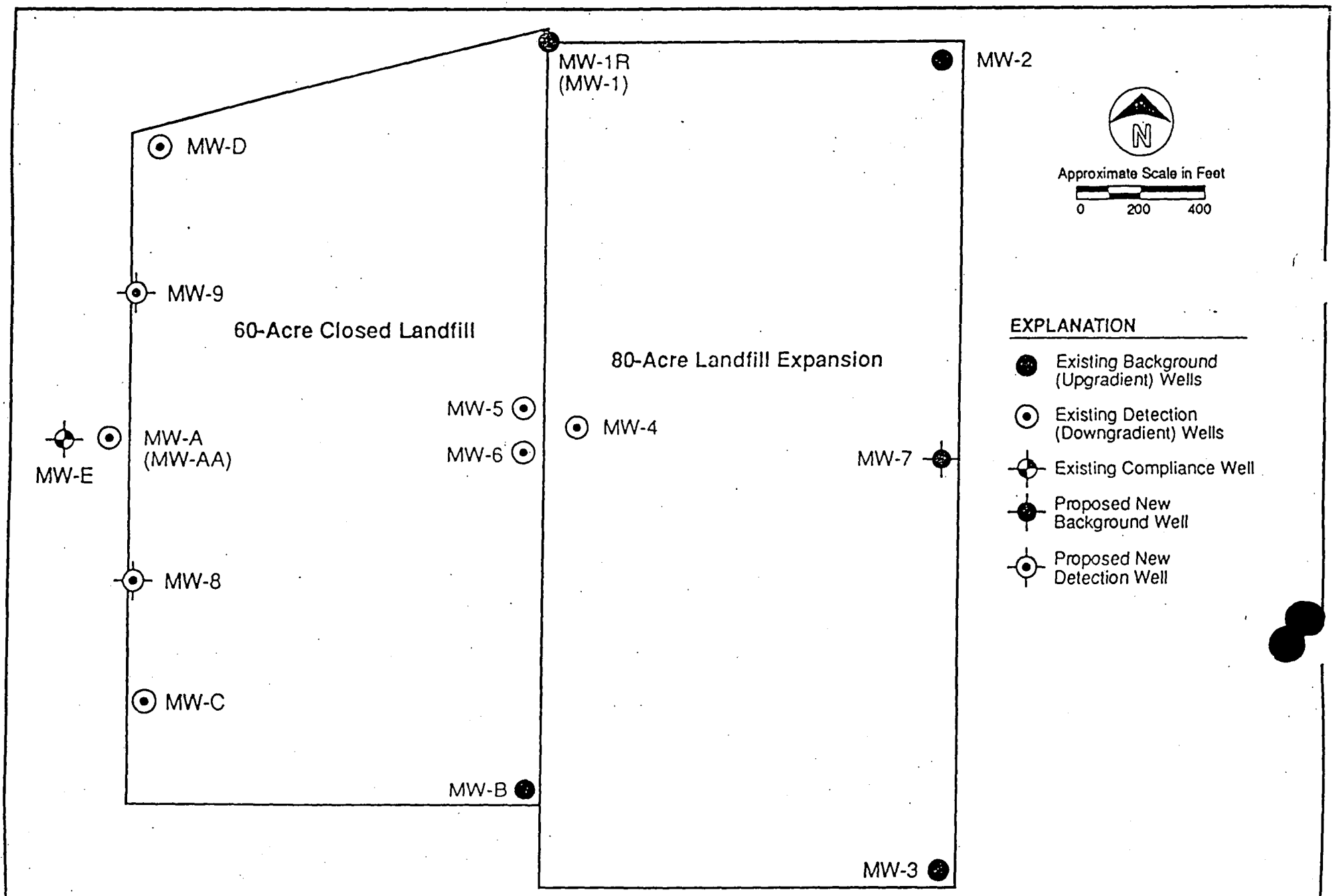


FIGURE 48
Proposed New Monitoring Wells

DEP Form # 62-522.900(2)

Form Title GROUND WATER MONITORING REPORT

Effective Date

DEP Application No.

Florida Department of Environmental Protection

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

GROUND WATER MONITORING REPORT

Rule 62-522.600(11)

PART I GENERAL INFORMATION

(1) Facility Name _____

Address _____

City _____ Zip _____

Telephone Number ( ) _____

(2) The GMS Identification Number _____

(3) DEP Permit Number _____

(4) Authorized Representative Name _____

Address _____

City _____ Zip _____

Telephone Number ( ) _____

(5) Type of Discharge _____

(6) Method of Discharge _____

Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document ar 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 informati including the possibility of fine and imprisonment.

Date: _____ _____

Signature of Owner or Authorized Representative

PART II QUALITY ASSURANCE REQUIREMENTS

Sample Organization Comp QAP # _____

Analytical Lab Comp QAP #/HRS Certification # _____

*Comp QAP #/HRS Certification # _____

Lab Name _____

Address _____

Phone Number ( ) _____

PART III ANALYTICAL RESULTS

Facility GMS #: _____ Sampling Date/Time: _____

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

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

Classification of Ground Water: _____ Well Type: ( ) Background
( ) Intermediate
( ) Compliance
( ) Other

Ground Water Elevation (NGVD): _____

or (MSL): _____

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

* Attach Laboratory Reports

Memorandum

Florida Department of
Environmental Protection

PERMIT COVER MEMO

TO: ___ RICK GARRITY, DDM
___ WILLIAM KUTASH, ENV. ADM.
___ OGC, ATTN: _____

FROM/THROUGH:

_____, ENVIRONMENNTAL ADMINISTRATOR
_____, PROGRAM SUPERVISOR
BOB BUTERA BB 2/18/98, SECTION SUPERVISOR
Tim Ford TF 2/18/98 ENG, ENV SPEC, GEOLOGIST

DATE: 2/18/98

FILE NAME: CITRUS COUNTY LANDFILL MOD # 21315-001
PROGRAM: SOLID WASTE ~~CASE~~ #: PERMIT 3009-27438 COUNTY: CITRUS

TYPE OF PERMIT ACTION: _____ISSUE _____DENY ✓ MODIFY
_____TRANSFER OWNER _____NOD _____INTENT _____PUBLIC NOTICE

PUBLIC NOTICE PERIOD CLOSED? _____
PETITION? _____ RELEASED BY OGC? _____

PERMIT SUMMARY: THIS PERMIT MODIFICATION IS TO ALLOW THE OPERATION OF PHASE IA, AN EXPANSION OF THE EXISTING LANDFILL AND PROVIDES CLARIFICATION ON SEVERAL OTHER ITEMS.

PROFESSIONAL RECOMMENDATION: ✓ APPROVE _____DENY

EVALUATION SUMMARY: I RECOMMEND THIS MODIFICATION BASED ON A REVIEW OF RELATED CONSTRUCTION AND OPERATION DOCUMENTS.

DAY 90/30 FOR THIS ACTION IS 3/20/98, ASAP

CERTIFICATION

Application No. 21375-001

I HEREBY CERTIFY that the engineering features described in the above referenced application (provide / d[redacted]e) reasonable assurance of compliance with applicable provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Title 62-17. However, I have not evaluated and I do not certify aspects of the proposal outside of my area of expertise (including but not limited to the electrical, mechanical and structural features).

(Signed) [signature]

(Date) 2/18/98

(Seal) [STATE OF FLORIDA REGISTERED ENGINEER NO. 39[illegible]]

perMits | Events | Payment | Site | Facility | partY | Reports | >

Permitting Application

SITE Permit

Site Name: CITRUS CO. CENTRAL SLF (LF1) Site #: 0021375

County: CITRUS Comments: N RPAs: N # Cases: 0

Project

Permit #:0021375-001-SO Project #: 001 Logged:19-AUG-1997 CRA #: 7745
Permit Office: SWD (DISTRICT) Agency Action: Issued
Project Name: **CITRUS CO. CENTRAL LANDFILL** Desc:
Type/Sub/Des: **SO /MM MINOR MODIFICATION** COE #:
Received: **14-AUG-1997** Issued: **19-FEB-1998** Expires: **25-OCT-2001** OGC:
JFee: **250.00** Fee Recd: 250.00 Dele: Override: **NONE**

Related Party

Role: APPLICANT Begin: 19-AUG-1997 End:
Name: Not Available Company: CITRUS CO. BOARD OF COMMISSIONE
Addr: P.O. BOX 340
City: LECANTO State: FL Zip: 34460- Country: U.S.A.
Phone: 904-746-5000 Fax:

Processors

Processor: FORD_K Y Active: 19-AUG-1997 Inactive:

Enter Project Name.
Count: *1

<Replace>

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

PERMITTING APPLICATION PROJECT EVENT SUMMARY REPORT 15-SEP-98

Site Name: CITRUS CO. CENTRAL SLF (LF1)
County: CITRUS

PROJECT

Permit Office: SWD (DISTRICT) CRA Reference #: 7745
Project #: 7745 **Agency Action:** Issued
Project name: CITRUS CO. CENTRAL LANDFILL **Desc:**
Type/Sub/Req: SO/MM / New Permit Application
Received: 14-AUG-1997 **Issued:** 19-FEB-1998 **Expires:** 19-FEB-2003
Fee: $250.00 **Realized:** $250.00 **Dele:** **Override:** NONE

PROJECT EVENTS

Event	Begin Date	Prd	Due Date	Rmn	Status	End Date
Receive Request	14-AUG-1997	1	15-AUG-1997	000	Done	14-AUG-1997
Fee Verification	14-AUG-1997	2	16-AUG-1997	000	Sufficient Fee	16-AUG-1997
Completeness Review	14-AUG-1997	30	13-SEP-1997	000	Incomplete	09-SEP-1997
Awaiting Additional Information	09-SEP-1997	45	24-OCT-1997	000	Received	10-OCT-1997
Completeness Review	10-OCT-1997	30	09-NOV-1997	000	Incomplete	31-OCT-1997
Awaiting Additional Information	31-OCT-1997	45	15-DEC-1997	000	Received	24-DEC-1997
Completeness Review	24-DEC-1997	30	23-JAN-1998	000	Complete	24-DEC-1997
Determine Agency Action	24-DEC-1997	90	24-MAR-1998	000	Issue	19-FEB-1998
Issue Final Permit	19-FEB-1998	14	05-MAR-1998	000	Issued	19-FEB-1998
ISSUE PERMIT	19-FEB-1998	1	20-FEB-1998	000	Done	19-FEB-1998
STOP CLOCK	19-FEB-1998	1	20-FEB-1998	000	Done	19-FEB-1998
RESET CLOCK	31-OCT-1997	1	01-NOV-1997	000	Done	31-OCT-1997
RESET CLOCK	09-SEP-1997	1	10-SEP-1997	000	Done	09-SEP-1997

Help | Reports | eXit

Permitting Application

Events Scheduled **-168 of 90**

Site #: 0021375 Name: CITRUS CO. CENTRAL SLF (LF1)
Permit #: Type/Subtype: SO /MM Received: 14-AUG-1997
Project #: 001 Name: CITRUS CO. CENTRAL LANDFILL

Event	Begin Date	Prd	Due Date	Rmn	Status	End Date
Receive Request	14-AUG-1997	1	15-AUG-1997		Done	14-AUG-1997
Fee Verification	14-AUG-1997	2	16-AUG-1997		Sufficient	16-AUG-1997
Completeness Revie	14-AUG-1997	30	13-SEP-1997		Incomplete	09-SEP-1997
Awaiting Addition	09-SEP-1997	45	24-OCT-1997		Received	10-OCT-1997
Completeness Rev	10-OCT-1997	30	09-NOV-1997		Incomplete	31-OCT-1997
Awaiting Additi	31-OCT-1997	45	15-DEC-1997		Received	24-DEC-1997
Completeness R	24-DEC-1997	30	23-JAN-1998		Complete	24-DEC-1997
Determine Age	24-DEC-1997	90	24-MAR-1998		Issue	19-FEB-1998
RESET CLOCK	31-OCT-1997	1	01-NOV-1997		Done	31-OCT-1997
RESET CLOCK	09-SEP-1997	1	10-SEP-1997		Done	09-SEP-1997

FRM-40735: POST-UPDATE trigger raised unhandled exception ORA-01653.
Please acknowledge message. (Ok)

```
 permits | Events | Payment | Site | Facility | Party | Reports |                >
------------------------- Permitting Application ------------------------
+------------------------------ SITE Permit -------------------------------+
|    Site Name: CITRUS CO. CENTRAL SLF (LF1)                 Site #: 0021375 |
|                                                                            |
|       County: CITRUS      Comments:  RPAs:  # Cases:                      |
+------------------------------- Project ---------------------------------+
|Permit #:      -   -     Project #: 001 Logged:19-AUG-1997 CRA #:          |
|Permit Office: SWD (DISTRICT)                  Agency Action: Pending      |
| Project Name: CITRUS CO. CENTRAL LANDFILL    Desc:                        |
| Type/Sub/Des: SO /MM MINOR MODIFICATION                 COE #:             |
|     Received: 14-AUG-1997      Issued:              Expires:               |
|Fee:    250.00 Fee Recd:          Dele:          Override: NONE            |
+------------------------------ Related Party ------------------------------+
|Role: APPLICANT        Begin: 19-AUG-1997   End:                            |
|Name: Not Available                  Company: CITRUS CO. BOARD OF COMMISSIONE|
|Addr: P.O. BOX 340                                                          |
|City: LECANTO                  State: FL Zip: 34460-     Country: U.S.A.    |
|Phone: 904-746-5000   Fax:                                                  |
+------------------------------- Processors ---------------------------------+
|Processor: FORD K                    Y Active: 19-AUG-1997 Inactive:        |
+----------------------------------------------------------------------------+
Press [ENTQRY] or [INSREC]
Count: *1                                                          <Replace>
```

```
AREA: SWD_______        Cash Receiving Application                    CRAF006A
                    Collection Point Log Remittance      Tot: ________$250.00
+-------------------------------------------------------------------------------+
| SYS$REMT: 205464__ Type: CP___    Recved Date: 14-AUG-1997  Status: RECEIVED   |
| SYS$RCPT: 163866__ PNR: _______ Check #: 118816____  Amount: ________250.00   |
| SSN/FEI#: _________              Name: CITRUS_COUNTY/COUNTY_WARRANT__         |
|    First: _____________________ Middle: _____ Title:_______ Suf: _____        |
| Address1: 110_N_APOPKA_AVE_____________________ Short Comments:              |
| Address2: _____________________________________ L-MODIFICATION_____________  |
|     City: INVERNESS___________ ST: FL  Zip: 34450-____ Country: __________  |
+-------------------------------------------------------------------------------+
+--------------------------> P A Y M E N T (S) <-------------------------------+
|          Distr                                                          S     |
|          CL      Object                    Payment                Applic/  T  |
| SYS$PAYT Area..  Code/Description.....:    Amount.....  Reference#    Fund  A  |
| 212157__ SWD___  002245 SOLID_WASTE-OPE   _______$250.00 21375--1__  PA_ PFTF__ CO |
| _______ _______ _______ _____________ _____________ _____________ ___ _______ __ |
| _______ _______ _______ _____________ _____________ _____________ ___ _______ __ |
| _______ _______ _______ _____________ _____________ _____________ ___ _______ __ |
| _______ _______ _______ _____________ _____________ _____________ ___ _______ __ |
+-------------------------------------------------------------------------------+
 COMMIT FREQUENTLY                        ________$250.00  Payment total
Press_<TAB>_to_accept_Collection_Point_or_enter_F&A._____________________________
Count: *1                                                          <Replace>
```

FDEP	3804 Coconut Palm Drive, Tampa, FL 33619-8318

FAX

FAXED

Date: 2/17/98

Number of pages including cover sheet: 8

To: SUSAN METCALFE

CITRUS COUNTY

Phone: 352 746 5000

Fax phone: 352 527 1204

CC:

From: KIM FORD

Phone: (813) 744-6100 x 382

Fax phone: (813) 744-6125

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

YOUR DRAFT OPERATION PERMIT MODIFICATION

IF OK PLEASE CALL

THX

KIM

✓ 1:53 2/18/98
OK BY S METCALFE
BY PHONE

Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

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

DRAFT

Re: Modification #21375-001 to existing Operation Permit
Permit No.: SO09-274381, Citrus County
Citrus County Central Class I Landfill

Dear Ms. Metcalfe:

We are in receipt of your August 14, 1997 request for permit modification. This modifies your solid waste operation permit #SO09-274381.

SPECIFIC CONDITIONS	FROM	TO	TYPE OF MODIFICATION
2.	Existing	Amended	Operation of Phase 1A
3.	Existing	Amended	Operation of Phase 1A
17.	Existing	Amended	Leachate Reports
21.	Existing	Amended	Stormwater Systems
44.	Existing	Amended	Current Rule Referenced
45.	New		Air Requirements

This letter and its attachments constitute a complete permit and replace all previous permits and permit modifications for the above referenced facility.

Sincerely

Richard D. Garrity, Ph.D.
Director of District Management
Southwest District

RDG/kbfb
Attachments

SPECIFIC CONDITIONS: DRAFT

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 62-4, 62-330, 62-520, 62-522, 62-701 and 62-703, Florida Administrative Code (F.A.C.) and all applicable requirements of Department rules.

2. **Permit Application Documentation.** This permit is valid for operation of Phases 1 and 1A of the Class I landfill and related facilities in accordance with the reports, plans and other information as follows:

- Groundwater Monitoring Plan by Hydro Q dated April 1995 received July 3, 1995, and revised pages received September 19, 1995;
- October 20, 1995 Operation Permit Application and supporting information by CH2M Hill received October 27, 1995;
- October 1996 Operations Plan by CH2M Hill received September 26, 1996 (and October 22, 1996 for Appendix B - Phase 1 Filling Plans and Appendix G - Gas Monitoring Program);
- Supporting information by Citrus County dated October 8 and December 19, 1997 received October 10 and December 24, 1997, respectively;
- and in accordance with all applicable requirements of Department rules.

Amended _____.

3. **Permit Modifications.** This permit does not authorize landfill closure or operation of the temporary transfer station. The proposed transfer station will require a minor permit modification approved by FDEP prior to construction and operation. The construction and operation will be required to be substantially in accordance with FDEP letter dated January 13, 1995 to Mr. Gary Kuhl, P.E., Director of Public Works. Any activities not previously approved as part of this permit may require a separate Department permit unless the Department determines a permit modification to be more appropriate. Permits shall be modified in accordance with the requirements of 62-4.080, F.A.C. A modification which is reasonably expected to lead to substantially different environmental impacts which require a detailed review by the Department is considered a substantial modification.
Amended _____.

4. **Permit Renewal.** No later than **one hundred eighty (180) days** before the expiration of the Department Permit, the permittee shall apply for a renewal of a permit on forms and in a manner prescribed by the Department, in order to assure conformance with all applicable Department rules. Permits shall be renewed at least every five years as required by F.A.C. 62-701.330(3).

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

SPECIFIC CONDITIONS: DRAFT

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

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

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

17. **Leachate Management.** Leachate shall be managed in accordance with the requirements of F.A.C. 62-701.500(8) and the October 1996 Operations Plan, Section 8 and Appendix O, by CH2M Hill.

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

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

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

d. No later than **one hundred and eighty (180) days prior to permit expiration,** the entire leachate collection and removal system, force mains and gravity pipelines, shall be visually or video inspected and pressure tested where possible to verify adequate performance. Components not performing adequately shall be cleaned and/or repaired. The results of the inspection and testing shall be submitted to the Solid Waste Section of the Southwest District Office to demonstrate adequate performance prior to permit renewal.
Amended _____.

SPECIFIC CONDITIONS: DRAFT

18. **Gas Monitoring.** Landfill gas shall be monitored as required by F.A.C. 62-701.500(9), 62-701.400(10), and the October 1996 Operations Plan, Appendix G, by CH2M Hill. The results of quarterly monitoring shall be submitted by **January 15th, April 15th, July 15th** and **October 15th** each year. Gas probes GS-1S and GS-1E shall be installed and sampled, and the construction details and sampling results submitted **by February 15, 1997.**

19. **Gas Monitoring Locations.** The following gas monitoring locations shall be sampled **quarterly** for the Lower Explosive Limit (LEL) of methane, as described in F.A.C. Rule 62-701.400(10)(c).

Monitoring Point	Locations:
Active Landfill	GS-1S and GS-1E, see Figure 1
Closed 60-acre Landfill	See Figure 1 (attached)
Scalehouse	See Figure 3 (attached)

20. **Gas Remediation.** In the event that 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 of detection,** 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.

21. **Stormwater System Management.** Stormwater shall be managed as required by F.A.C. 62-701.500(10) to meet applicable standards of F.A.C. 62-302 and 62-330. The system shall minimize stormwater from entering waste filled areas and avoid the mixing of stormwater with leachate in accordance with Figure 11 (attached) by CH2M Hill. All stormwater conveyances shall be inspected at least weekly to verify adequate performance. Conveyances not performing adequately shall be repaired within three (3) working days. Documentation of all inspections and repairs shall be kept on file at the facility.
Amended _____.

22. **Recordkeeping.** Records shall be maintained as required by F.A.C. 62-701.500(13).

23. **Waste Burning.** Open burning of solid waste is prohibited except in accordance with F.A.C. 62-701.520(2). Controlled burning of solid waste is prohibited at this site except for clean vegetative and wood wastes which may be burned in a permitted air curtain incinerator in accordance with F.A.C. 62-296.401(6). Any accidental fires which require longer than one (1) hour to extinguish must be promptly reported to the Department of Environmental Protection.

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

SPECIFIC CONDITIONS:

40. **Groundwater Monitoring Plan Evaluation.** DRAFT

Every two years and prior to **180 days before the expiration** of the Department Permit, the permittee shall submit an evaluation of the Groundwater Monitoring Plan as described in F.A.C. 62-701.510(9)(b). The evaluation shall include the applicable information as required by F.A.C. 62-701.510(9), 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 15, 1997.**

41. **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.

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

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

44. **Regulations.** F.A.C. 62-701, effective April 23, 1997, is incorporated into this permit by reference. In the event that the regulations governing this permitted operation are revised, the Department shall notify the permittee, and the permittee shall request modification of those specific conditions which are affected by the revision of regulations to incorporate those revisions.
Amended _____.

45. **Air Requirements.**

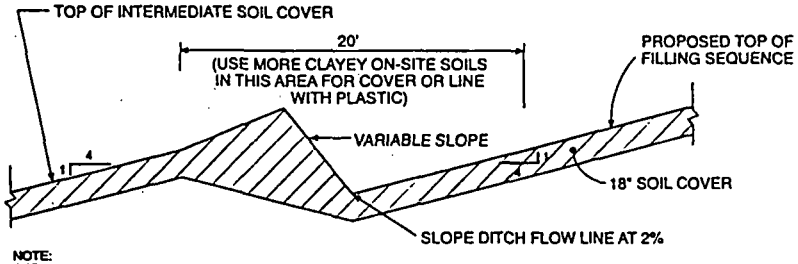
a. An air construction permit is not required for the landfill unless landfill construction or any modification is subject to the prevention of significant deterioration (PSD) requirements of Chapter 62-212, F.A.C. A landfill for which construction or modification is subject to PSD requirements must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

DRAFT

SPECIFIC CONDITIONS:

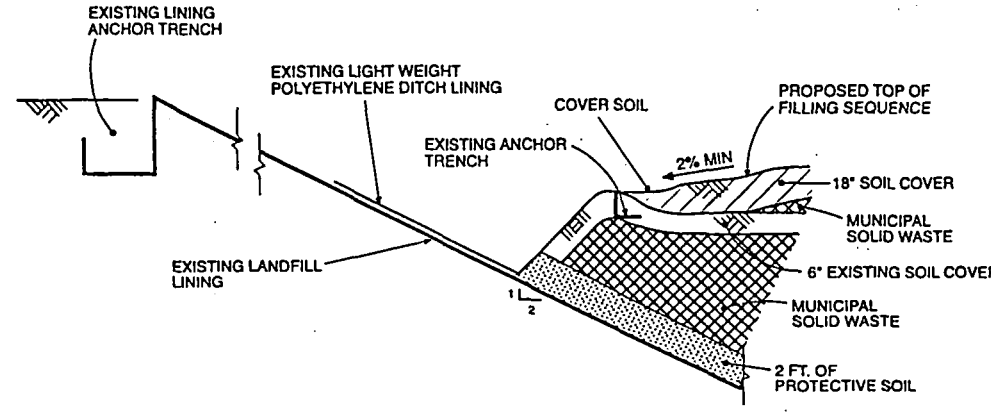
b. An air operating permit is not required unless the landfill is required to obtain a Title V air operating permit (Title V permit) pursuant to Section 403.0872, F.S. A landfill is required to obtain a Title V permit if the landfill (or the total facility, if the landfill is collocated or part of a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

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

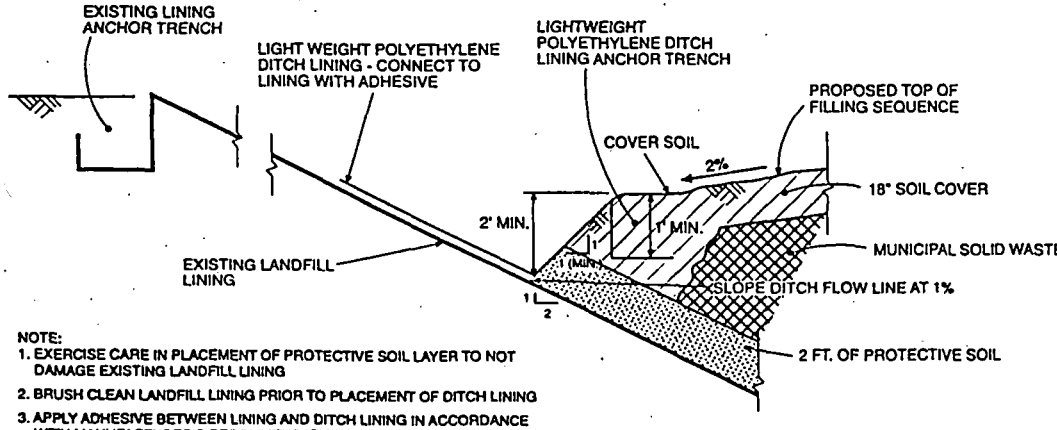


NOTE:
SEED AND MULCH ALL 4:1 SLOPES

DITCHES ON NORTHERN FACE
NTS

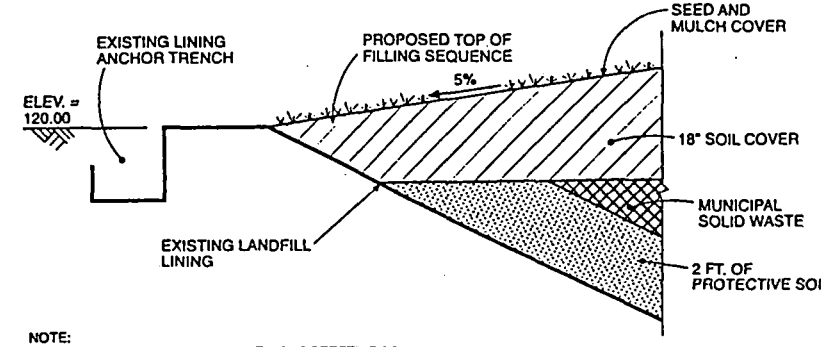


CONNECTION TO EXISTING LINED DITCH
NTS



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

NEW LINED DITCH
NTS



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

EXISTING ANCHOR TRENCH DETAIL
NTS

Figure 11
Typical Sections

Transmit Confirmation Report

No.	:	004
Receiver	:	813525271204
Transmitter	:	WASTE MGT TAMPA SWDIST
Date	:	Feb 18 98 9:18
Time	:	04'29
Mode	:	Norm
Pages	:	08
Result	:	OK

Citrus Central
2/11/98
AA, KBF

2

Citrus Central
2/11/98
AA, KBF

Citrus Central
2/11/98
AA, KBF

Citrus Central
AA, KBF
2/11/98

Citrus Central
AA, KBF
2/11/98

Citrus – 2 new gas wells Gas >100% LEL Rear LTP
3 " gw "
need rev. survey
need some well details

W. Pasco – sample evap solids
evap system
pick up MSDS, TCLP's

2/11/98
Site Visit w/ Kim.

Citrus leachate flow meter gone haywire – showing much greater flow than realistic
All flowmeters are down – water broke a connection.

Co. may use an ISCO flow sampler to collect representative leachate sample. Ok except for VOA sample. They are trying to proportion 7 acre + 60 acre leachate in their samples

Electrical room @ LTP has a Cl$_2$ alarm

GW, gas wells look ok – Well wizards installed covers

Repair area – Kim needs to see activity plans to review if they want to develop over LF.

Citrus

Gas flares - some have auto ignite - check flares every morning & relight as needed.

LTP - want to do a demonstration that they can run 2 batches (15,000 gal each) in 16 hrs. Still working on it. If they could run 3 batches in 24 hrs, will apply for a minor permit mod.

A Amram

Kim F.

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

Hand Delivered

D.E.P.
FEB 11 1998
SOUTHWEST DISTRICT
TAMPA

3600 W. SOVEREIGN PATH
LECANTO, FLORIDA 34461

ADMINISTRATION OFFICE
Suite 212
352-527-5477 Phone
352-527-5479 Fax

ENGINEERING DIVISION:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
  Suite 205
  352-527-5447 Phone
  352-527-5459 Fax
- Permits & Compliance Sec.
  Suite 204
  352-527-5448 Phone
  352-527-5319 Fax
- Project Management Sec.
  Suite 241
  352-527-5449 Phone
  352-527-5482 Fax
- Survey Section
  Suite 241
  352-527-5446 Phone
  352-527-5482 Fax

1300 S. LECANTO HIGHWAY
LECANTO, FLORIDA 34461

MAINTENANCE OPERATIONS:
- Facilities Maint. Section
  PO Box 143
  Lecanto, FL 34460
  352-527-0333 Phone
  352-527-0654 Fax
- Fleet Management Section
  PO Box 215
  Lecanto, FL 34460
  352-746-6888 Phone
  352-746-5011 Fax

AQUATIC SERVICES
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

ROAD MAINTENANCE
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

UTILITIES DIVISION
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

SOLID WASTE MANAGEMENT
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

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

February 11, 1998

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

Re: Citrus County Central Landfill,
Permit No: SO09-274381
SC 36 Groundwater Monitoring Well Construction

Dear Ms. Amram:

This is in response to your letter of February 6 related to new groundwater monitoring well construction.

SC 36a - All new monitoring wells were placed in 6-inch diameter holes, therefore the annular space for filter pack and well seal between the open hole and the 2-inch casing is nominally 4 inches.

Copies of the SWFWMD permits for construction and completion reports for MW-7, MW-8R and MW-9 and for abandonment of MW-8 are attached and indicate the permit numbers.

All wells monitor the unconfined Floridan aquifer, the first aquifer beneath the site.

The labels on the well completion log are, in fact, as you interpreted.

The groundwater monitoring plan proposal prepared in September 1995, did include 10-slot screen and 20/30 sand pack. The change to 6-slot screen and 60/45 sand pack was made when the silty nature of the sediments in the saturated zone was discovered. There was discussion with the driller and a decision by County staff to use the smaller screen size and finer filter medium. The primary advantage is that fine-grained sediment from the aquifer would be less likely to be brought into the well. This would result in less turbid groundwater samples. We are, after all, trying to sample the water, not the sediment.

High turbidity has been a problem with many of the other wells on the site; field filtration of groundwater samples for metals and radionuclides is allowed at this site because of the high turbidity levels. For analysis of other parameters, for which filtration is not allowed, the samples are still turbid. This causes problems for the laboratory when a "dirty" liquid sample is introduced into their analytical instruments.

SC36c - One full size and two reduced size copies of the groundwater monitoning well survey sheet are attached . The only change was to switch the latitude and longitude labels on the table of locations.

Please contact me if you have any questions.

Yours truly,

Susan J. Metcalfe

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

CC: Ken Saunders, Director, Public Works Department
Bob Butera, FDEP, Tampa
Kim Ford, FDEP, Tampa

STATE OF FLORIDA PERMIT APPLICATION TO CONSTRUCT, REPAIR, MODIFY, OR ABANDON A WELL

Permit No. 58Y701.03
Florida Unique I.D.
Permit Stipulations Required (See attached)
62-524 well ☐
CUP/WUP Application No.

☒ Southwest
☐ Northwest
☐ St. Johns River
☐ South Florida
☐ Suwannee River

CHECK BOX FOR APPROPRIATE DISTRICT. ADDRESS ON BACK OF PERMIT FORM. WO# 3310

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.

ABOVE THIS LINE FOR OFFICIAL USE ONLY

1. Orange County 107 Dr. Martin Luther King Jr. Ave Inverness FL 34450 352
Owner, Legal Name of Entity if Corporation — Address — City — Zip — Telephone Number

2. 3 miles East of Lecanto on SR44 Central Landfill
Well Location — Address, Road Name or Number, City

3. Douglas A. Leonhardt 2406 407 295-3532
Well Drilling Contractor — License No. — Telephone No.

4712 Old Winter Garden Rd.
Address

Orlando FL 32811
City — State — Zip

4. NW (smallest) 1/4 of SE (biggest) 1/4 of Section 01
(Indicate Well on Chart)

5. Township 19S Range 18E.

NW NE SW SE

6. Citrus
County — Subdivision Name — Lot — Block — Unit

7. Number of proposed wells 3 Check the use of well: (See back of permit for additional choices) ____ Domestic Monitor (type) Landfill
____ Irrigation (type) (See Back) Public Water Supply (type) ____ (See Back) List Other ____
Distance from septic system NA ft. Description of facility Landfill Estimated start of construction date 3/24/97

8. Application for: X New Construction ____ Repair/Modify ____ Abandonment ____ (Reason for Abandonment)

Southwest Florida Water Management District
MAR 20 1997
BROOKSVILLE PERMITTING

9. Estimated: Well Depth 130' Casing Depth 110' Screen Interval from 110 to 130'
Casing Material: Blk-Steel / Gal (PVC) Casing Diameter 2" Seal Material Neat Cement

10. If applicable: Proposed Grouting Interval From 0' to 108' Seal Material Neat Cement
From ____ to ____ Seal Material ____
From ____ to ____ Seal Material ____

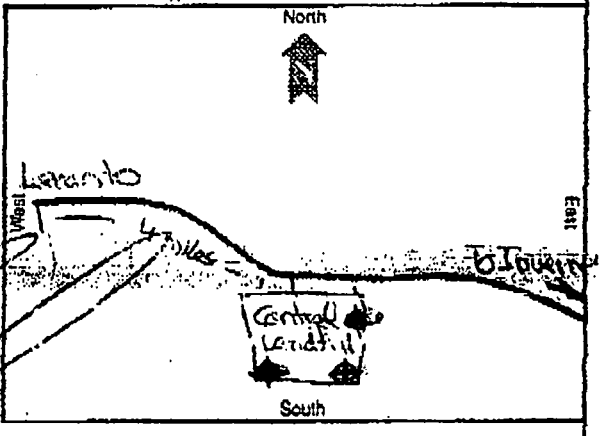
11. Telescope Casing NA or Liner ____ (check one) Diameter ____
Blk-Steel / Galvanized / PVC Other (specify): ____

12. Method of Construction: ____ Rotary ____ Cable Tool ____ Combination
X Auger ____ Other (specify:) ____

13. Indicate total No. of wells on site 8 List number of unused wells on site NA

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
(If yes, complete the following) CUP/WUP No. ____
District well I.D. No. ____
Latitude ____ Longitude ____
Data obtained from GPS ____ or map ____ or survey ____ (map datum NAD 27 ____ NAD 83 ____)

Draw a map of well location and indicate well site with an "X". Identify known roads and landmarks; provide distances between well and landmarks.



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 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 for 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 — License No. 2406 — Owner's or Agent's Signature — Date 3/17/97

DO NOT WRITE BELOW THIS LINE — FOR OFFICIAL USE ONLY

Approval Granted By: ____ Issue Date: 3/20/97 Hydrologist Approval ____

Owner Number: 20667 Fee Received: $ 0 Receipt No. 97-0285TP Check No. 1855

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.***

FORM 41.10 – 410 (1) REV. 4/95

WHITE: ORIGINAL FILE
YELLOW: DRILLING CONTRACTOR
PINK: OWNER

Fold at this line in order that address is visible through envelope window

WELL COMPLETION REPORT (Please complete in black ink or type.) Form 25-18 Rev. 4/94

PERMIT NUMBER 598541-C
WATER WELL CONTRACTOR'S SIGNATURE
COMPLETION DATE 10/22/97
OWNER'S NAME Citrus County
LICENSE # 2406
DRILL METHOD [X] Rotary [ ] Cable Tool [ ] Combination [ ] Jet [ ] Auger Other
WELL USE: Public ___ Irrigation ___ 17-524 ___ Domestic ___ Monitor X Other

Neat Cement: No. of Bags		From (Ft.)	To (Ft.)
20	20	0'	105'
Bentonite: No. of Bags	1		

Measured Static Water Level 111
Measured Pumping Water Level NA
After ___ Hours at ___ G.P.M.
Measuring Pt. (Describe): Ground Surface
Which is / Ft. [ ] Above [ ] Below Land Surface
Casing: [ ] Black Steel [ ] Galv. [X] PVC Other

WELL LOCATION: County Citrus
Qtr: NW Qtr: SE Sec: 01 Twp: 19S Rge: 18E

DATE STAMP
Official Use Only

Sketch of well location on property N
SR 44
Prop line
Landfill
MW#8R
Give distances from septic tank and house or other reference points

CHEMICAL ANALYSIS
Iron: ___ ppm Sulfate: ___ ppm
Chlorides: ___ ppm
[ ] Lab Test [ ] Field Test Kit

Pump Type
[ ] Centrifugal [ ] Jet [ ] Submersible [ ] Turbine
Horsepower ___ Capacity ___ G.P.M. ___
Intake/Injection Depth ___ Ft.

[ ] Casing [X] Screen	Depth (Ft.)		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.
Diameter & Depth (Ft.)	From	To	
Diameter 2" From 0 To 108	0'	20'	Brn. Sand
	20'	40'	Lt. Tan Sand
	40'	60'	" "
	60'	80'	" "
Diameter 2" From 108' To 128'	80'	100'	Brn. Clayey Sand
	100	128	Brn Sand w/ limestone Frags.
Diameter ___ From ___ To ___			

I certify that the information provided in this report is accurate and true.
Driller's Name: (print or type) Douglas W. Heath

WELL COMPLETION REPORT (Please complete in black ink or type.) Form 25-18 Rev. 4/94

PERMIT NUMBER 598540-01
WATER WELL CONTRACTOR'S SIGNATURE
COMPLETION DATE 10/22/97
OWNER'S NAME Citrus County
LICENSE # 2406
DRILL METHOD [ ] Rotary [ ] Cable Tool [ ] Combination [ ] Jet [ ] Auger Other
WELL USE: Public ___ Irrigation ___ 17-524 ___ Domestic ___ Monitor ___ Other

Neat Cement: No. of Bags		From (Ft.)	To (Ft.)
	2	0	115'
Bentonite: No. of Bags	1/2		

Measured Static Water Level NA
Measured Pumping Water Level
After ___ Hours at ___ G.P.M.
Measuring Pt. (Describe): NA
Which is ___ Ft. [ ] Above [ ] Below Land Surface
Casing: [ ] Black Steel [ ] Galv. [ ] PVC Other

WELL LOCATION: County Citrus
Qtr: NW Qtr: SE Sec: 01 Twp: 19S Rge: 18E.

DATE STAMP
Official Use Only

Sketch of well location on property N
SR 44
Landfill
MW8 Abandoned
Give distances from septic tank and house or other reference points

CHEMICAL ANALYSIS
Iron: ___ ppm Sulfate: ___ ppm
Chlorides: ___ ppm
[ ] Lab Test [ ] Field Test Kit

Pump Type
[ ] Centrifugal [ ] Jet [ ] Submersible [ ] Turbine
Horsepower ___ Capacity ___ G.P.M. ___
Intake/Injection Depth ___ Ft.

[ ] Casing [ ] Screen	Depth (Ft.)		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.
Diameter & Depth (Ft.)	From	To	
Diameter ___ From ___ To ___			NA.
Diameter ___ From ___ To ___			
Diameter ___ From ___ To ___			

I certify that the information provided in this report is accurate and true.
Driller's Name: (print or type) Douglas W. Heath

WELL COMPLETION REPORT (Please complete in black ink or type.)

PERMIT NUMBER 589701.03
WATER WELL CONTRACTOR'S SIGNATURE
COMPLETION DATE 4/1/97
WELL USE: Public ____ Irrigation ____ 17-524 ____ Domestic ____ Monitor X Other

OWNER'S NAME Citrus County
LICENSE # 2406
DRILL METHOD [ ] Rotary [ ] Cable Tool [ ] Combination [ ] Jet [X] Auger Other

Neat Cement: No. of Bags		From (Ft.)	To (Ft.)
	23	0	100
Bentonite: No. of Bags	1	100	101

WELL LOCATION: County Citrus
Qtr: NW Qtr: SE Sec: 01 Twp: 19S Rge: 18E

DATE STAMP
Official Use Only

Sketch of well location on property
SR 44
Central MW9
Landfill
Give distances from septic tank and house or other reference points

CHEMICAL ANALYSIS
Iron:____ ppm Sulfate:____ ppm
Chlorides:____ ppm
[ ] Lab Test [ ] Field Test Kit

Pump Type
[ ] Centrifugal [ ] Jet [ ] Submersible [ ] Turbine
Horsepower ____ Capacity ____ G.P.M. ____
Intake/Injection Depth ____ Ft.

Measured Static Water Level 104.5'
Measured Pumping Water Level ____
After ____ Hours at ____ G.P.M.
Measuring Pt. (Describe): ____
Which is ____ Ft. [ ] Above [ ] Below Land Surface
Casing: [ ] Black Steel [ ] Galv. [X] PVC Other ____

[X] Casing [ ] Screen Diameter & Depth (Ft.)	Depth (Ft.) From	To	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.
Diameter 2" From 0 To 101'	0	20'	Orange Sand
	20'	40'	Brown Clayey Sand
	40'	60'	Lt Brown Sand
Screen	60'	80'	Limestone
Diameter 2" From 101' To 121'	80'	100'	Same
	100'	120'	Lt Brown Sand
Diameter ____ From ____ To ____			

I certify that the information provided in this report is accurate and true.
Driller's Name: (print or type) Doug Heath

WELL COMPLETION REPORT (Please complete in black ink or type.)

Form 25-18 Rev. 4/94

PERMIT NUMBER 589701.03
WATER WELL CONTRACTOR'S SIGNATURE
COMPLETION DATE 3/30/97
WELL USE: Public ____ Irrigation ____ 17-524 ____ Domestic ____ Monitor X Other

OWNER'S NAME Citrus County
LICENSE # 2406
DRILL METHOD [ ] Rotary [ ] Cable Tool [ ] Combination [ ] Jet [X] Auger Other

Neat Cement: No. of Bags		From (Ft.)	To (Ft.)
24		0	100
Bentonite: No. of Bags	1	100	101

WELL LOCATION: County Citrus
Qtr: NW Qtr: SE Sec: 01 Twp: 19S Rge: 18E

DATE STAMP
Official Use Only

Sketch of well location on property
SR 44
Central
Landfill
MW8
Give distances from septic tank and house or other reference points

CHEMICAL ANALYSIS
Iron:____ ppm Sulfate:____ ppm
Chlorides:____ ppm
[ ] Lab Test [ ] Field Test Kit

Pump Type
[ ] Centrifugal [ ] Jet [ ] Submersible [ ] Turbine
Horsepower ____ Capacity ____ G.P.M. ____
Intake/Injection Depth ____ Ft.

Measured Static Water Level 100'
Measured Pumping Water Level ____
After ____ Hours at ____ G.P.M.
Measuring Pt. (Describe): ____
Which is ____ Ft. [ ] Above [ ] Below Land Surface
Casing: [ ] Black Steel [ ] Galv. [X] PVC Other ____

[X] Casing [ ] Screen Diameter & Depth (Ft.)	Depth (Ft.) From	To	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.
Diameter 2" From 0 To 101'	0	20'	Orange Sand
	20'	40'	Same
	40'	60'	Same
Screen	60'	80'	Same
Diameter 2" From 101' To 121'	80'	100'	Lt Brown Sand
	100'	120'	Soft Limerock
Diameter ____ From ____ To ____			

I certify that the information provided in this report is accurate and true.
Driller's Name: (print or type) Doug Heath

WELL COMPLETION REPORT (Please complete in black ink or type.)

PERMIT NUMBER 589701.03

WATER WELL CONTRACTOR'S SIGNATURE

COMPLETION DATE 3/25/97

WELL USE: Public ___ Irrigation ___ 17-524 ___ Domestic ___ Monitor X Other ___

OWNER'S NAME Citrus County

LICENSE # 2406

DRILL METHOD [ ] Rotary [ ] Cable Tool [ ] Combination [ ] Jet [X] Auger Other ___

Neat Cement: No. of Bags		From (Ft.)	To (Ft.)
18		0	116
Bentonite: No. of Bags	1	116	117

WELL LOCATION: County Citrus

Qtr: NW Qtr: SE Sec: 01 Twp: 19S Rge: 18E

DATE STAMP

Official Use Only

CHEMICAL ANALYSIS

Iron: ___ ppm Sulfate: ___ ppm

Chlorides: ___ ppm

[ ] Lab Test [ ] Field Test Kit

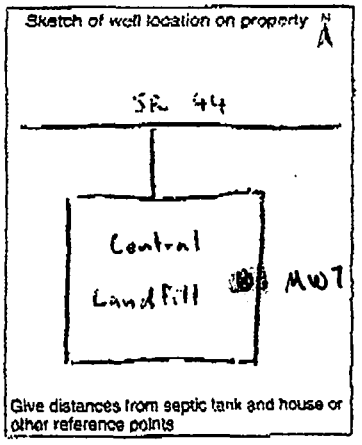
Pump Type

[ ] Centrifugal [ ] Jet [ ] Submersible [ ] Turbine

Horsepower ___ Capacity ___ G.P.M. ___

Intake/Injection Depth ___ Ft.

Sketch of well location on property



Give distances from septic tank and house or other reference points

Measured Static Water Level 115'

Measured Pumping Water Level ___

After ___ Hours at ___ G.P.M.

Measuring Pt. (Describe): ___

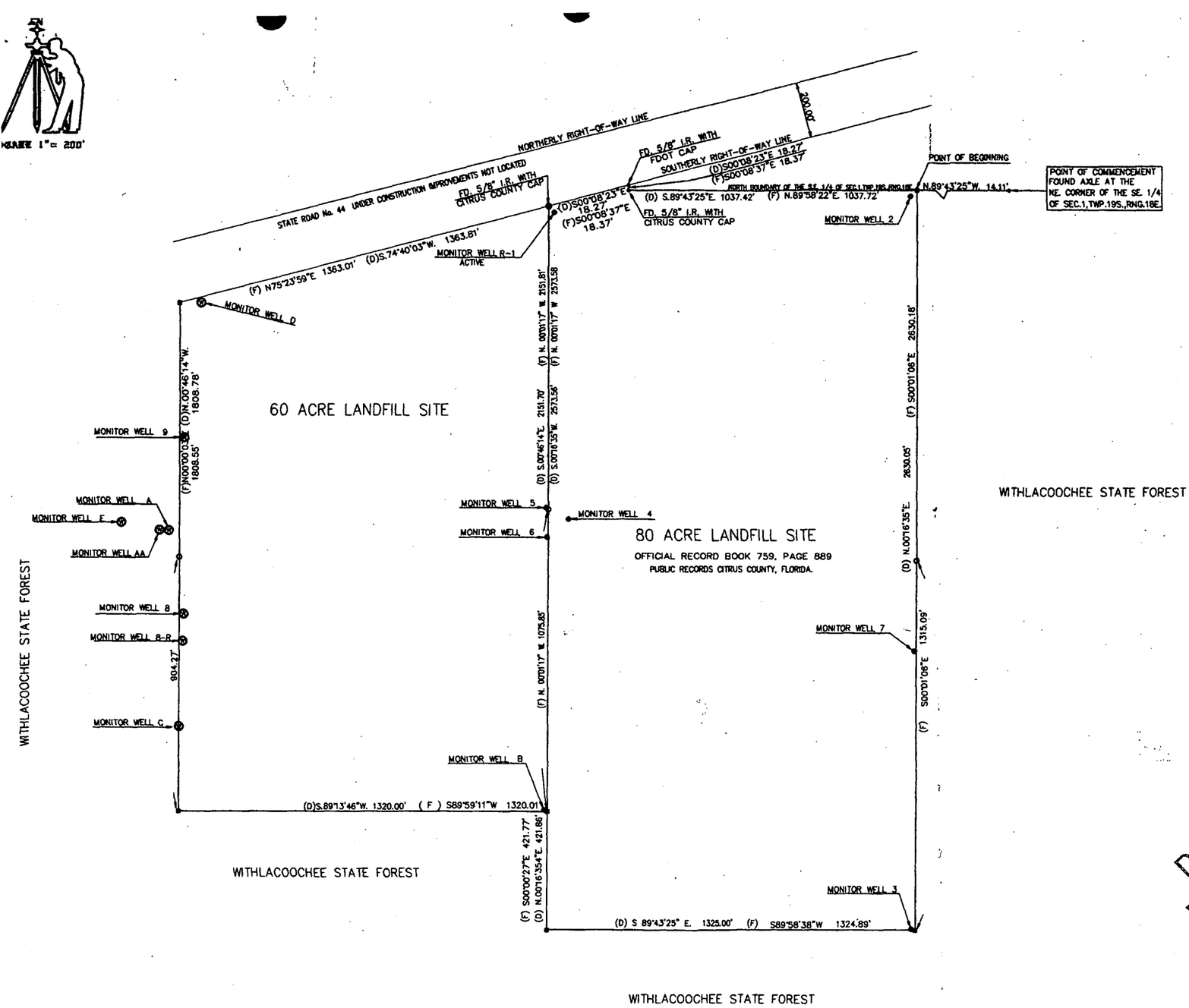
Which is ___ Ft. [ ] Above [ ] Below Land Surface

Casing: [ ] Black Steel [ ] Galv. [X] PVC Other ___

[X] Casing [ ] Screen Diameter & Depth (Ft.)	Depth (Ft.) From	To	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.
Diameter 2" From 0 To 117'	0	20'	Orange Sand
	20'	40'	Same
	40'	60'	Lt Brown Sand
Screen	60'	80'	Lt Brown Clayey Sand
Diameter 2" From 117' To 137'	80'	100'	Same
	100'	112'	Same
	112'	137'	Lt Brown Sand
Diameter ___ From ___ To ___			

I certify that the information provided in this report is accurate and true.

Driller's Name: (print or type) Doug Heath



IS SURVEY IS OF VISIBLE SURFACE FEATURES ONLY, UNDERGROUND ENCROACHMENTS, IF ANY, WERE NOT LOCATED.
HIS SURVEY IS BASED ON EXISTING MONUMENTATION FOUND IN PLACE, RECORDS OF WHICH ARE MAINTAINED IN THIS OFFICE.
NDS SHOWN HEREON WERE NOT ABSTRACTED FOR DEED EASEMENTS OR RIGHTS-OF-WAY OF RECORD.
TTENTION IS DIRECTED TO THE FACT THAT THESE PLANS MAY HAVE BEEN REDUCED IN SIZE BY REPRODUCTION THIS MUST BE CONSIDERED WHEN OBTAINING SCALE DATA.
FERENCE BENCHMARK, FLORIDA DEPARTMENT OF TRANSPORTATION BENCHMARK No. 54, ELEVATION 115.05' N.G.V.D. 1929
ERE ARE INTERAL IMPROVEMENTS THAT WAS NOT LOCATED BY THIS SURVEY.
ARINGS AND DISTANCES SHOWN HEREON ARE MEASURED AND BASED ON THE STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 83 UNLESS OTHERWISE SHOWN, THE
ORTH BOUNDARY OF THE SOUTHEAST 1/4 OF SECTION 1, TOWNSHIP 19 SOUTH, RANGE 18 EAST, BEING N. 89°58'22" E.

DESCRIPTION

A PORTION OF SECTION 1, TOWNSHIP 19 SOUTH, RANGE 18 EAST, TALLAHASSEE MERIDIAN, CITRUS COUNTY, FLORIDA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE NORTHEAST CORNER OF THE SOUTHEAST 1/4 OF SECTION 1, TOWNSHIP 19 SOUTH, RANGE 18 EAST, TALLAHASSEE MERIDIAN; THENCE N.89°43'25"W. ALONG THE NORTH BOUNDARY OF THE SOUTHEAST 1/4 OF SAID SECTION 1, A DISTANCE OF 14.11 FEET TO THE POINT OF BEGINNING SAID POINT BEING THE NORTHEAST CORNER OF THOSE LANDS DESCRIBED IN OFFICIAL RECORD BOOK 759, PAGE 889, PUBLIC RECORDS OF CITRUS COUNTY, FLORIDA; THENCE S.00°16'35"E. ALONG THE EAST BOUNDARY OF THE SOUTHEAST 1/4 OF SAID SECTION 1, A DISTANCE OF 2,630.05 FEET; THENCE N.89°43'25"W. PARALLEL WITH THE NORTH BOUNDARY OF THE SOUTHEAST 1/4 OF SAID SECTION 1, A DISTANCE OF 1,325.00 FEET; THENCE N.00°16'35"E., A DISTANCE OF 2,573.56 FEET TO A POINT ON THE SOUTH RIGHT-OF-WAY LINE OF STATE ROAD No. 44, SAID POINT BEING 150.00 FEET FROM, WHEN MEASURED AT RIGHT ANGLES TO THE CENTERLINE OF SAID STATE ROAD No. 44; THENCE N.75°41'50"E. ALONG SAID SOUTH RIGHT-OF-WAY LINE, A DISTANCE OF 297.01 FEET; THENCE DEPARTING SAID SOUTH RIGHT-OF-WAY LINE S.00°08'23"E., A DISTANCE OF 18.27 FEET TO A POINT ON THE NORTH BOUNDARY OF THE SOUTHEAST 1/4 OF SAID SECTION 1; THENCE S.89°43'25"E. ALONG THE NORTH BOUNDARY OF THE SOUTHEAST 1/4 OF SAID SECTION 1, A DISTANCE OF 1,037.42 FEET TO THE POINT OF BEGINNING. CONTAINING 79.87 ACRES MORE OR LESS.

MONITOR WELL No.	X COORDINATE	Y COORDINATE	LONGITUDE	LATITUDE	ELEVATION TOP OF WELL CASING
A ABANDONED 3-22-94	514359.520	1642944.584	82°26'34.75084" W.	28°51'09.22841" N.	105.32'
B ACTIVE	515703.188	1641852.201	82°26'19.59919" W.	28°50'59.45084" N.	111.94
C ACTIVE	514397.562	1642247.058	82°26'34.29378" W.	28°51'02.32191" N.	115.18'
D ACTIVE	514472.380	1643753.584	82°26'33.51558" W.	28°51'17.24014" N.	109.77'
R-1 ABANDONED 9-26-94	515746.387	1644088.835	82°26'19.20218" W.	28°51'20.60814" N.	118.25'
2 ACTIVE	517016.947	1644134.0121	82°26'04.91534" W.	28°51'21.09869" N.	136.29'
3 ACTIVE	517026.689	1641528.493	82°26'04.69852" W.	28°50'55.30387" N.	120.47'
AA ACTIVE	514330.1915	1642944.6946	82°26'35.08066" W.	28°51'09.22643" N.	106.11'
5 ACTIVE	515706.7199	1643027.5870	82°26'19.60416" W.	28°51'10.08772" N.	121.14'
6 ACTIVE	515710.8712	1642921.8127	82°26'19.55309" W.	28°51'09.05065" N.	118.48'
4 ACTIVE	515787.5197	1642987.2443	82°26'18.69384" W.	28°51'09.70125" N.	122.62'
R-1 ACTIVE	515734.4675	1644079.0314	82°26'19.33566" W.	28°51'20.46904" N.	118.08'
1 ABANDONED 2-09-94	515745.434	1644077.441	82°26'19.21242" W.	28°51'20.49330" N.	117.57'
E ACTIVE	514187.411	1642978.872	82°26'36.68776" W.	28°51'09.55952" N.	109.88'
7 ACTIVE	517032.485	1642518.150	82°26'04.67396" W.	28°51'05.10226" N.	128.66'
8 ABANDONED 10-22-97	514411.282	1642648.328	82°26'34.15632" W.	28°51'08.29522" N.	117.76
9 ACTIVE	514411.959	1643276.437	82°26'34.17505" W.	28°51'12.51388" N.	113.55'
8-R ACTIVE	514408.379	1642551.088	82°26'34" W.	28°51'15" N.	118.13'

FIELD DATE: MARCH 14,1994
REVISION DATE: MARCH 22,1994
ADD MONITOR WELLS No. AA, 4, 5 & 6

FIELD DATE: JUNE 15, 1994
REVISION DATE: JUNE 16,1994
DELETE MONITOR WELL No. 1, ADD MONITOR WELL No. R-1
CHANGE MONITOR WELL No. 4 TO MONITOR WELL No. 5
CHANGE MONITOR WELL No. 5 TO MONITOR WELL No. 6
CHANGE MONITOR WELL No. 6 TO MONITOR WELL No. 4

FIELD DATE: SEPTEMBER 29,1994
REVISION DATE: SEPTEMBER 30,1994
DELETE MONITOR WELL R-1 ABANDONED, ADD MONITOR WELL R-1 ACTIVE

FIELD DATE: NOVEMBER 18,1994
REVISION DATE: NOVEMBER 21,1994
ADD MONITOR WELL No. E

FIELD DATE: JULY 27,1995
REVISION DATE: JULY 28,1995
ADD AERIAL TARGET

REVISION DATE: JULY 22,1996
REVISE BOUNDARY SURVEY TO NEW LEGAL DESCRIPTION

FIELD DATE: APRIL 16,1997
REVISION DATE: APRIL 21,1997
ADD MONITOR WELL No. 7, 8 AND 9

REVISION DATE: SEPTEMBER 9,1997
CHANGE MONITOR WELL No. 8 TO MONITOR WELL No. 9
CHANGE MONITOR WELL No. 9 TO MONITOR WELL No. 8

FIELD DATE: NOVEMBER 5,1997
REVISION DATE: NOVEMBER 7,1997
ADD MONITOR WELL No. 8-R

D.E.P.
FEB 11 1998
SOUTHWEST DISTRICT
TAMPA

A BOUNDARY SURVEY FOR CITRUS COUNTY, FLORIDA
OF PROPERTY IN THE SOUTHEAST 1/4 OF SECTION 1, TOWNSHIP 19 SOUTH, RANGE 18 EAST, CITRUS COUNTY, FLORIDA.

Proj. No. 89-615
Drawn by: P.L.H.
Approved by:
Date:
Scale: 1"= 200'
Sheet No. 1 OF 1
Field Date: JUNE 18, 1992
Field Book: 8-B 8-C
Pages: 14-18 1-2
Sec 1 TWP. 19S. RNG. 18E

Citrus County
Department of Technical Services
Division of Engineering
P.O. BOX 440 Lecanto, FL. 34461
Phone: (904)746-2694

SURVEYOR'S CERTIFICATION

I hereby certify that the herein described land survey and plat are true and correct and was prepared under my direction and supervision and conforms to the minimum technical standards set forth by the Florida Board of Professional Land Surveyors in Chapter 61G17-6, Florida Administrative Code, pursuant to Section 472.027, Florida Statutes.

Dated this ____ day of _____ 1997

Patrick L. Henson Professional Surveyor Mapper No. 4547
Not valid without an original signature and seal.

⊙ FOUND 4"X4" CONCRETE MONUMENT
□ SET 4"X4" CONCRETE MONUMENT COUNTY CAP
△ DESCRIPTIVE POINT
● FOUND IRON ROD
○ FOUND IRON ROD SET 4"X4" CONCRETE MONUMENT
ELEVATION
R/W RIGHT-OF-WAY
℄ CENTERLINE
◆ = BENCHMARK
⊗ = WELL

P.O.B. = POINT OF BEGINNING
P.O.C. = POINT OF COMMENCEMENT
P.R.C.C.F. = PUBLIC RECORDS OF CITRUS COUNTY, FLORIDA
(P)= PLAT, (D) = DEED (F) FIELD
P.B. = PLAT BOOK
P.R.M. = PERMANENT REFERENCE MONUMENT
T.B.M. = TEMPORARY BENCHMARK
P.C.P. = PERMANENT CONTROL POINT
C.B.S. = CONCRETE BLOCK STRUCTURE

BOARD OF COUNTY COMMISSIONERS
DEPARTMENT OF PUBLIC WORKS

REPLY TO:

Div. of Solid Waste Mgmt.
Susan J. Metcalfe, Director
352/746-5000
FAX: 352/527-1204

DATE: 2/6

TIME: 135

NO. PAGES: 3 including cover sheet

TO: Kim Ford FDEP

813 744 6125

FROM: Susie Metcalfe

RE: Wind damage from storm

MESSAGE: Anticipating additional rain have started hauling leachate to make room for stormwater/leachate mix which may result from rain coat being damaged

3600 W. Sovereign Path
Lecanto, Florida 34461

Administration Office
Suite 212
352-527-5477 Phone
352-527-5479 Fax

Engineering Division:
Suite 241
352-527-5446 Phone
352-527-5476 Fax

- Land Section
  Suite 205
  352-527-5447 Phone
  352-527-5459 Fax
- Permits & Compliance Sec.
  Suite 204
  352-527-5448 Phone
  352-527-5319 Fax
- Project Management Sec.
  Suite 241
  352-527-5449 Phone
  352-527-5483 Fax
- Survey Section
  Suite 241
  352-527-5446 Phone
  352-527-5482 Fax

1300 S. Lecanto Highway
Lecanto, Florida 34461

Maintenance Operations:
- Facilities Maint. Section
  PO Box 143
  Lecanto, FL 34460
  352-527-0333 Phone
  352-527-0654 Fax
- Fleet Management Section
  PO Box 215
  Lecanto, FL 34460
  352-746-6688 Phone
  352-746-5011 Fax

Aquatic Services
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-9189 Fax

Road Maintenance
PO Box 167
Lecanto, FL 34460
352-746-4107 Phone
352-746-1203 Fax

Utilities Division
PO Box 440
Lecanto, FL 34460
352-746-2694 Phone
352-746-1676 Fax

Solid Waste Management
230 W. Gulf to Lake Highway
PO Box 340
Lecanto, FL 34460
352-746-5000 Phone
352-527-1204 Fax

CITRUS COUNTY BOARD OF COUNTY COMMISSIONERS

INCIDENT REPORT

CODE: 1. Vehicle Accident 2. Property Damage
3. Bodily Injury 4. Other

This form is to be completed by all required parties and submitted to the Risk Management Office within 24 hours (or the following work day if weekend is involved) of an incident.

1. Employee's Name: NA Employee ID #: _____
2. Department/Division: Public Works / Solid Waste Management
3. Type of Incident (use Code above): 2. Property Damage (Storm)
4. Date of Incident: 2-4-98 Time: Morning

5. Location: Citrus County Central Landfill
6. If the incident involved a County vehicle, vehicle #: —
7. If personal property damage occurred, please provide the following:
   A) Name and address of owner: _____
   B) Type of property damage: _____
   C) Insurance information: _____
8. If #4, Other is marked, please explain: _____

9. Did an injury(ies) occur? (Y) (N)
   A) Person(s) injured (list names and addresses of all injured persons): _____
   B) Type of injury: _____
10. Was medical treatment required? (Y) (N)
    A) Name and address of attending physician(s) and/or hospital: _____

11. Investigating law enforcement agency: _____

Case #: _____

A) A copy of their police report is to be provided within seven (7) days of the incident. If one is not available within this time frame, notice to the Office of Risk Management is required.

12. Please describe the incident: Storm/wind Damage
1) Approximately 300 ft fence fabric blown down on east perimeter
2) Approximately 2 acres of plastic liner blown loose from Phase 1A Expansion (top raincoat layer)

13. Witnesses:

A) Name, address, telephone #: David Chamblin
7864 E Day Ln
Inverness, FL 726-8816.
746-5000 wk

B) Name, address, telephone #: _____

14. Supervisor's Comments/Corrective Action Taken: Began repairs to liner 2-4-98 PM. Fence will have to wait till next week. Expect completion of repair with staff and inmate labor within about 1 week
Have photos

Employee Name (Print)
David W Chamblin

Employee Signature
S Metcalfe

Supervisor's Signature

Division/Department Director's Signature

Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

February 6, 1998 VIA FAX

Ms. Susan J. Metcalfe, P.G.
Director, Solid Waste Management
P.O. Box 340
Lecanto, Florida 34460-0340

Subject: Ground Water Monitoring Well Construction, Permit No. SO09-274381
Citrus County

Dear Ms. Metcalfe:

The Solid Waste Section of the Florida Department of Environmental Protection (FDEP) has reviewed the January 23, 1998 submittal from you concerning gas and ground water monitoring well construction. Please respond to the following items:

Specific Condition No. 36.a. The following information is required for documentation of well construction, but was not clear from the data submitted: thickness of the well seal, thickness of the filter pack, Southwest Florida Water Management District permit numbers for well installation and aquifer monitored. Attached is a copy of the well completion log for MW-7. Please confirm that the numbers provided on the sketch are for the construction parameter written beside it. Please also include justification for the change to the well screen slot size and filter pack size (wells were approved with 10-slot screen and 20/30 sand pack).

Specific Condition No. 36.c. The survey for the new ground water monitoring wells has switched the latitude and longitude numbers. Please revise the survey to accurately reflect the locations of these wells.

These items must be provided to the FDEP prior to use of Phase 1A, as stated in Specific Condition No. 34. If you have any questions, please contact me at 813/744-6100, ext. 336.

Sincerely,

Allison Amram

Allison Amram, P.G.
Solid Waste Section

Attachment

cc: Kim Ford, P.E., FDEP
Bob Butera, P.E., FDEP

WELL COMPLETION LOG

ocation: Citrus County Central Landfill
State Road 44 Lecanto, Florida

Work Order # 3370

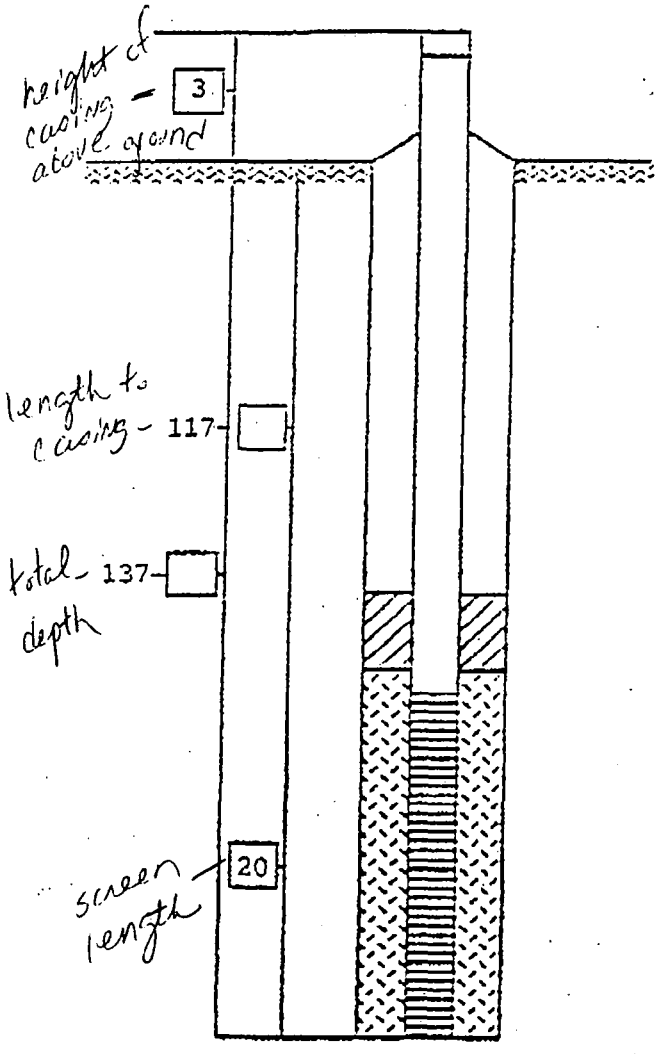
lient: Citrus County

Date: March 25, 1997

/ell Number: MW-7 Contact: Susan Metcalf

:talled By: Doug Heath

:ther Services Performed:



_____ Flush Manhole
__x__ Above Grade Protector
_____ None

Concrete 26 Bags
Cement Grout 18 Bags
Riser - Type PVC
Size 2"

Bentonite Yes

Screen - Type PVC
Size 2" .060 Slot

Filter Type 60/45 Silica

velopment: Bailed _____, Pumped __x__, Air Lift _____, Surge_____, Swab_____, None_____

:al Time: 8 Hours Total Gallons: 23

:ter Appearance: Start Cloudy Finish Clear

Environmental Drilling Service, Inc.

FDEP	3804 Coconut Palm Drive, Tampa, FL 33619-8318

FAX

Date: 2/6/98

Number of pages including cover sheet: 3

To:
Susie Metcalfe
Citrus Co SW. Mgt

Phone:

Fax phone: 352/527-1204

CC:

From:
Allison Amram
Solid Waste Section

Phone: (813) 744-6100 x 336

Fax phone: (813) 744-6125

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

Susie -
This is what i's missing for the new well documentation.

Allison

** Transmit Conf.Report **

Feb 6 '98 14:54

---> 813525271204	
No.	0002
Mode	NORMAL
Time	1'17"
Pages	3 Page(s)
Result	O K

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
SOUTHWEST DISTRICT

CONVERSATION RECORD

Date 2/4/98 Subject Well Documentation

Time 8:35 Permit No.

County Citrus

M Susie Metcalfe Telephone No.

Representing Citrus

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

Other Individuals Involved in Conversation/Meeting

Summary of Conversation/Meeting

Called to make sure cl'd received all gw well documentation for the new cell. The County is ready to use the new cell - Susie had a few details to wrap up w/ Kim for the Certification of Construction Completion, & the well data of use prior to use of the new cell.

cl will review it this week (rcd 1/28/98)

2/6 - faxed her letter of missing items listed

(continue on another sheet, if necessary)

Signature Alison Amram

Title PG1

PA-01
1/96
pap

Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

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

February 2, 1998

RE: Citrus County Landfill Financial Assurance Cost Estimates
Permit Nos.: SC09-282375, SO09-274381, and SF09-211030, Citrus County

Dear Ms. Metcalfe:

This letter is to acknowledge receipt of the revised cost estimates dated December 16, 1997 (received December 22, 1997) and the signed and sealed Financial Assurance Cost Estimates Form (received January 29, 1998), for closure and long-term care of the Citrus County Landfill (Phase 1, 1A, and old closed 60 acres). The cost estimates dated December 16, 1997 (closure $2,521,206 and long-term care $160,837/year x 30 years=$4,825,125), are **APPROVED for 1997**. The next annual update (revised or inflation-adjusted estimates) is due no later than **September 1, 1998**. Please be advised that although the estimates are approved for 1997, the following items need to be addressed/corrected in the 1998 submittal:

1. The inflation adjustment of 1.6 percent, which was "based on the average annual increase in the Producer Price Index (PPI) for Finished Goods between October 1991 and October 1996 as reported in the PPI Detailed Report produced by the U.S. Department of Labor, Bureau of Labor Statistics" is not valid for the purposes of financial assurance. Pursuant to 40 CFR 264.142, the inflation-adjustment factor is derived from the Implicit Price Deflator for the Gross National Product which is published by the U.S. Department of Commerce. For future submittals, please contact Mr. Fred Wick at 850-488-0300 to obtain the correct inflation-adjustment factor.

2. The closing cost for the Waste Tire facility does not describe what services are included in the bid, e.g. de-rimming, and loading. The "Notice of Award" is based on a 1996 bid (not 1997 prices), and does not indicate the duration of the contract. The 1998 submittal should include this information.

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

Sincerely,

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

sjp
cc: Gary Kuhl, P.E., Director, Citrus Co. Dept. of Public Works, PO Box 340, Lecanto, Fl. 34461
R.J. Bruner III, P.E., CH2M Hill, 3011 SW Williston Road, Gainesville, Fl. 32608-3928
Fred Wick, FDEP, Tallahassee, w/attachment
Robert Butera, P.E., FDEP Tampa
Kim Ford, P.E., FDEP Tampa