REVISED SITE INSPECTION REPORT
FOR
ATHENS LANDFILL #2 (MALAKOFF ROAD)
EPA IDENTIFICATION NUMBER TXD980062352
ATHENS, HENDERSON COUNTY, TEXAS
WORK ASSIGNMENT NUMBER 25-6JZZ

CONTRACT NUMBER 68-W9-0013

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1.0 INTRODUCTION

Under authority of the Comprehensive Environmental Response, Compensation, Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA), Fluor Daniel, Inc. has been tasked by the Environmental Protection Agency (EPA), under Work Assignment #25-6JZZ to conduct a Site Inspection (SI) of the Athens Landfill #2 (Malakoff Road) located in Athens, Henderson County, Texas. The site is identified by EPA CERCLIS #TXD980062352.

This final report discusses site activities and potential contamination pathways at the site and describes sampling activities that were conducted during the site investigation. Fluor Daniel is a participant in the Region 6 Alternative Remedial Contracting Strategy Program under contract 68-W9-0013.

1.1 Site Inspection Objectives

The SI is the intermediate investigative stage of the pre-remedial process. In general, the SI expands upon the information obtained during the Preliminary Assessment (PA), including PA reports, reconnaissance inspections and other EPA and state activities. In addition, the collection of environmental samples further characterizes the condition of the site. Sample data collected during the SI will 1) assess whether a release of hazardous substances has occurred, 2) investigate potential human and environmental exposure to contaminants, and 3) determine if this site will warrant further investigation.

1.2 Site-Specific Objectives

The primary objectives of this SI are to evaluate potential sources and to characterize the ground water and soil exposure pathways.

1.3 Site Description

The City of Athens Landfill is located on Malakoff Road, west of the City of Athens, Henderson County, Texas. This site is located approximately 2.5 miles west of Athens on College Street (also known as Malakoff Road) and is approximately 38 acres in size. Geographical coordinates of the site are 95°53'45" west longitude and 32°11'30"

north latitude (Ref. 1). Figures 1, 2A, and 2B are presented as the Site Location Map and Site Sketch, respectively.

The City of Athens Landfill is co-owned by the Henderson County Fire Chiefs Association and Mr. Eldon Morris. Malakoff Road bisects the site (Ref. 2). Mr. Morris owns approximately 18 acres south of Malakoff Road and lives adjacent to the southern half of the former landfill area. Mr. Morris grazes cattle on his portion of the site. The southern half of the former landfill surface has differential and area settlement creating large depressions which collect water (Ref. 2, p. 7, 8). The area north of Malakoff Road comprises the remaining 20 acres. The northern portion was donated by the City of Athens to the Fire Chiefs Association and is currently utilized as a fire training facility (Ref. 3).

1.4 Site Operational History

Information concerning past operations at the site is limited. The landfill operated from 1972 to 1979 under permit #263 issued by the Texas Department of Health. The landfill accepted municipal solid waste and used trench and area fill methods. There are no records to indicate that the landfill was used for the disposal of hazardous waste. The site has been inactive since 1979 (Ref. 4, p. 1, 3, 10, 11 and Ref. 5). The area of the former landfill has no engineered cover system, nor is it under a post closure inspection or maintenance program.

1.5 Quality Control Procedures

All data collection activities have been in accordance with the following documents:

- "Final Work Plan - Revision 1 for The Site Inspection Project, EPA Region 6, Volume 1," June 9, 1992, Fluor Daniel, Inc.
- "Original Project Field Sampling/Quality Assurance Project Plan for the Site Investigation, EPA Region 6," July 5, 1992, Fluor Daniel, Inc.
- CLP Users Guide, EPA Region 6
- "Original Health and Safety Plan, Site Inspections," June 8, 1992, Fluor Daniel, Inc.

2.0 WASTE/SOURCE CHARACTERIZATION

Waste/source characterization sampling was performed as part of this investigation.

2.1 General Considerations

In addition to the landfill, five new potentially hazardous waste sources were identified at the site during the SI. These additional sources were identified during the site reconnaissance (Ref. 2, p. 1 - 12). The five sources are located on the northern half of the site and are believed to be related to the current fire training operations, not former landfill activities.

The five additional sources are a drum disposal area; a small oily sludge pond; a sludge pond runoff area; a black stained area (contaminated soil); and an above-ground fuel tank storage area. Figure 2A illustrates the location of each of these additional sources. The hazardous waste quantities are as follows: 270,072 sq ft for the northern half of the landfill, 557,568 sq ft for the southern half of the landfill, 2,000 sq ft for the drum disposal area, 450 sq ft for the small oily sludge pond, 3,000 sq ft for the sludge pond runoff area, 1,200 sq ft for the black stained area, and 2,000 sq ft for the above- ground fuel tank storage area (Ref 6, p. 1-12).

2.2 Sample Locations

A total of sixteen samples were collected. A description of the samples, locations, and station numbers are presented in bullet form below. Table 1 presents sample locations and rationale for samples collected during the SI. Figure 3A and 3B illustrates sample locations.

- Two samples were collected from the drum disposal area (Stations 8 and 9).
- Two samples were collected from the small oily sludge pond (Stations 10 and 11).

- Two samples were collected from the sludge pond runoff area (Stations 12 and 13).

- One sample was collected from the black stained area (Station 7).

- One sample was collected from the above-ground fuel tank storage area (with one duplicate) (Stations 5 and 6).

- One background soil sample was collected for the northern portion of the site (Station 14).

- Four samples were collected to characterize the landfill contents (Stations 15, 16, 17 and 18).

- One background soil sample was collected for comparison with the landfill content samples (Station 19).

- One residential soil sample at Morris house (Station 20).

2.3 Analytical Results

Samples were analyzed for Target Analyte List inorganics and Target Compound List organics. Numerous inorganic analytes exceeded established benchmark background concentrations (BBCs) in the samples collected on the northern portion of the site including cadmium, copper, lead, mercury, selenium, silver and zinc. Cadmium was detected at concentrations of 1.1 and 1.2 milligrams per kilogram (mg/kg) in samples collected at Stations 8 and 9 (drum disposal area). Cadmium was not detected in the background soil sample collected at Station 14. Lead exceeded the BBC of 26.7 mg/kg in samples collected at Stations 5, 6, 9, 10, 11, 12 and 13. Lead concentrations ranged from 34.7 mg/kg (Station 10 - small oily sludge pond) to 599 mg/kg (Station 6 - fuel storage tank area). Mercury was detected at 0.39 mg/kg in the sample collected at Station 9. Mercury was not detected in the background sample collected at Station

14. Selenium was reported in concentrations of 0.21, 0.3 and 2.3 mg/kg in samples collected at Stations 9, 10 and 11, respectively. Selenium was not detected in the background sample collected at Station 14. Silver was reported at a concentration of 1.1 mg/kg in the sample collected at Station 9. Silver was not detected in the background sample collected at Station 14. Zinc exceeded the BBC of 116.1 mg/kg in samples collected from Stations 6, 9, 10 and 11. Reported zinc concentrations were as follows: Station 6 (257 mg/kg), Station 9 (227 mg/kg), Station 10 (210 mg/kg) and Station 11 (190 mg/kg). Inorganic BBCs were exceeded in the samples collected from the landfill trench areas on the southern part of the site. Inorganic analytes which exceeded BBCs included arsenic, barium, chromium, cobalt, copper, lead, manganese, nickel, vanadium and zinc. Inorganic soil analytical results summary tables are located in Table 4A and 4B.

No organic constituents were reported to be present in the background soil sample for the northern portion of the site (Station 14). However, numerous volatile and semi-volatile organic compounds were detected in the source characterization soil samples collected on the northern portion of the site. Numerous pesticides were also reported to be present in the soil samples. Volatile organics detected include acetone, toluene, ethylbenzene, xylenes, 2-butanone and 4-methyl-2-pentanone. Semi-volatile compounds detected include phenolic compounds and polynuclear aromatic hydrocarbons (PAHs). Pesticides include aldrin, 4,4-DDT, 4,4-DDD, methoxychlor, endosulfan II, endrin aldehyde, heptachlor epoxide, gamma- and alpha-chlordane and aroclor-1260. In general, the highest occurrence and concentration of organic contaminants appeared to be reported in samples collected at Stations 5, 6, 9, 10 and 11. Numerous tentatively identified compounds (TICs) were detected in all of the soil samples. The majority of the TICs were unknown hydrocarbons.

No volatile or semi-volatile organic contaminants were detected in the source samples collected from the southern portion of the site (Stations 15 through 19). Several pesticides were detected in samples collected at Stations 16, 17, 18, and 19. Aldrin, 4,4-DDT, 4,4-DDD, methoxychlor and endosulfan II were detected in low ranges in

these samples. Full chemical data summaries for organic soils analysis are located in Table 5A and 5B.

2.4 Summary

Source characterization samples collected on the northern portion of the site revealed the presence of numerous elevated inorganic and organic constituents. Source characterization samples on the southern part of the site also had elevated inorganic constituents but did not indicate that elevated organics are present with the exception of trace amounts of pesticides.

3.0 GROUND WATER

Ground water sampling was conducted as part of this investigation.

3.1 Hydrogeology

The site is located on the undivided Wilcox Group of Eocene age. The Wilcox consists mainly of silty and sandy clay with interbedded sand, silt, clay and lignite. The Wilcox is an important regional aquifer; the largest capacity and deepest wells in Anderson, Cherokee, Freestone, and Henderson Counties produce from this unit. Sand outcrops within the Wilcox constitute recharge zones for the aquifer. Surficial soils consist mainly of silty and sandy clay (Ref. 7).

The Carrizo Sand is a water bearing unit which unconformably overlies the Wilcox in some locations within the 4-mile radius. The Wilcox and the Carrizo are generally considered to be separate aquifers due to low-permeability marine muds at the top of the Wilcox. However, in many instances, the Carrizo comes in contact with the upper Wilcox sands, making the two units somewhat interconnected regionally. Existing geologic literature will often refer to these aquifers as the "Wilcox-Carrizo" or "Carrizo-Wilcox" (Ref. 8, p. 2).

3.2 Targets

Sixteen domestic ground water wells are completed in the Wilcox and Carrizo aquifers within a 4-mile radius of the landfill. The following table illustrates the distance from the site to these wells along with population served, aquifer and depth of completion:

Distance (Miles)	#Wells/Pop.	Aquifer	Depth (Feet)
0 to 1	3/7.71	Wilcox	80, 280, 240
1 to 2	4/10.28	Wilcox Carrizo	732, 465, 42 27
2 to 3	3/7.71	Wilcox	150, 205, 386
3 to 4	6/15.42	Wilcox	794, 800, 859 590, 445, 365

There are two ground water wells adjacent to the southern half of the site. Both wells are on the property of Mr. Morris; one is active. The depth of the inactive well is approximately 80 feet below the surface with a static water level of 35 feet. The depth of the active well is approximately 280 feet below the surface. The third well within a 1-mile radius of the site is located at the Meredith residence 0.45 mile east of the site on Malakoff Road (Ref 9, p. 1-12). There are 2.57 persons per household in Henderson County (Ref. 10, p. 2).

The municipal drinking water supply for the City of Athens is Lake Athens. The city also owns two wells (approximately 600 feet deep) which are used as a backup supply (Ref. 11). These two wells are approximately 3 miles from the site. There are no wellhead protection areas in the vicinity of the City of Athens (Ref. 12).

3.3 Sample Locations

A total of five water samples were taken during the sampling inspection, four plus one field blank. The four samples included both of the Morris wells, one duplicate, and an upgradient background drinking water well (Meredith residence) located 0.45 miles east of the site. A summary of the ground water samples collected is presented in Table 2.

3.4 Analytical Results

One inorganic analyte of concern exceeded BBCs detected in the background drinking water sample. Zinc was reported at 55 micrograms per liter (µg/l) in the sample collected at Station DW03 (Morris active domestic well). Zinc was not present in the background drinking water sample.

Magnesium in the samples collected at Station DW01 (Morris abandoned drinking water well) and DW02 (duplicate) exceeded the established BBC. Calcium exceeded the BBC in the sample from Station DW02. However, magnesium and calcium are common constituents of ground water which vary greatly in distribution and concentration.

Organic data for the drinking water samples did not indicate the presence of organic compounds. Drinking water analytical results are located in Attachment A.

3.5 Summary

One inorganic analyte (zinc) was detected above BBCs. No organic constituents were detected in the drinking water samples.

4.0 SURFACE WATER

The surface water pathway was not addressed as part of this investigation.

4.1 Hydrology

The surface water migration pathway has been eliminated from further consideration due to the overland segment of the migration pathway exceeding 2 miles. Runoff from the landfill enters an unnamed intermittent stream along the eastern edge of the site and empties into Walnut Creek which is also an intermittent stream (Ref. 1). Annual precipitation is 40.5 inches (Ref. 13, p. 2).

4.2 Targets

No targets for the surface water pathway have been identified. There is no overland communication between the site and perennial surface water at a distance of less than 2 miles.

4.3 Sample Locations

There were no surface water samples collected for this investigation. The nearest surface water is greater than 2 miles from the site and there is no overland communication of runoff from the site to the perennial surface water.

4.4 Analytical Results

There were no surface water pathway samples collected for this SI.

4.5 Summary

This pathway is not under consideration due to the lack of overland communication between the site and surface water which is greater than 2 miles away.

5.0 SOIL EXPOSURE

Soil exposure sampling was conducted as part of this investigation.

5.1 Characteristics

Surface soils at the site appear to have been impacted by fire training operations and/or drum and fuel storage and disposal at the five additional potential source areas. The landfill does not have an engineered and maintained cover system. No evidence of waste related to former landfill activities was observed during the site reconnaissance. The nearest residence to the landfill source is the Morris residence approximately 0.1 mile to the south. There are no residential targets for the five other sources on the north half of the property, nor are there any full time employees in the fire training area.

5.2 Targets

The population within each target distance limit can be estimated from the following table (Ref. 14):

Distance (miles)	Population
0 to 1/4	2
1/4 to 1/2	6
1/2 to 1	43
1 to 2	4214
2 to 3	1765
3 to 4	5470

There are no schools or daycare centers within 1 mile of the site (Ref. 2). The distance from the landfill source to the Morris residence is approximately 500 feet (Ref. 15, p. 2). Both the northern and southern portions of the former landfill are surrounded by fences and are not readily accessible to the public. The potential exists for the occurrence of two Federally endangered species within the area of the site. The endangered species are the Red Wolf (*Canis rufus*) and the Bald Eagle (*Haliaeetus leucocephalus*) (Ref. 16, p. 2).

Sensitive environments include approximately 35 acres of wetland areas within a 1-mile radius (Ref. 17).

5.3 Sample Locations

A soil sample (Station 20) was collected within 200 feet of the Morris residence which is located adjacent to the southern portion of the landfill.

5.4 Analytical Results

BBCs for chromium, cobalt and manganese were all exceeded in the sample collected at the Morris residence, constituting an observed release to the soil exposure pathway. Inorganic soil analytical results summary tables are located in Table 4A and 4B.

No volatile or semi-volatile organic contaminants were detected in the soil sample collected from the Morris residence. One pesticide, methoxychlor, was detected in the sample.

5.5 Summary

An observed release to the soil exposure pathway of chromium, cobalt and manganese appears to have occurred. A pesticide, methoxychlor, was also detected in the soil exposure sample.

6.0 AIR

Air sampling was not conducted as part of this investigation.

6.1 General Considerations

It is possible that the additional sources observed during the SI could produce air emissions. No control measures are currently in place. Many of the sources are only sparsely vegetated or not at all. The landfill area is well vegetated, however. No releases of hazardous substances or reports of adverse health effects have been documented. Air sampling was not conducted as part of the SI.

6.2 Targets

The population within each target distance limit can be estimated from the following table (Ref. 14):

Distance (miles)	Population
0 to 1/4	2
1/4 to 1/2	6
1/2 to 1	43
1 to 2	4214
2 to 3	1765
3 to 4	5470

Sensitive environments include extensive wetlands and the potential occurrence of two Federally endangered species (Ref. 16, p. 1-3). Approximately 140 acres of wetland areas exist within a 4-mile radius of the site (Ref. 17).

6.4 Summary

It is possible that the sources currently present on the northern portion of the landfill could produce air emissions. The approximate population within a four mile radius is 11,500.

7.0 SUMMARY

Five new potentially hazardous waste sources were identified at the site during the SI. These additional sources were identified during the site reconnaissance. All five sources are located on the northern half of the site and are believed to be related to the current fire training operations, not former landfill activities. The five additional sources are a drum disposal area; a small oily sludge pond; a sludge pond runoff area; a black stained area (contaminated soil); and an above-ground fuel tank storage area. The hazardous waste quantities for each source are detailed in Section 2.1.

Numerous inorganic analytes exceeded established BBCs in the source characterization samples collected on the northern portion of the site including cadmium, copper, lead, mercury, selenium, silver and zinc.

Virtually all inorganic BBCs were exceeded in the source characterization samples collected from the landfill trench areas on the southern part of the site. Inorganic analytes which exceeded BBCs included arsenic, barium, chromium, cobalt, copper, lead, manganese, nickel, vanadium and zinc.

No organic constituents were reported to be present in the background soil sample for the northern portion of the site (Station 14). However, numerous volatile and semi-volatile organic compounds were detected in the source characterization soil samples collected on the northern portion of the site. Numerous pesticides were also reported to be present in the soil samples collected on the northern portion of the site.

No volatile or semi-volatile organic contaminants were detected in the source samples collected from the southern portion of the site. Several pesticides were detected in samples collected on the southern part of the site.

One inorganic analyte of concern exceeded BBCs. Zinc was reported at 55 μg/l in the sample collected at Station DW03 (Morris active domestic well). Zinc was not present in the background drinking water sample.

Organic data for the drinking water samples did not indicate the presence of organic compounds. Two people use drinking water from this domestic well.

The surface water migration pathway has been eliminated from further consideration. The overland migration path to surface water is greater than 2 miles.

Surface soils at the site appear to have been impacted by fire training operations and/or drum and fuel storage and disposal at the five additional potential source areas. The landfill does not have an engineered and maintained cover system. A surface soil sample was collected at the Morris residence to characterize potential soil exposure. BBCs for chromium, cobalt and manganese were all exceeded in the sample collected at the Morris residence, constituting an observed release to the soil exposure pathway. Two people reside at the Morris residence.

It is possible that the additional sources observed during the SI could produce air emissions. No control measures are currently in place. Many of the sources are only sparsely vegetated or not at all. The landfill area is well vegetated, however.

8.0 REFERENCE LIST

1. United States Department of Interior, Geologic Survey. 7.5 Minute Series Topographic Map, Mallard Hill, Texas, Provisional Edition, 1984.

2. McDonnell, Mark A., Fluor Daniel, Inc. City of Athens Landfill Site Reconnaissance Logbook, May 5 and 6, 1993.

3. Record of Communication. From: Mark A. McDonnell, Fluor Daniel, Inc. To: Wayne Padgett, City of Athens Fire Department, May 11, 1993.

4. Texas Department of Health, Permit files for municipal landfill permit #263, obtained by Mr. Keith Westberry of Fluor Daniel, Inc., March, 1993.

5. Record of Communication. From: Mark A. McDonnell, Fluor Daniel, Inc. To: Noel Luper, Texas Water Commission, District 5, April 14, 1993.

6. Fluor Daniel, Inc., Hazardous Waste Quantity Calculations and Sketches, Mark A. McDonnell, June 17, 1994.

7. Mullican, Jerry W., Texas Department of Water Resources. Letter to Mr. Jack Carmichael, Texas Department of Water Resources, October 2, 1978.

8. Bureau of Economic Geology, The University of Texas at Austin. The Wilcox Group and Carrizo Sand (Paleogene) in the Sabine Uplift Area, Texas: Ground-Water Hydraulics and Hydrochemistry, 1991.

9. Fluor Daniel, Inc., Calculations and Sketches, Wells within 4 miles of the site, Mark A. McDonnell, June 19, 1994.

10. United States Department of Commerce, County and City Data Book, 1988.

11. Record of Communication. From: Mark A. McDonnell, Fluor Daniel, Inc. To: Don Herriage, City of Athens, Assistant City Manager, April 13, 1993.

12. Record of Communication. From: Mark A. McDonnell, Fluor Daniel, Inc. To: David Terry, Texas Water Commission, May 7, 1993.

13. United States Department of Agriculture, Soil Conservation Service. Soil Survey of Henderson County, Texas, 1979.

14. GEMS Program Computer Printout of Census Data for Henderson County, Texas, April 20, 1993.

15. McDonnell, Mark A., Fluor Daniel, Inc. City of Athens Landfill (Malakoff Road) Site Inspection Sampling Field Logbook, 1993.

16. Texas Parks and Wildlife Department, 1992. Texas Threatened and Endangered Species.

17. United States Department of the Interior, Fish and Wildlife Service, 1980. National Wetlands Inventory Maps.

TABLE 1
SAMPLING LOCATIONS AND RATIONALE

TABLE 1
SAMPLING LOCATIONS AND RATIONALE

SAMPLE NUMBER	*SAMPLE LOCATION AND RATIONALE*
1	Low concentration ground water sample from 80 foot deep well on Morris property (abandoned well).
	Rationale: To document a potential to release to ground water.
2	Duplicate of Sample No. 1.
3	Low concentration ground water sample from 280 foot water well on Morris property (active well).
	Rationale: To document potential drinking water contamination.
4	Additional low concentration ground water sample from well 0.45 mile east of the site.
	Rationale: To determine background concentrations in Carrizo-Wilcox aquifer.
5	Low concentration soil sample from the above-ground fuel tank storage area.
	Rationale: To characterize potential source.
6	Duplicate of No. 5.
7	Low concentration soil sample from black stained area.
	Rationale: To characterize potential source.
8	Low concentration soil sample from drum disposal area.
	Rationale: To characterize potential source.
9	Low concentration soil sample from drum disposal area.
	Rationale: To characterize potential source.

TABLE 1 (continued)
SAMPLING LOCATIONS AND RATIONALE

SAMPLE NUMBER	*SAMPLE LOCATION AND RATIONALE*
10	Low concentration soil sample from the small oily sludge pond. **Rationale:** To characterize potential source.
11	Low concentration soil sample from the small oily sludge pond. **Rationale:** To characterize potential source.
12	Low concentration soil sample from the sludge pond runoff area. **Rationale:** To characterize potential source.
13	Low concentration soil sample from the sludge pond runoff area. **Rationale:** To characterize potential source.
14	Low concentration soil sample upslope from all five additional potential sources. **Rationale:** Background soil concentration.
15	Low concentration surface grab sample inside a landfill cell trench on the southern half of the site. **Rationale:** To characterize the landfill contents.
16	Low concentration surface grab sample inside a landfill cell trench on the southern half of the site. **Rationale:** To characterize the landfill contents.
17	Low concentration surface grab sample inside a landfill cell trench on the southern half of the site. **Rationale:** To characterize the landfill contents.
18	Low concentration surface grab sample inside a landfill cell trench on the southern half of the site. **Rationale:** To characterize the landfill contents.

TABLE 1 (continued)
SAMPLING LOCATIONS AND RATIONALE

SAMPLE NUMBER	*SAMPLE LOCATION AND RATIONALE*
19	Low concentration surface grab sample upgradient from the landfill source. **Rationale:** Background soil concentration.
20	Low concentration surface soil sample at the residence of Mr. Morris. **Rationale:** To determine if there is a resident population threat.

Note: Samples No. 1 and 2 (duplicate) were collected from the inactive, 80 foot well without purging. Purging three well volumes would have equated to approximately 34 drums of water which would have had to be stored and disposed as investigation derived waste. Fluor Daniel purged this well until readings from the pH and conductivity meter equalized. The samples were then collected. The following measurements were recorded at the well prior to sampling:

pH	Cond. (mMhos)
6.90	0.83
6.88	0.84
6.88	0.84
6.95	0.83

TABLE 2
SAMPLE SUMMARY TABLE

TABLE 2
SAMPLE SUMMARY TABLE
City of Athens Landfill #2
(Malakoff Road)

SAMPLE NUMBER	CLP# INORG/ORG	LOCATION	MATRIX
Station 1	NA	Abandoned Drinking Water Well	Water
Station 2	NA	Duplicate of Station 1	Water
Station 3	NA	Morris' Residence Domestic Water Well	Water
Station 4	NA	Background Water Sample	Water
Station 5	MFM167/FN0	Fuel Tank Storage Area	Soil (Source)
Station 6	MFM168/FN0	Duplicate of Station 5	Soil (Source)
Station 7	MFM169/FN0	Black Stained Area	Soil (Source)
Station 8	MFM170/FN0	Drum Disposal Area	Soil (Source)
Station 9	MFM171/FN0	Drum Disposal Area	Soil (Source)
Station 10	MFM172/FN0	Small Oily Sludge Pond	Soil (Source)
Station 11	MFM173/FN0	Small Oily Sludge Pond	Soil (Source)
Station 12	MFM174/FN0	Sludge Pond Runoff Area	Soil (Source)
Station 13	MFM175/FN0	Sludge Pond Runoff Area	Soil (Source)
Station 14	MFM176/FN0	Background Sample for Northern Half of Site	Soil
Station 15	MFM161/FN3	Landfill Trench Contents Sample	Soil (Source)
Station 16	MFM162/FN8	Landfill Trench Contents Sample	Soil (Source)
Station 17	MFM163/FN8	Landfill Trench Contents Sample	Soil (Source)
Station 18	MFM164/FN8	Landfill Trench Contents Sample	Soil (Source)
Station 19	MFM165/FN8	Background Sample for Landfill Source	Soil
Station 20	MFM166/FN8	Morris' Residence Sample	Soil

TABLE 3
HAZARDOUS WASTE QUANTITY

TABLE 3
HAZARDOUS WASTE QUANTITY

Athens Landfill #2

SOURCE	QUANTITY	VOLUME/ AREA
Northern Area	Unknown	270,072 ft^2
Southern Area	Unknown	557,568 ft^2
Fuel Tank Area	Unknown	2,000 ft^2
Black Stained Area	Unknown	1,200 ft^2
Drum Disposal Area	Unknown	2,000 ft^2
Small Oily Sludge Pond	Unkown	450 ft^2
Sludge Pond Runoff Area	Unknown	3,000 ft^2

TABLE 4A
INORGANIC SOIL ANALYTICAL RESULTS-NORTHERN PART OF SITE

TABLE 4A
INORGANIC SOIL ANALYTICAL RESULTS
NORTHERN PART OF SITE

Site Name and Code: City of Athens Landfill
Case Number: 20298
Concentrations: In milligrams per kilogram (mg/kg)
Compiled by: Fluor Daniel

		Inorganic Traffic No.																						
		Sample I.D	MFM176		Background		MFM167		MFM168		MFM169		MFM170		MFM171		MFM172		MFM173		MFM174		MFM175	
		Matrix	SOIL		benchmark		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
		Percent Solids	89.8		Concentration		88.1		86.9		90.2		84.8		89.4		80.8		86.4		91.1		88.6	
		Location and or Sample Description	14 Background				5		6		7		8		9		10		11		12		13	
COMPOUND NAME	**CAS NO.**	**CLASS**	**Concentration**	**Q**	**Concentration**		**Concentration**	**Q**	**Concentration**	**Q**	**Concentration**	**Q**	**Concentration**	**Q**	**Concentration**	**Q**	**Concentration**	**Q**	**Concentration**	**Q**	**Concentration**	**Q**	**Concentration**	**Q**
ALUMINUM	7429-90-5	INO	14100		42300		11000		8650		8790		5980		3990		5230		5770		3300		3930	
ANTIMONY	7440-36-0	INO			–																			
ARSENIC	7440-38-2	INO	2.8		8.4		1.4	J	1.2	J	1.1		1.9		2		1.8		1.7		1.9		1.2	
BARIUM	7440-39-3	INO	78		234		79.1		91.2		48.7		48		130		71.2		66.5		49.4		33.9	
BERYLLIUM	7440-41-7	INO			–																			
CADMIUM	7440-43-9	INO			–								1.1		1.2									
CALCIUM	7440-70-2	INO	1090		3270		1200		1200		889		955		8740		998		1280		409		409	
CHROMIUM	7440-47-3	INO	13.6	J	40.8		24.1	J	10.3	J	8.6	J	8.8	J	10	J	7.6	J	8.3	J	5.4	J	5.4	J
COBALT	7440-48-4	INO	5.8		17.4		5.1		4.8		6.4		3.4		1.9		2.9		2		1.5		1.3	
COPPER	7440-50-8	INO	8.7		26.1		9.6		11.2		4.1		7.2		30.7		14.2		17		8		9	
IRON	7439-89-6	INO	29400		88200		14900		14100		9970		12000		10200		8940		7400		7140		6430	
LEAD	7439-92-1	INO	8.9	J	26.7		598	J	599	J	9.7	J	15.8	J	232	J	34.7	J	67.1	J	62	J	49.9	
MAGNESIUM	7439-95-4	INO	1380		4140		1690		1560		1450		987		429		808		813		428		546	
MANGANESE	7439-96-5	INO	70.6	J	211.8		32	J	30.7	J	20.6	J	59.4	J	153	J	36.7	J	29.2	J	20.9	J	19.8	
MERCURY	7439-97-6	INO			–										0.39								0.05	
NICKEL	7440-02-0	INO	13	J	39		20.5	J	8.5	J	9.1	J	4.6	J					4.7	J	6	J	3.7	
POTASSIUM	7440-09-7	INO	774		2322		697		608		531		648		279		473		593		237		318	
SELENIUM	7782-49-2	INO			–				0.14	J					0.21	J	0.3	J	2.3	J				
SILVER	7440-22-4	INO			–										1.1	J								
SODIUM	7440-23-5	INO	172		516		81.5		126															
THALLIUM	7440-28-0	INO			–																			
VANADIUM	7440-62-2	INO	24		72		15.8		13.3		13.2		13.2		15.5		10.8		11.9		7.4		8.4	
ZINC	7440-66-6	INO	38.7	J	116.1		306	J	257	J	32.1	J	35.1	J	227	J	210	J	190	J	55.5	J	68.2	J

LEGEND
INO - Inorganic
Q - Analytical results' Qualifier (listed below).
B - Analyte was detected above the CRDL but below 5X Blank Concentration.
J - The associated value is an estimated quantity.
R - Data for analyte is unusable.
U - The material was analyzed for but was not detected above the level of the associated value.
UJ - The material was analyzed for but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

TABLE 4B
INORGANIC SOIL ANALYTICAL RESULTS-SOUTHERN PART OF SITE

TABLE 4B
INORGANIC SOIL ANALYTICAL RESULTS
SOUTHERN PART OF SITE

Site Name and Code: City of Athens Landfill
Case Number: 20298
Concentrations: in milligrams per kilogram (mg/kg)
Compiled by: Fluor Daniel

		Inorganic Traffic No.														
		Sample I.D	MFM165		Background		MFM161		MFM162		MFM163		MFM164		MFM166	
		Marix:	SOIL		Benchmark		SOIL		SOIL		SOIL		SOIL		SOIL	
		Percent Solids	94.8		Concentration		86.1		88.2		84.3		85.8		94.3	
		Location and or Sample Description:	19 Background				15		16		17		18		20	
COMPOUND NAME	**CAS NO.**	**CLASS**	**Concentration**	**Q**	**Concentration**	**Q**	**Concentration**	**Q**	**Concentration**	**Q**	**Concentration**	**Q**	**Concentration**	**Q**	**Concentration**	**Q**
ALUMINUM	7429-90-5	INO	1870		5610		9980		10700		13600		12700		2780	
ANTIMONY	7440-36-0	INO														
ARSENIC	7440-38-2	INO					2.6		2.8		1.9					
BARIUM	7440-39-3	INO					76		75.4		105				32.2	
BERYLLIUM	7440-41-7	INO														
CADMIUM	7440-43-9	INO														
CALCIUM	7440-70-2	INO									1060		1030		166	J
CHROMIUM	7440-47-3	INO	2.5	J	7.5		9.3	J	11.9	J	13.4	J	14.6	J	7.7	J
COBALT	7440-48-4	INO	0.53	J	1.59		7.3		7		9.7		10.7		3.8	J
COPPER	7440-50-8	INO					5.3		4.1		5.7		6.4			
IRON	7439-89-6	INO	1650		4950		31000		25300		23000		31100		3830	
LEAD	7439-92-1	INO	3.2	J	9.6		9.8	J	10.9	J	11.7	J	8.4	J	5.4	J
MAGNESIUM	7439-95-4	INO	128		38.4		1340		1500		2210		3280		161	
MANGANESE	7439-96-5	INO	38.4	J	115.2		93	J	178	J	151	J	313	J	147	J
MERCURY	7439-97-6	INO														
NICKEL	7440-02-0	INO					12.6	J	17.9	J	23.7	J	27.7	J		
POTASSIUM	7440-09-7	INO					401		518		686		587		218	
SELENIUM	7782-49-2	INO							0.12	J						
SILVER	7440-22-4	INO														
SODIUM	7440-23-5	INO											296			
THALLIUM	7440-28-0	INO														
VANADIUM	7440-62-2	INO	3.5		76.2		16.2		19.2		24.2		25.4		7.4	
ZINC	7440-66-6	INO	5.9	J	17.7		35.5	J	36	J	46.3	J	55.2	J	7.8	J

LEGEND
INO - Inorganic
Q - Analytical results' Qualifier (listed below).
B - Analyte was detected above the CRDL but below 5X Blank Concentration.
J - The associated value is an estimated quantity.
R - Data for analyte is unusable.
U - The material was analyzed for but was not detected above the level of the associated value.
UJ - The material was analyzed for but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

TABLE 5A
ORGANIC SOIL ANALYTICAL RESULTS-NORTHERN PART OF SITE

TABLE 5A
ORGANIC SOIL ANALYTICAL RESULTS
NORTHERN PART OF SITE

Site Name and Code: City of Athens Landfill
Case Number: 20298
Concentrations: In micrograms per kilogram (µg/kg)
Compiled by: Fluor Daniel

		Organic Traffic No																													
		Sample I.D	FN099		Background		FNO90		FNO91		FN092		FN093		FN094		FN095		FN096		FN097		FNO97RE		FN98		FN98RE	
		Matrix	SOIL		Benchmark		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
		Percent Solids	88		Concentration		88		89		92		85		90		78		82		94		94		87		87	
		Location and or Sample Description	14 Background				5		6		7		8		9		10		11		12		12		13		13	
COMPOUND NAME	CAS NO.	CLASS	Concentration	Q			Concentration	Q	Concentration	Q	Concentration	Q	Concentration	Q	Concentration	Q	Concentration	Q	Concentration	Q	Concentration	Q	Concentration	Q	Concentration	Q	Concentration	Q
Acetone	67-64-1	VOA					67	J	43	J							2700		1000						30			
Toluene	108-88-3	VOA					15	J	27	J							3600		54	J								
Ethylbenzene	100-41-4	VOA					5	J																				
Xylene	1330-20-7	VOA					44	J											290									
2-Butanone	78-93-3	VOA																	66									
4-Methyl-2-Pentanone	108-10-1	VOA																	18	J								
2-Hexanone	591-78-6	VOA																										
Di-n-butylphthalate	84-74-2	ABN																										
Bis (2-Ethylhexyl) Phthalate	117-81-7	ABN																			45000							
Phenol	108-95-2	ABN					81	J					22	J			1700	J										
4-Methylphenol	106-44-5	ABN					480	J											1400	J								
Naphthalene	91-20-3	ABN					360	J									820	J										
2-Methylnaphthalene	91-57-6	ABN					820	J	410	J									950	J								
Anthracene	120-12-7	ABN					170	J							130	J			660	J								
Fluoranthene	206-44-0	ABN					80	J	340	J					1200				2800	J								
Benzo (b) Fluoranthene	205-99-2	ABN					390	J	1000	J					780													
Pyrene	129-00-0	ABN							360	J					860													
Butylbenzylphthalate	85-68-7	ABN							1100	J			33	J	41	J									3700	J		
Indeno(1,2,3-cd)Pyrene	193-39-5	ABN							380	J					300	J												
Benzo (g,h,i) Perylene	191-24-2	ABN							440	J					310	J												
Benzo (a) Pyrene	50-32-8	ABN											26	J	490													
Acenaphthene	83-32-9	ABN													51	J												
Dibenzofuran	132-64-9	ABN													19	J												
Fluorene	86-73-7	ABN													34	J												
Phenanthrene	85-01-8	ABN													570													
Carbazole	86-74-8	ABN													140	J												
Benzo (a) Anthracene	56-55-3	ABN													670													
Chrysene	218-1-9	ABN													590													
Benzo (k) Fluoranthene	207-08-9	ABN													240	J												
Dibenz (a,h) Anthracene	53-70-3	ABN													100	J												
Aldrin	309-0-2	PEST									0.18	J	0.2	J			1.7	J										
4,4-DDD	72-54-8	PEST													1.2	J												
4,4-DDT	50-29-3	PEST											0.37	BJ														
Methoxychlor	72-43-5	PEST							120	J	3.5	J			5.4	J	39	J	100	J	12	J			24	J		
Endosulfan II	33213-65-9	PEST							5.5	J									2.9	J	6.4	J			5	J		
Endrin Aldehyde	7421-36-3	PEST															3.4	J										
Heptachlor Epoxide	1024-57-3	PEST													2.4	J	3.4	J	6.9	J					5.4	J		
Alpha-Chlordane	5103-71-9	PEST													7.8	J												
Gamma-Chlordane	5103-74-2	PEST													8.6	J												
Aroclor-1260	11096-82-5	PEST													130	J												
Endosulfan Sulfate	1031-07-8	PEST																			4.2	J			9.9	J		
Endosulfan I	959-98-8	PEST																							2.9	J		

LEGEND
VOA - Volatile Organic Analysis
ABN - Acid/Base Neutral (semi-volatiles)
PEST - Pesticides/PCB Analysis
Q - Analytical results' Qualifier (listed below).
B - Analyte was detected above the CRDL but below 10X Blank Concentration.
J - The associated value is an estimated quantity.
R - Data for analyte is unusable.
U - The material was analyzed for but was not detected above the level of the associated value.
UJ - The material was analyzed for but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

TABLE 5A
ORGANIC SOIL ANALYTICAL RESULTS
NORTHERN PART OF SITE

Site Name and Code: City of Athens Landfill

Concentrations: in micrograms per kilogram (µg/kg)
Compiled by: Fluor Daniel

Organic Traffic No						
Sample I.D.			FN099		Background	
Matrix			SOIL		Benchmark	
Percent Solids			88		Concentration	
Location and or Sample Description			14 Background			
COMPOUND NAME	**CAS NO.**	**CLASS**	**Concentration**	**Q**	**Concentration**	**Q**
2-Propanol (ACN)	4.08	TIC				
Unknown Hydrocarbon	23.95	TIC				
Unknown Acid	18.32	TIC				
Unknown Hydrocarbon	21.48	TIC				
Unknown	22.73	TIC				
Unknown	22.98	TIC				
Unknown	23.43	TIC				
Unknown Hydrocarbon	23.68	TIC				
Unknown Hydrocarbon	23.83	TIC				
Unknown	24.10	TIC				
Unknown Hydrocarbon	24.38	TIC				
Unknown	25.07	TIC				
Unknown	25.22	TIC				
Unknown	25.30	TIC				
Unknown	25.45	TIC				
Unknown	25.55	TIC				
Unknown	25.68	TIC				
Unknown	25.88	TIC				
Unknown	26.45	TIC				
Unknown	26.98	TIC				
Unknown	27.63	TIC				
Unknown	28.48	TIC				
Unknown Hydrocarbon	15.78	TIC				
Unknown	20.92	TIC				
Unknown Hydrocarbon	21.55	TIC				
Unknown Hydrocarbon	22.77	TIC				
Unknown	23.05	TIC				
Unknown	27.05	TIC				
Unknown Hydrocarbon	22.02	TIC				
Unknown	22.27	TIC				
Unknown	23.45	TIC				
Unknown	23.75	TIC				
Unknown	23.97	TIC				
Unknown	24.17	TIC				
Unknown	24.25	TIC				
Unknown	24.53	TIC				
Unknown Hydrocarbon	24.80	TIC				
Unknown Hydrocarbon	16.05	TIC				
Unknown Hydrocarbon	16.12	TIC				
Unknown Hydrocarbon	17.93	TIC				
Unknown Hydrocarbon	18.27	TIC				
Unknown Hydrocarbon	18.57	TIC				
Unknown Hydrocarbon	19.67	TIC				
Unknown Hydrocarbon	20.47	TIC				
Unknown Hydrocarbon	20.55	TIC				
Unknown	21.98	TIC				
Unknown Hydrocarbon	22.97	TIC				
Unknown Hydrocarbon	23.10	TIC				
Unknown Hydrocarbon	25.12	TIC				
Unknown Hydrocarbon	27.47	TIC	120	J	360	
Aldol Condensation Product	3.55	TIC				
Aldol Condensation Product	3.97	TIC				
Aldol Condensation Product	5.05	TIC				
Aldol Condensation Product	5.50	TIC				
Ethanol, 2-(Ethoxyethoxy)	6.37	TIC				
Unknown	6.48	TIC				
Unknown	14.00	TIC				
Unknown Ester	21.22	TIC	100	J	300	
Unknown	27.23	TIC	120	J	360	
Unknown Ester	16.77	TIC				
Unknown	24.90	TIC				
Unknown Hydrocarbon	25.98	TIC				

Organic Traffic No				
Sample I.D.			FN090	
Matrix			SOIL	
Percent Solids			88	
Location and or Sample Description			5	
COMPOUND NAME	**CAS NO.**	**CLASS**	**Concentration**	**Q**
Unknown Hydrocarbon	16.1	TIC	8	J
Unknown Hydrocarbon	19.55	TIC	6	J
Unknown Hydrocarbon	21.25	TIC	8	J
Unknown Hydrocarbon	21.91	TIC	40	J
Unknown Hydrocarbon	22.13	TIC	11	J
Unknown Hydrocarbon	22.73	TIC	56	J
Unknown Hydrocarbon	23.10	TIC	140	J
Unknown Aromatic Hydrocar	23.49	TIC	40	J
Trimethylbenzene Isomer	23.69	TIC	100	J
Unknown	23.89	TIC	55	J
2-Propanol (ACN)	4.08	TIC		
Unknown Hydrocarbon	23.95	TIC		
Aldol Condensation Product	3.55	TIC		
Aldol Condensation Product	3.97	TIC	16000	BJ
Aldol Condensation Product	5.03	TIC		
Aldol Condensation Product	5.42	TIC		
Aldol Condensation Product	5.50	TIC		
Ethanol, 2-(2-Ethoxyethoxy)	6.37	TIC		
Unknown	6.48	TIC		
Unknown	14.00	TIC		
Unknown Ester	16.77	TIC		
Unknown Ester	21.22	TIC		
Unknown Hydrocarbon	25.97	TIC		
Unknown	26.43	TIC	26000	J
Unknown	27.22	TIC	14000	J
Unknown Hydrocarbon	27.35	TIC		
Unknown	27.78	TIC		
Unknown	4.07	TIC		*
Unknown Hydrocarbon	24.75	TIC		
Unknown Hydrocarbon	24.78	TIC		
Unknown	26.1	TIC		
Unknown	27.1	TIC		
Unknown	27.28	TIC		
Unknown	27.5	TIC		
Unknown	27.82	TIC		
Unknown	22.37	TIC		
Aldol Condensation Product	4.15	TIC		
Unknown	25.32	TIC	9200	J
Unknown	25.37	TIC	7800	J
Unknown	25.63	TIC		
Unknown Hydrocarbon	13.05	TIC	1200	J
Unknown Hydrocarbon	14.18	TIC	1300	J
Unknown Hydrocarbon	14.68	TIC	1400	J
Unknown Hydrocarbon	15.27	TIC	7800	J
Unknown Hydrocarbon	16.33	TIC	13000	J
Unknown	21.48	TIC	7800	J
Unknown Hydrocarbon	22.33	TIC	14000	J
Unknown Hydrocarbon	22.70	TIC	7200	J
Unknown Hydrocarbon	23.43	TIC	7000	J
Unknown	23.65	TIC	13000	J
Unknown Hydrocarbon	23.98	TIC	13000	J
Unknown Hydrocarbon	24.50	TIC	15000	J
Unknown	24.75	TIC	19000	J
Unknown Hydrocarbon	25.48	TIC	24000	J
Unknown	25.95	TIC	12000	J
Unknown	26.13	TIC	32000	J

LEGEND
VOA - Volatile Organic Analysis
ABN - Acid/Base Neutral (semi-volatiles)
PEST - Pesticides/PCB Analysis
Q - Analytical results' Qualifier (listed below).
B - Analyte was detected above the CRDL but below 10X Blank Concentration.
J - The associated value is an estimated quantity.
R - Data for analyte is unusable.
U - The material was analyzed for but was not detected above the level of the associated value.
UJ - The material was analyzed for but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

TABLE 5A
ORGANIC SOIL ANALYTICAL RESULTS
NORTHERN PART OF SITE

Site Name and Code: City of Athens Landfill
Case Number: 20298
Concentrations: in micrograms per kilogram (µg/kg)
Compiled by: Fluor Daniel

		Organic Traffic No								
		Sample I.D.	FN091		FN092		FN093		FN094	
		Matrix	SOIL		SOIL		SOIL		SOIL	
		Percent Solids	88		92		85		90	
		Location and or Sample Description	6 Background		7		8		9	
COMPOUND NAME	CAS NO.	CLASS	Concentration	Q	Concentration	Q	Concentration	Q	Concentration	Q
Unknown Hydrocarbon	16.1	TIC	8	J						
Unknown Hydrocarbon	19.55	TIC	9	J						
Unknown Hydrocarbon	21.25	TIC	11	J						
Unknown Hydrocarbon	21.91	TIC	62	J						
Unknown Hydrocarbon	22.13	TIC	15	J						
Unknown Hydrocarbon	22.73	TIC	95	J						
Unknown Hydrocarbon	23.10	TIC	230	J						
Unknown Aromatic Hydrocar	23.49	TIC	64	J						
Trimethylbenzene Isomer	23.69	TIC	190	J						
Unknown	23.89	TIC	79	J						
Unknown	18.28	TIC	7600	J						
Unknown	19.63	TIC	13000	J						
Unknown	20.85	TIC	8800	J						
Unknown Hydrocarbon	22.07	TIC	12000	J						
Unknown Hydrocarbon	22.65	TIC	6600	J						
Unknown Hydrocarbon	22.90	TIC	17000	J						
Unknown	22.97	TIC	22000	J					380	J
Unknown Hydrocarbon	23.35	TIC	16000	J	120	J			160	J
Unknown	24.02	TIC	15000	J						
Unknown	25.45	TIC	15000	J			360	J	620	J
Unknown	25.65	TIC	20000	J			480	J		
Unknown	26.15	TIC	13000	J					920	J
Unknown	23.80	TIC	11000	J					120	J
Unknown	24.08	TIC	22000	J						
Unknown	24.15	TIC	9400	J						
Unknown	24.32	TIC	17000	J			740	J		
Unknown	24.48	TIC	11000	J						
Unknown	24.6	TIC	8600	J			240	J		
Unknown Hydrocarbon	24.82	TIC	15000	J						
Unknown	24.85	TIC	14000	J						
Aldol Condensation Product	3.58	TIC			500	BJ	260	BJ		
Aldol Condensation Product	4.00	TIC			8200	BJ			5200	BJ
Aldol Condensation Product	5.05	TIC			240	BJ				
Aldol Condensation Product	5.43	TIC			110	BJ				
Aldol Condensation Product	5.5	TIC			190	BJ				
Ethanol, 2-(2-ethoxyethoxy)	6.37	TIC			140	BJ				
Unknown	6.48	TIC			380	BJ				
Unknown	14.00	TIC			170	BJ	200	BJ	280	BJ
Unknown	17.2	TIC			240	J				
Unknown Acid	17.67	TIC			220	J				
Unknown	18.80	TIC			180	J				
Unknown	21.02	TIC			96	J				
Unknown	21.25	TIC			6000	BJ				
Unknown	25.98	TIC			130	J	320	J	640	J
Unknown	26.45	TIC			150	J	300	J	1400	J
Unknown	27.08	TIC			320	J			820	J
Unknown	27.28	TIC			260	J			380	J
Unknown	27.8	TIC			260	J			1100	J
Unknown	27.92	TIC			120	J				
Aldol Condensation Product	3.97	TIC					4400	BJ		
Aldol Condensation Product	6.48	TIC					220	J		
Unknown Ester	21.25	TIC					1700	J	1000	J
Unknown Hydrocarbon	24.08	TIC					540	J	880	J
Unknown Hydrocarbon	26.02	TIC					320	J	620	J
Unknown	26.83	TIC					26.83	J	1400	J
Unknown Polyaromatic Hydro	21.30	TIC							120	J
Unknown Polyaromatic Hydro	21.38	TIC							190	J
Unknown Polyaromatic Hydro	24.60	TIC							480	J
Unknown Hydrocarbon	25.22	TIC							620	J

LEGEND
VOA - Volatile Organic Analysis
ABN - Acid/Base Neutral (semi-volatiles)
PEST - Pesticides/PCB Analysis
Q - Analytical results' Qualifier (listed below).
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		Organic Traffic No								
		Sample I.D.	FN095		FN096		FN097		FN098	
		Matrix	SOIL		SOIL		SOIL		SOIL	
		Percent Solids	78		82		94		87	
		Location and or Sample Description	10		11		12		13	
COMPOUND NAME	CAS NO.	CLASS	Concentration	Q	Concentration	Q	Concentration	Q	Concentration	Q
2-Propandi (ACN)	4.08	TIC			33	J				
Unknown Hydrocarbon	23.95	TIC			33	J				
Unknown Acid	18.32	TIC	26000	J	11000	J				
Unknown Hydrocarbon	21.48	TIC	12000	J	5800	J			22000	J
Unknown	22.73	TIC	36000	J						
Unknown	22.98	TIC	15000	J			32000	J		
Unknown	23.43	TIC	16000	J	15000	J	40000	J		
Unknown Hydrocarbon	23.68	TIC	15000	J	9200	J			30000	J
Unknown Hydrocarbon	23.83	TIC	28000	J	11000	J				
Unknown	24.10	TIC	26000	J	18000	J	38000	J		
Unknown Hydrocarbon	24.38	TIC	28000	J	19000	J	32000	J	19000	J
Unknown	25.07	TIC	26000	J						
Unknown	25.22	TIC	84000	J	20000	J				
Unknown	25.30	TIC	24000	J	11000	J				
Unknown	25.45	TIC	34000	J	13000	J	30000	J		
Unknown	25.55	TIC	36000	J	16000	J				
Unknown	25.88	TIC	14000	J	7000	J	40000	J		
Unknown	25.88	TIC	24000	J	12000	J	22000	J		
Unknown	26.45	TIC	14000	J	13000	J	24000	J		
Unknown	26.98	TIC	34000	J						
Unknown	27.83	TIC	24000	J			32000	J		
Unknown	28.48	TIC	20000	J						
Unknown Hydrocarbon	15.78	TIC			6400	J			46000	J
Unknown	20.92	TIC			7000	J				
Unknown Hydrocarbon	21.55	TIC			10000	J				
Unknown Hydrocarbon	22.77	TIC			16000	J	32000	J	17000	J
Unknown	23.05	TIC			10000	J	20000	J		
Unknown	27.05	TIC			18000	J				
Unknown Hydrocarbon	22.02	TIC					32000	J		
Unknown	22.27	TIC					36000	J	26000	J
Unknown	23.45	TIC					16000	J		
Unknown	23.75	TIC					18000	J		
Unknown	23.97	TIC					28000	J		
Unknown	24.17	TIC					20000	J		
Unknown	24.25	TIC					26000	J		
Unknown	24.53	TIC					15000	J		
Unknown Hydrocarbon	24.80	TIC					62000	J	15000	J
Unknown Hydrocarbon	16.05	TIC							40000	J
Unknown Hydrocarbon	16.12	TIC							38000	J
Unknown Hydrocarbon	17.93	TIC							16000	J
Unknown Hydrocarbon	18.27	TIC							18000	J
Unknown Hydrocarbon	18.57	TIC							18000	J
Unknown Hydrocarbon	19.67	TIC							14000	J
Unknown Hydrocarbon	20.47	TIC							16000	J
Unknown Hydrocarbon	20.55	TIC							17000	J
Unknown	21.98	TIC							64000	J
Unknown Hydrocarbon	22.97	TIC							17000	J
Unknown Hydrocarbon	23.10	TIC							18000	J
Unknown Hydrocarbon	25.12	TIC							18000	J
Unknown Hydrocarbon	27.47	TIC							16000	J
Aldol Condensation Product	3.55	TIC								
Aldol Condensation Product	3.97	TIC								
Aldol Condensation Product	5.05	TIC								
Aldol Condensation Product	5.50	TIC								
Ethanol, 2-(Ethoxyethoxy)	6.37	TIC								
Unknown	6.48	TIC								
Unknown	14.00	TIC								
Unknown Ester	21.22	TIC								
Unknown	27.23	TIC								
Unknown Ester	16.77	TIC								
Unknown	24.90	TIC								
Unknown Hydrocarbon	25.98	TIC								

LEGEND
VOA - Volatile Organic Analysis
ABN - Acid/Base Neutral (semi-volatiles)
PEST - Pesticides/PCB Analysis
Q - Analytical results' Qualifier (listed below).
B - Analyte was detected above the CRDL but below 10X Blank Concentration.
J - The associated value is an estimated quantity.
R - Data for analyte is unusable.
U - The material was analyzed for but was not detected above the level of the associated value.
UJ - The material was analyzed for but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

TABLE 5B
ORGANIC SOIL ANALYTICAL RESULTS-SOUTHERN PART OF SITE

TABLE 5B
ORGANIC SOIL ANALYTICAL RESULTS
SOUTHERN PART OF THE SITE

Site Name and Code: City of Athens Landfill
Case Number: 20298
Concentrations: in micrograms per kilogram (µg/kg)
Compiled by: Fluor Daniel

		Organic Traffic No.																
		Sample I.D.	FN088		Background		FN320		FN085		FN086		FN087		FN089			
		Matrix	SOIL		Benchmark		SOIL		SOIL		SOIL		SOIL		SOIL			
		Percent Solids	94		Concentration		84		88		86		83		94			
		Location and or Sample Description	19 Background				15		16		17		18		20			
COMPOUND NAME	**CAS NO.**	**CLASS**	**Concentration**	**Q**	**Concentration**	**Q**	**Concentration**	**Q**	**Concentration**	**Q**	**Concentration**	**Q**	**Concentration**	**Q**	**Concentration**	**Q**		
Acetone	67-64-1	VOA																
Toluene	108-88-3	VOA																
Ethylbenzene	100-41-4	VOA																
Xylene	1330-20-7	VOA																
2-Butanone	78-93-3	VOA																
4-Methyl-2-Pentanone	108-10-1	VOA																
2-Hexanone	591-78-6	VOA																
Di-n-butylphthalate	84-74-2	ABN																
Bis (2-Ethylhexyl) Phthalate	117-81-7	ABN																
Phenol	108-95-2	ABN																
4-Methylphenol	106-44-5	ABN																
Naphthalene	91-20-3	ABN																
2-Methylnaphthalene	91-57-6	ABN																
Anthracene	120-12-7	ABN																
Fluoranthene	206-44-0	ABN																
Benzo (b) Fluoranthene	205-99-2	ABN																
Pyrene	129-00-0	ABN																
Butylbenzylphthalate	85-68-7	ABN																
Indeno(1,2,3-cd)Pyrene	193-39-5	ABN																
Benzo (g,h,i) Perylene	191-24-2	ABN																
Benzo (a) Pyrene	50-32-8	ABN																
Acenaphthene	83-32-9	ABN																
Dibenzofuran	132-64-9	ABN																
Fluorene	86-73-7	ABN																
Phenanthrene	85-01-8	ABN																
Carbazole	86-74-8	ABN																
Benzo (a) Anthracene	56-55-3	ABN																
Chrysene	218-1-9	ABN																
Benzo (k) Fluoranthene	207-08-9	ABN																
Dibenz (a,h) Anthracene	53-70-3	ABN																
Aldrin	309-0-2	PEST							0.15	J	0.16	J						
4,4-DDD	72-54-8	PEST							0.8	J								
4,4-DDT	50-29-3	PEST							51	B								
Methoxychlor	72-43-5	PEST	1.5	J	4.5				0.97	J	1.4	J	1.2	J	0.74	J		
Endosulfan II	33213-65-9	PEST																
Endrin Aldehyde	7421-36-3	PEST																
Heptachlor Epoxide	1024-57-3	PEST																
Alpha-Chlordane	5103-71-9	PEST																
Gamma-Chlordane	5103-74-2	PEST																
Aroclor-1260	11096-82-5	PEST																
Endosulfan Sulfate	1031-07-8	PEST																
Endosulfan I	959-98-8	PEST																

LEGEND
VOA - Volatile Organic Analysis
ABN - Acid/Base Neutral (semi-volatiles)
PEST - Pesticides/PCB Analysis
Q - Analytical results' Qualifier (listed below).
B - Analyte was detected above the CRDL but below 10X Blank Concentration.
J - The associated value is an estimated quantity.
R - Data for analyte is unusable.
U - The material was analyzed for but was not detected above the level of the associated value.
UJ - The material was analyzed for but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

Site Name and Code: City of Athens Landfill
Case Number: 20298
Concentrations: in micrograms per kilogram (µg/kg)
Compiled by: Fluor Daniel

TABLE 5B
ORGANIC SOIL ANALYTICAL RESULTS
SOUTHERN PART OF THE SITE

Organic Traffic No.						
Sample I.D.			FN088		Background	
Matrix			SOIL		Benchmark	
Percent Solids			84		Concentration	
Location: and or Sample Description:			19 Background			
COMPOUND NAME	CAS NO.	CLASS	Concentration	Q	Concentration	Q
Unknown Hydrocarbon	16.1	TIC				
Unknown Hydrocarbon	19.55	TIC				
Unknown Hydrocarbon	21.25	TIC				
Unknown Hydrocarbon	21.91	TIC				
Unknown Hydrocarbon	22.13	TIC				
Unknown Hydrocarbon	22.73	TIC				
Unknown Hydrocarbon	23.10	TIC				
Unknown Aromatic Hydrocar	23.49	TIC				
Trimethylbenzene Isomer	23.69	TIC				
Unknown	23.89	TIC				
2-Propanol (ACN)	4.08	TIC				
Unknown Hydrocarbon	23.95	TIC				
Aldol Condensation Product	3.55	TIC				
Aldol Condensation Product	3.97	TIC				
Aldol Condensation Product	5.03	TIC				
Aldol Condensation Product	5.42	TIC				
Aldol Condensation Product	5.50	TIC				
Ethanol, 2-(2-Ethoxyethoxy)	6.37	TIC				
Unknown	6.48	TIC				
Unknown	14.00	TIC				
Unknown Ester	16.77	TIC	76	J	228	
Unknown Ester	21.22	TIC	82	J	246	
Unknown Hydrocarbon	25.97	TIC				
Unknown	26.43	TIC				
Unknown	27.22	TIC				
Unknown Hydrocarbon	27.35	TIC				
Unknown	27.78	TIC				
Unknown	4.07	TIC				
Unknown Hydrocarbon	24.75	TIC				
Unknown Hydrocarbon	24.78	TIC				
Unknown	26.1	TIC				
Unknown	27.1	TIC	90	J	270	
Unknown	27.28	TIC	86	J	258	
Unknown	27.5	TIC				
Unknown	27.82	TIC	76	J	228	
Unknown	22.37	TIC	120	J	360	
Aldol Condensation Product	4.15	TIC				
Unknown	25.32	TIC				
Unknown	25.37	TIC				
Unknown	25.63	TIC				
Unknown Hydrocarbon	13.05	TIC				
Unknown Hydrocarbon	14.18	TIC				
Unknown Hydrocarbon	14.68	TIC				
Unknown Hydrocarbon	15.27	TIC				
Unknown Hydrocarbon	16.33	TIC				
Unknown	21.48	TIC				
Unknown Hydrocarbon	22.33	TIC				
Unknown Hydrocarbon	22.70	TIC				
Unknown Hydrocarbon	23.43	TIC				
Unknown	23.65	TIC				
Unknown Hydrocarbon	23.98	TIC				
Unknown Hydrocarbon	24.50	TIC				
Unknown	24.75	TIC				
Unknown Hydrocarbon	25.48	TIC				
Unknown	25.95	TIC				
Unknown	26.13	TIC				

LEGEND
VOA - Volatile Organic Analysis
ABN - Acid/Base Neutral (semi-volatiles)
PEST - Pesticides/PCB Analysis
Q - Analytical results' Qualifier (listed below).
B - Analyte was detected above the CRDL but below 10X Blank Concentration.
J - The associated value is an estimated quantity.
R - Data for analyte is unusable.
U - The material was analyzed for but was not detected above the level of the associated value.

Organic Traffic No.				
Sample I.D.			FN320	
Matrix			SOIL	
Percent Solids			84	
Location: and or Sample Description:			15	
COMPOUND NAME	CAS NO.	CLASS	Concentration	Q
Acetone	67-64-1	VOA		
Toluene	108-88-3	VOA		
Ethylbenzene	100-41-4	VOA		
Xylene	1330-20-7	VOA		
2-Butanone	78-93-3	VOA		
4-Methyl-2-Pentanone	108-10-1	VOA		
2-Hexanone	591-78-6	VOA		
Di-n-butylphthalate	84-74-2	ABN		
Bis (2-Ethylhexyl) Phthalate	117-81-7	ABN		
Phenol	108-95-2	ABN		
4-Methylphenol	106-44-5	ABN		
Naphthalene	91-20-3	ABN		
2-Methylnaphthalene	91-57-6	ABN		
Anthracene	120-12-7	ABN		
Fluoranthene	206-44-0	ABN		
Benzo (b) Fluoranthene	205-99-2	ABN		
Pyrene	129-00-0	ABN		
Butylbenzylphthalate	85-68-7	ABN		
Indeno(1,2,3-cd)Pyrene	193-39-5	ABN		
Benzo (g,h,i) Perylene	191-24-2	ABN		
Benzo (a) Pyrene	50-32-8	ABN		
Acenaphthene	83-32-9	ABN		
Dibenzofuran	132-64-9	ABN		
Fluorene	86-73-7	ABN		
Phenanthrene	85-01-8	ABN		
Carbazole	86-74-8	ABN		
Benzo (a) Anthracene	56-55-3	ABN		
Chrysene	218-1-9	ABN		
Benzo (k) Fluoranthene	207-08-9	ABN		
Dibenz (a,h) Anthracene	53-70-3	ABN		
Aldrin	309-0-2	PEST		
4,4-DDD	72-54-8	PEST		
4,4-DDT	50-29-3	PEST		
Methoxychlor	72-43-5	PEST		
Endosulfan II	33213-65-9	PEST		
Endrin Aldehyde	7421-36-3	PEST		
Heptachlor Epoxide	1024-57-3	PEST		
Alpha-Chlordane	5103-71-9	PEST		
Gamma-Chlordane	5103-74-2	PEST		
Aroclor-1260	11096-82-5	PEST		
Endosulfan Sulfate	1031-07-8	PEST		
Endosulfan I	959-98-8	PEST		

LEGEND
VOA - Volatile Organic Analysis
ABN - Acid/Base Neutral (semi-volatiles)
PEST - Pesticides/PCB Analysis
Q - Analytical results' Qualifier (listed below).
B - Analyte was detected above the CRDL but below 10X Blank Concentration.
J - The associated value is an estimated quantity.
R - Data for analyte is unusable.
U - The material was analyzed for but was not detected above the level of the associated value.
UJ - The material was analyzed for but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

Site Name and Code: City of Athens Landfill
Case Number: 20298
Concentrations: In micrograms per kilogram (µg/kg)
Compiled by: Fluor Daniel

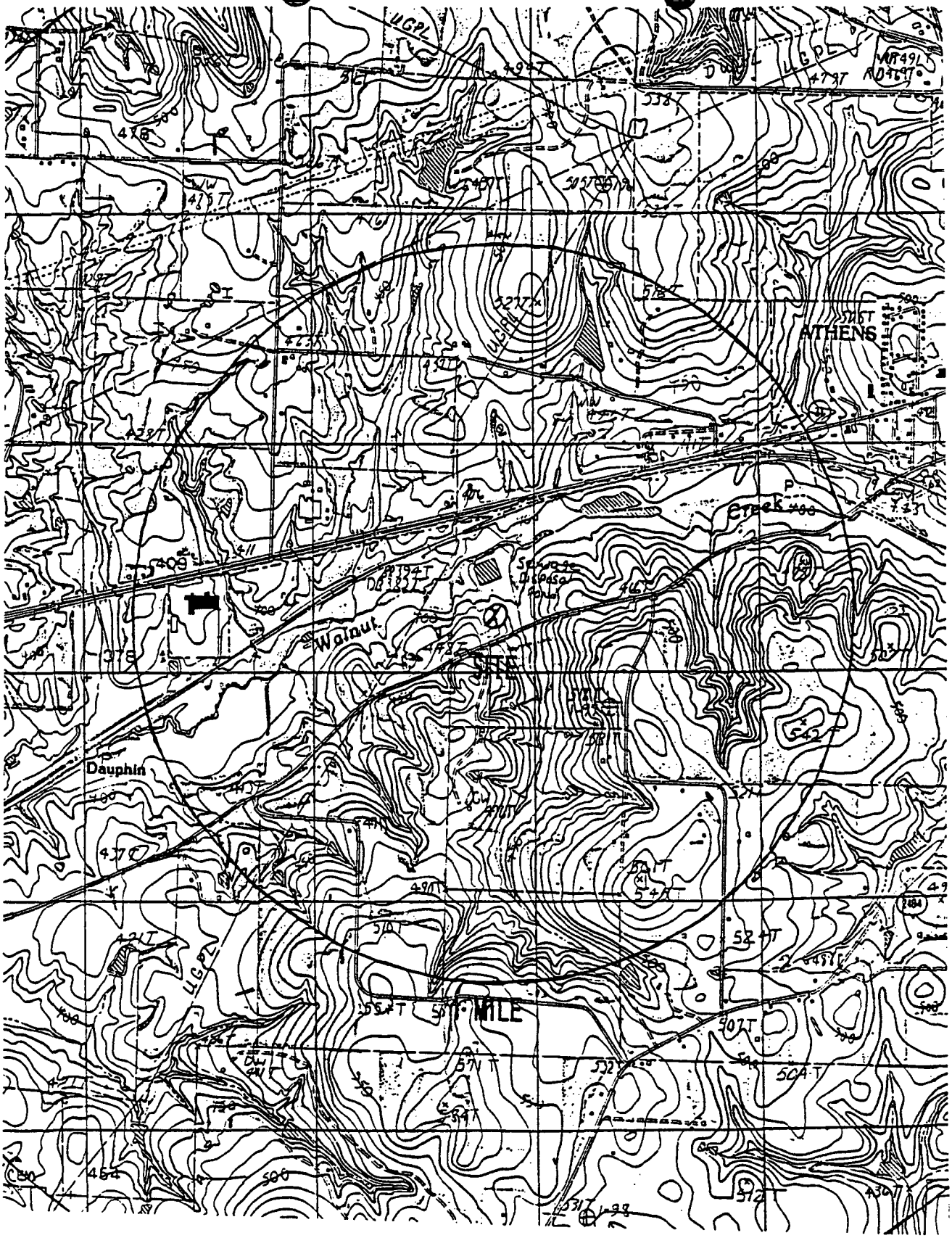
TABLE 5B
ORGANIC SOIL ANALYTICAL RESULTS
SOUTHERN PART OF THE SITE

		Organic Traffic No.								
		Sample I.D.	FN085		FN086		FN087		FN089	
		Matrix	SOIL		SOIL		SOIL		SOIL	
		Percent Solids	88		86		83		94	
		Location and on Sample Description	16		17		18		20	
COMPOUND NAME	CAS NO.	CLASS	Concentration	Q	Concentration	Q	Concentration	Q	Concentration	Q
Unknown Hydrocarbon	16.1	TIC								
Unknown Hydrocarbon	19.55	TIC								
Unknown Hydrocarbon	21.25	TIC								
Unknown Hydrocarbon	21.91	TIC								
Unknown Hydrocarbon	22.13	TIC								
Unknown Hydrocarbon	22.73	TIC								
Unknown Hydrocarbon	23.10	TIC								
Unknown Aromatic Hydrocar	23.49	TIC								
Trimethylbenzene lomer	23.69	TIC								
Unknown	23.89	TIC								
2-Propanol (ACN)	4.08	TIC								
Unknown Hydrocarbon	23.95	TIC							92	BJ
Aldol Condensation Product	3.55	TIC	340	BJ	360	BJ	300	BJ	260	BJ
Aldol Condensation Product	3.97	TIC	5800	BJ	5800	BJ	5200	BJ	4800	BJ
Aldol Condensation Product	5.03	TIC	150	BJ	160	BJ	150	BJ	120	BJ
Aldol Condensation Product	5.42	TIC	78	BJ						
Aldol Condensation Product	5.50	TIC	140	BJ	120	BJ	110	BJ	100	BJ
Ethanol, 2-(2-Ethoxyethoxy)	6.37	TIC	160	BJ	140	BJ	130	BJ	90	BJ
Unknown	6.48	TIC	320	J	300	BJ	260	BJ	280	BJ
Unknown	14.00	TIC	400	J	320	BJ			400	BJ
Unknown Ester	16.77	TIC	80	J					130	J
Unknown Ester	21.22	TIC	100	J					82	J
Unknown Hydrocarbon	25.97	TIC	110	J	86	J	340	J	160	J
Unknown	26.43	TIC	110	J			78	J		
Unknown	27.22	TIC	190	J	86	J	220	J	300	J
Unknown Hydrocarbon	27.35	TIC	88	J			160	J	190	J
Unknown	27.78	TIC	86	J	84	J	620	J		
Unknown	4.07	TIC					86	J		
Unknown Hydrocarbon	24.75	TIC					240	J	76	J
Unknown Hydrocarbon	24.78	TIC					150	J		
Unknown	26.1	TIC					92	J		
Unknown	27.1	TIC					260	J	92	J
Unknown	27.28	TIC					220	J		
Unknown	27.5	TIC					320	J		
Unknown	27.82	TIC					620	J	300	J
Unknown	22.37	TIC								
Aldol Condensation Product	4.15	TIC							78	BJ
Unknown	25.32	TIC							76	J
Unknown	25.37	TIC							76	J
Unknown	25.63	TIC							78	J
Unknown Hydrocarbon	13.05	TIC								
Unknown Hydrocarbon	14.18	TIC								
Unknown Hydrocarbon	14.68	TIC								
Unknown Hydrocarbon	15.27	TIC								
Unknown Hydrocarbon	16.33	TIC								
Unknown	21.48	TIC								
Unknown Hydrocarbon	22.33	TIC								
Unknown Hydrocarbon	22.70	TIC								
Unknown Hydrocarbon	23.43	TIC								
Unknown	23.65	TIC								
Unknown Hydrocarbon	23.98	TIC								
Unknown Hydrocarbon	24.50	TIC								
Unknown	24.75	TIC								
Unknown Hydrocarbon	25.48	TIC								
Unknown	25.95	TIC								
Unknown	26.13	TIC								

LEGEND
VOA - Volatile Organic Analysis
ABN - Acid/Base Neutral (semi-volatiles)
PEST - Pesticides/PCB Analysis
Q - Analytical results' Qualifier (listed below).

FIGURE 1

SITE LOCATION



U.S.G.S. 7.5 MIN. TOPOGRAPHIC MAP
STOCKARD QUADRANGLE

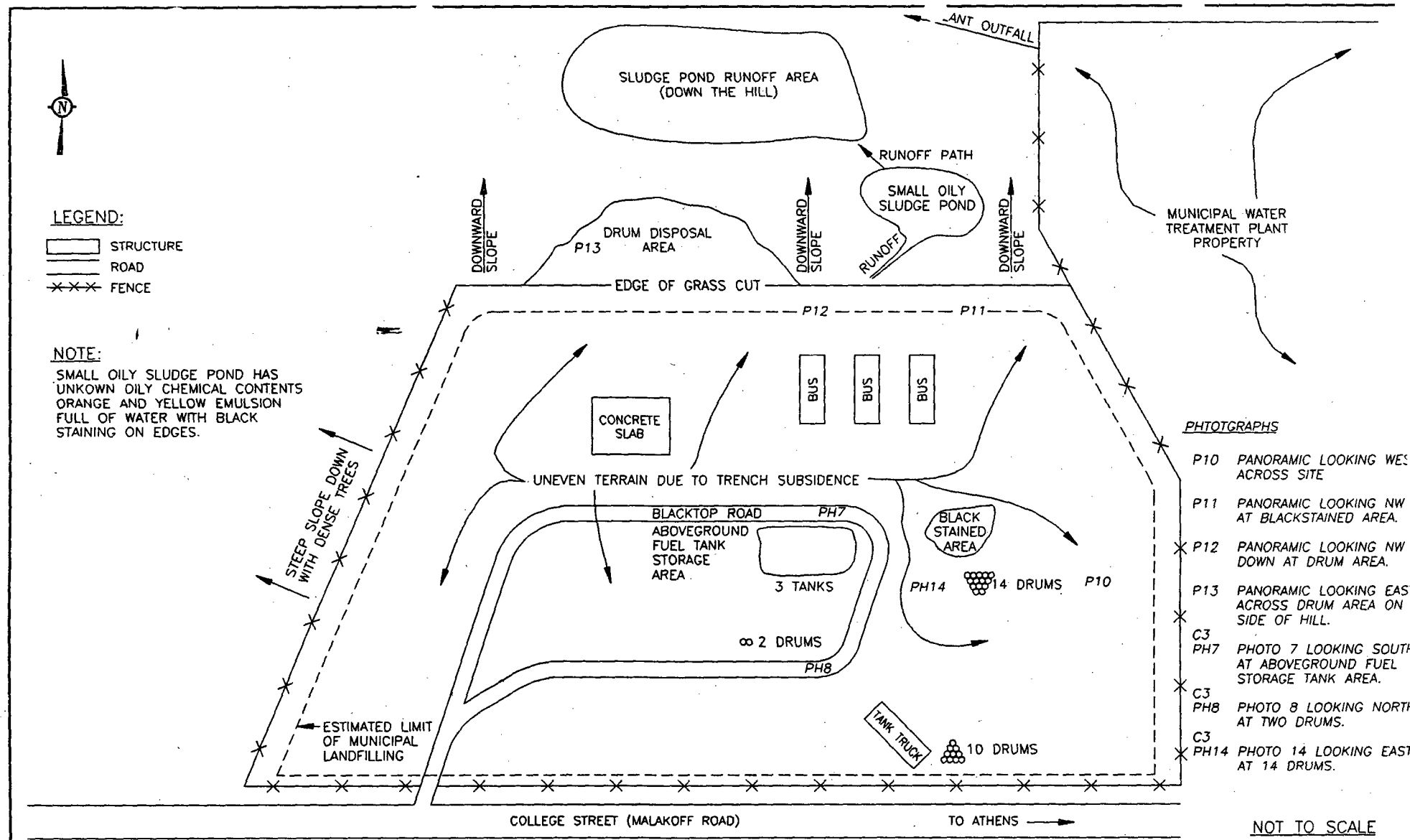
FLUOR DANIEL

FIGURE 1
SITE LOCATION MAP
CITY OF ATHENS LANDFILL (MALAKOFF RAOD)
ATHENS, TEXAS

CAD FILE No. LOC-MAP

FIGURE 2A

SITE SKETCH/NORTHERN PART OF SITE



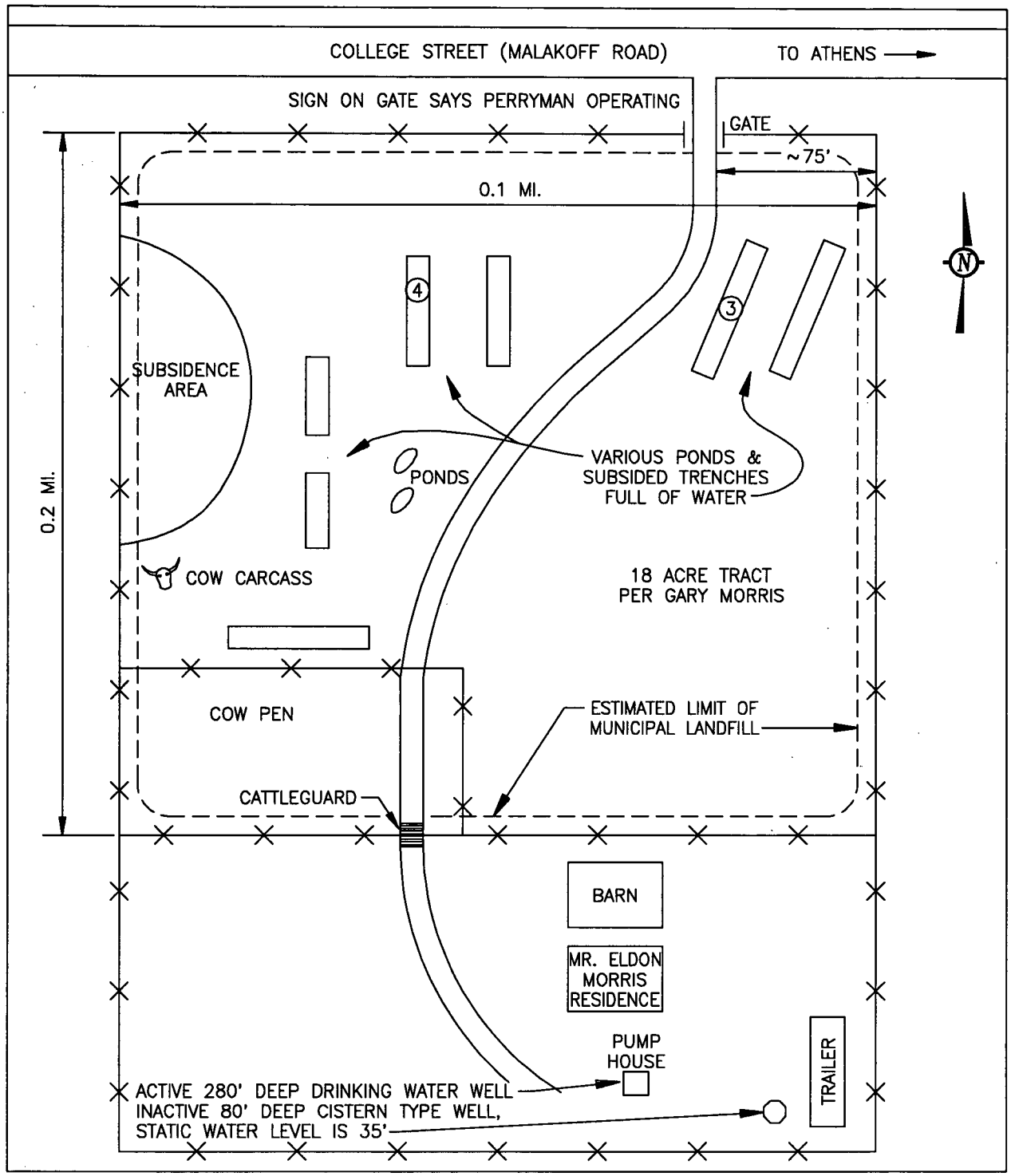
FLUOR DANIEL

FIGURE 2B
SITE SKETCH
CITY OF ATHENS LANDFILL (MALAKOFF ROAD
NORTHERN HALF OF SITE
ATHENS, TEXAS

CAD FILE No. FIG-2B

FIGURE 2B

SITE SKETCH/SOUTHERN PART OF SITE



LEGEND:

- STRUCTURE
- ROAD
- FENCE
- CISTERN TYPE WELL
- PHOTO LOCATIONS

NOT TO SCALE

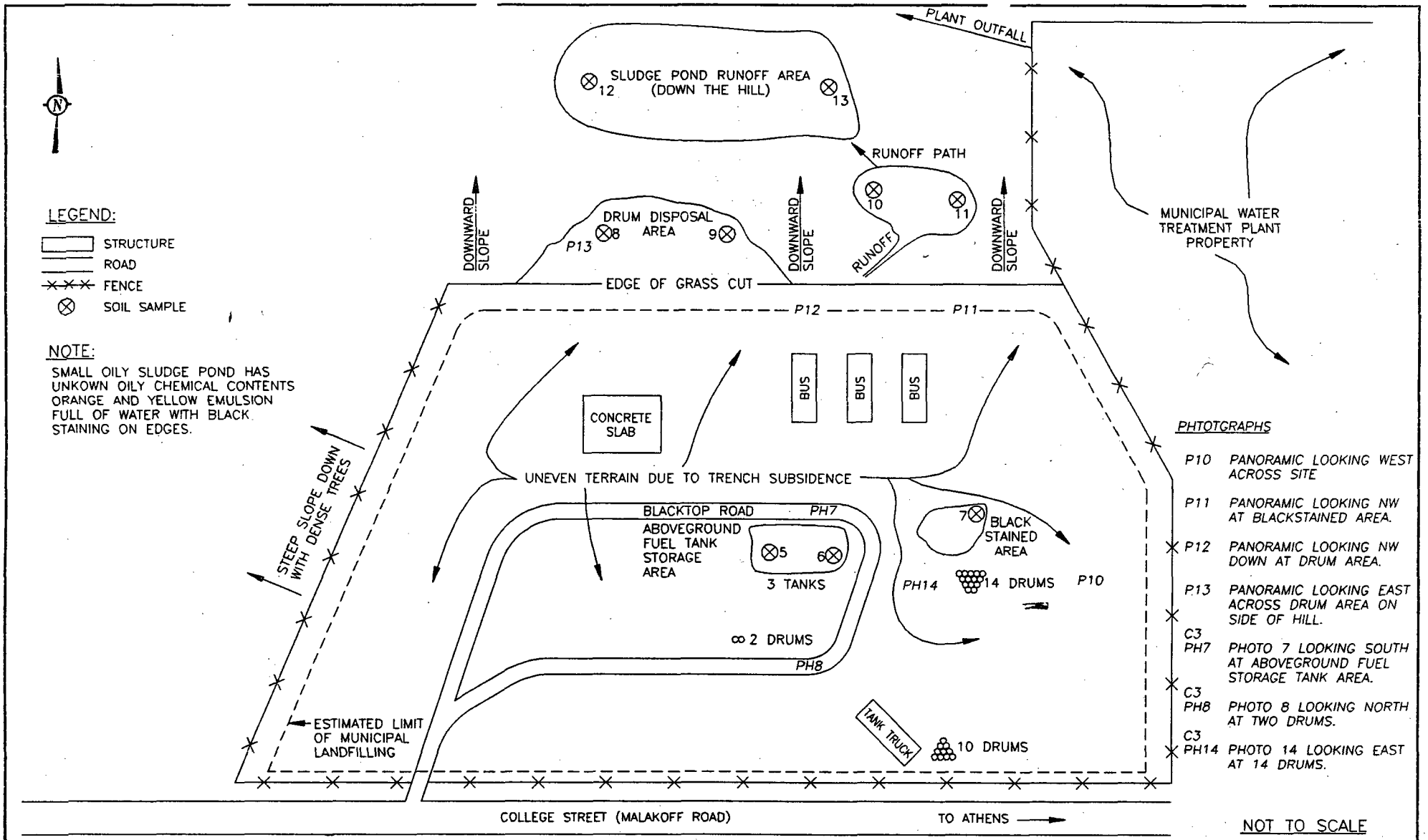
FLUOR DANIEL

FIGURE 2B
SITE SKETCH
CITY OF ATHENS (MALAKOFF ROAD)
SOUTHERN HALF OF THE SITE
ATHENS, TEXAS

CAD FILE No. FIG-2B

FIGURE 3A

SAMPLE LOCATION MAP/NORTHERN PART OF SITE



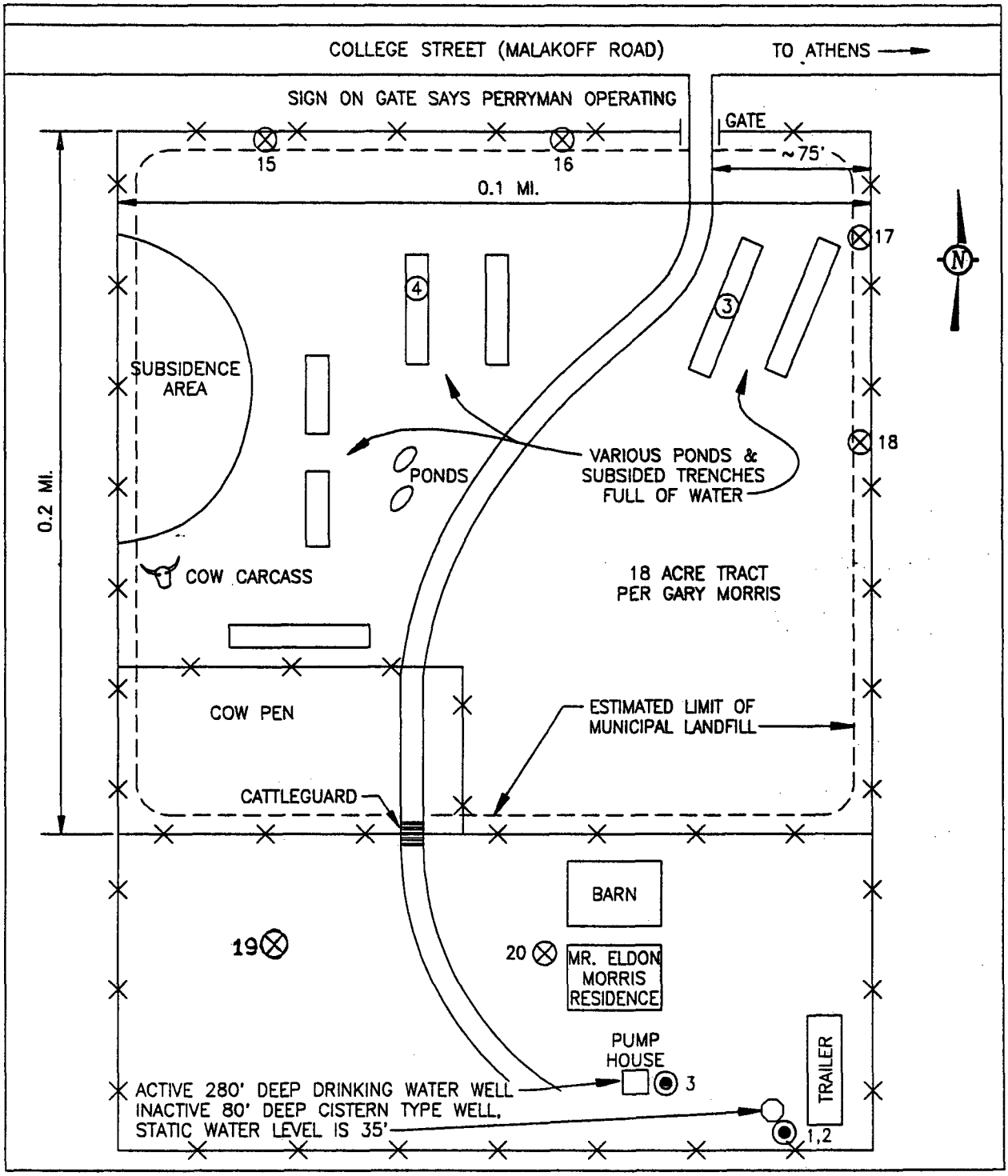
FLUOR DANIEL

FIGURE 3B
SAMPLING LOCATION MAP
CITY OF ATHENS LANDFILL (MALAKOFF ROAD)
NORTHERN HALF OF SITE
ATHENS, TEXAS

CAD FILE No. FIG-3B

FIGURE 3B

SAMPLE LOCATION MAP/SOUTHERN PART OF SITE



LEGEND:

- STRUCTURE
- ROAD
- FENCE
- CISTERN TYPE WELL
- PHOTO LOCATIONS
- GROUNDWATER SAMPLE
- SOIL SAMPLE

NOT TO SCALE

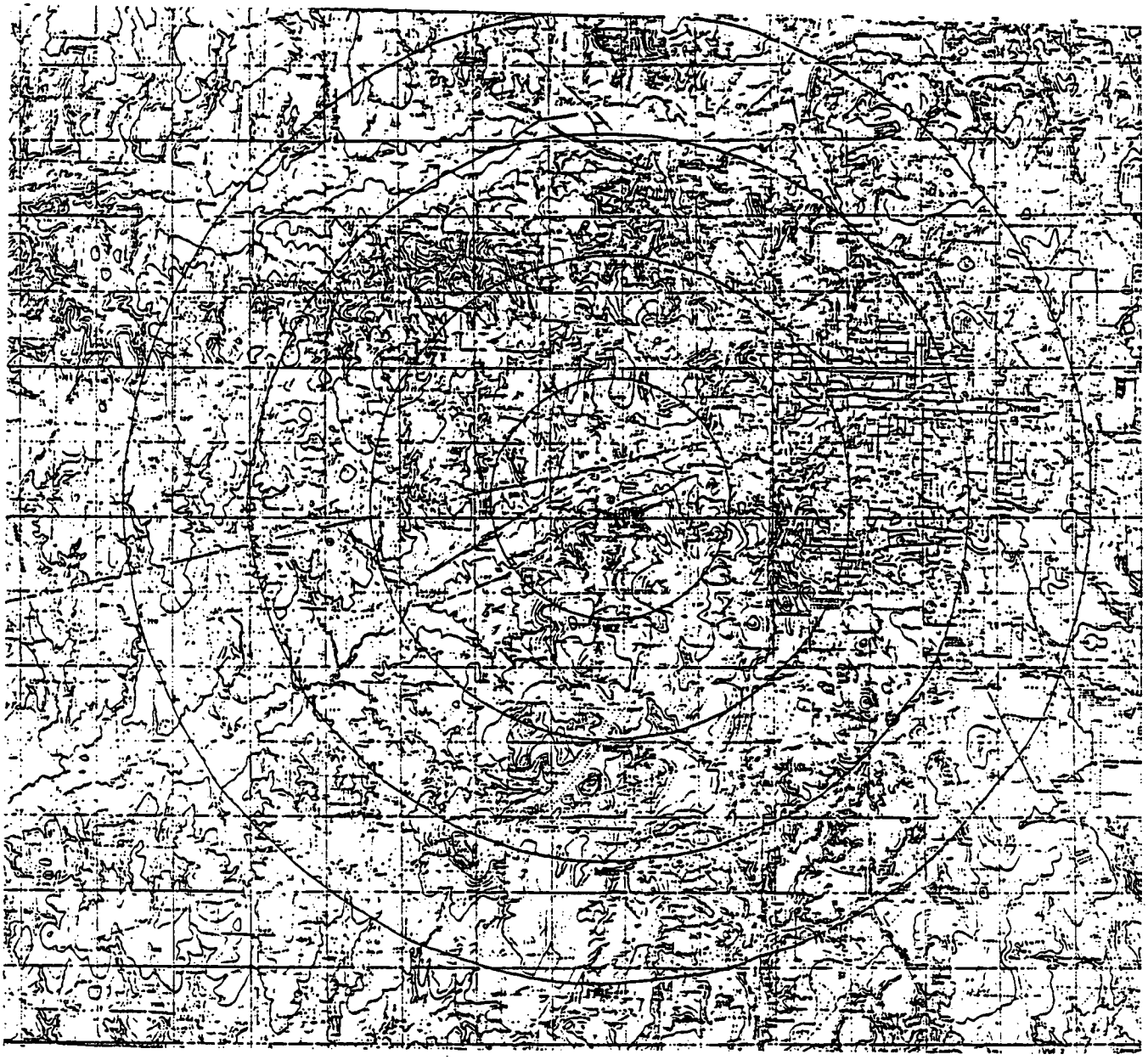
FLUOR DANIEL

FIGURE 3B
SAMPLING LOCATION MAP
CITY OF ATHENS (MALAKOFF ROAD)
SOUTHERN HALF OF THE SITE
ATHENS, TEXAS

CAD FILE No. FIG-3B

FIGURE 4

FOUR MILE RADIUS MAP



U.S.G.S. 7.5 MIN. TOPOGRAPHIC MAP
MALLARD HILL, ATHENS,
TEXAS QUADRANGLES

FLUOR DANIEL

FIGURE 4

4 MILE RADIUS MAP
CITY OF ATHENS LANDFILL (MALAKOFF ROAD)
ATHENS, TEXAS

CAD FILE No. FG-4

ATTACHMENT A

DATA QUALITY ASSURANCE REVIEWS/DATA PACKAGES

ATTACHMENT A

Analytical packages were evaluated with respect to data completeness and contractual compliance by the Houston EPA Environmental Services Division Surveillance Branch. The data were then validated by Fluor Daniel Chicago to assess the quality assurance/quality control procedures utilized by the laboratory. Data validation was in accordance with the most current USEPA Data Validation Guidelines and regional instructions.

The validation process involves scrutinizing various aspects of analytical procedures to fully assess data quality. Analytical procedures reviewed during the validation process include 1) laboratory holding times, 2) laboratory equipment calibrations, 3) blanks, 4) interference checks, 5) ICP serial dilutions, 6) duplicates, 7) matrix spike recovery, 8) field duplicate samples, 9) sample verification, 10) internal standards, 10) compound quantitation and reported detection limits, and 12) system performance. Based on the review of the various aspects of data analysis, the data validator may assign data qualifiers as necessary. Typically, the following code letters and the associated definitions are used as data validation qualifiers.

"B" - Analyte was detected in the blank above the instrument detection limit but below the contract required detection limit.

"U" - An analysis of the analyte was made, but was not detected. The associated numerical value is the sample quantitation limit.

"J" - The associated numerical value is an estimated quantity.

"UJ" - An analysis of the analyte was made, but was not detected. The associated value is the sample quantitation limit and is an estimated quantity.

INORGANIC
DATA QUALITY ASSURANCE REVIEW

Site Name:	Athen's City LF #2
Site Code:	
Case Number:	20298
Laboratory:	Weyerhauser Analytical Testing -- Federal Way, Wa.
Soil Samples:	MFM161, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, & 76.

The data package consisted of sixteen soil samples analyzed for total metals.

1. Analytical Parameters: all samples were analyzed using low concentration methods.

2. Holding Times: Holding time limits were reported as not having been exceeded.

3. Calibration Verification: All initial calibration verification results were within control limits. All continuing calibration verifications were reported to be within control limits.

4. CRDL Standards: no qualifications were performed due to CRDL criteria.

5. Blanks: calibration and prep blank results associated to a particular group of samples are used to qualify data. Trip blanks are used to qualify only those samples with which they were shipped and are not required for non-aqueous matrices. Typically, if sample concentration is greater than five times a blank value that is not considered a common lab artifact, no qualification is needed. If sample concentration is greater than ten times a blank value and is considered a common lab artifact, no qualification is needed. If the reported value is less than stated above, qualifications are applied in accordance with guidance. Lab blanks as follows were reported as containing contamination greater than the IDL, but less than the CRDL: aluminum, arsenic, barium, beryllium, calcium, chromium, copper, iron, magnesium, potassium, selenium, sodium, & zinc. Affected samples were qualified as per guidance.

6. Matrix Spike Recoveries: antimony, selenium, and silver were flagged by the lab with an "N" qualifier. The data reviewer replaced the "N" with a "J". Previous data reviewers rejected the results for antimony. Since the sample result was undetected the reviewer believes an estimated flag is acceptable.

7. Duplicates: Laboratory duplicates were flagged with "*" by the lab indicating the RPD was out of control limits. The following data were reportedly affected: manganese & lead. Affected data were qualified "j".

8. Laboratory Control Samples: No qualifications were performed due to LCS.

9. ICP Interference Check Sample (ICS): ICS results were within control limits.

10. ICP Serial Dilution: zinc was qualified by the lab with an "E". The data reviewer changed the E to a "j".

11. Method of standard additions(MSA): no qualifications due to MSA criteria.

11. Overall Assessment: Some laboratory duplicate results were out of control limits. Blank concentrations were above the IDL for some analytes. Furnace atomic absorption spike recoveries were outside of control limits for some lead and selenium determinations. MSA results were out of control limits for two samples. Other technical requirements appear to have been met.

ORGANIC
DATA QUALITY ASSURANCE REVIEW

Site Name: Athen's LF #2
Site Code:
Case Number: 20298
Laboratory: Wadsworth/Alert Laboratories -- North Canton, Oh.

Soil Samples: FN320, FN085, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, & 99.

The data package consisted of sixteen soil samples analyzed for volatile organics, semivolatile organics and pesticides/PCB's.

1. Analytical Parameters: Samples were analyzed using multi-media, multi-concentration protocols.

2. Holding Times: Holding time limits were reported as not having been exceeded.

3. Instrument Tunings: VOA samples FN097 & 98 experienced low IS areas. Reanalysis of those samples had similar problems. Sample results for the affected samples were qualified estimated.

4. Calibration Verification: VOA samples were out of control limits for %RSD or %D calibration criteria: bromoform(33.4), bromoform(32.7), bromoform(26.9). BNA's %D pentachlorophenol(39.3), bis(2-chloroethyl)ether(25.7).

5. Blanks: Field blank results associated to a particular group of samples must be used to qualify data. Trip blanks are used to qualify only those samples with which they were shipped and are not required for non-aqueous matrices. Typically, if sample concentration is greater than five times a blank value that is not considered a common lab artifact, no qualification is needed. If sample concentration is greater than ten times a blank value and is considered a common lab artifact, no qualification is needed. If the reported value is less than stated above, qualifications are applied in accordance with guidance. Lab blanks for VOAs & BNA's were reported as containing common lab artifacts such as acetone(2j), di-n-butylphthlate(29J), BEHP(180j) & numerous TIC's; one significant - RT of 21.28, concentration 18000j. Qualifications in accordance with guidance were made to the affected results. No contamination was reported in the Pest/PCB blank.

6. Matrix Spike Recoveries: No qualifications were performed due to MSD criteria.

7. Duplicates: FN090 & 91 were reported as duplicate samples. Some variations in duplicate results for VOA's were reported. Affected results were estimated as per guidance.

8. SMC/Surrogates: TBP was out of control limits for BNA samples 95 & 96. No qualifications were performed as per guidance. TCX & DCB surrogates were out of control limits for Pest/PCB samples: 90, 91, 95, 96, 97, & 98. Samples 96 & 98 had three out of four surrogates out of control limits. These sample results were qualified estimated as per guidance.

9. Target Compound Identification and Quantification: generally met contractual guidelines for all samples. BNA sample was analyzed at low level but with a 1:40 dilution, which indicated that the sample should have been considered a medium level sample. The following pesticide identification summary for two column ID had a %D out of control limits: FN085 - aldrin(3766.7), methoxychlor(34), FN086 - aldrin(1712.5), FN088 - methoxychlor(46.7), FN089 -

methoxychlor(75.7), FN090 - methoxychlor(31.2), FN091 - endosulfan II(663.6), methoxychlor(41.7), FN092 - aldrin(2788.9), endrin aldehyde(63.6), FN093 - aldrin(3250), 4,4'-DDT(629.7), FN094 - heptachlor epoxide(120.8), 4,4'DDD(375), FN095 - aldrin(429.4), heptachlor epoxide(102.9), endosulfan II(635.3), methoxychlor(207.7), FN096 - heptachlor epoxide(73.9), endosulfan II(934.5), FN097 - endosulfan sulfate(3471.4), methoxychlor(983.3), & FN098 - endosulfan II(140), endosulfan sulfate(1617.2), methoxychlor(608.3). For FN095 aroclor 1260 showed a 227.6% two column difference; for FN096 aroclor-1248 showed a 803.8% two column difference; for sample FN098 aroclor-1254 showed a 30% two column difference.

10. General Assessment: Blanks contained some contamination. %RSD and %D were out of control limits for some analytes. VOA samples experienced some problems with internal standards and inconsistent duplicate results.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
HOUSTON BRANCH
10625 FALLSTONE RD.
HOUSTON, TEXAS 77099

RECEIVED
AUG 19 1993

MEMORANDUM

DATE: August 17, 1993

SUBJECT: Notice of Intent to Dispose of Samples

FROM: Diana G. Ayers, Chief, Houston Branch; 6E-H

TO: Ragan Broyles, Chief,
Surveillance Branch; 6E-S

The Houston Laboratory is required to dispose of all hazardous wastes we generate in a manner consistent with RCRA regulations. This includes all samples received for analysis provided we find them to contain contaminants which classify them as RCRA hazardous wastes. In addition, any samples found to contain PCBs must be disposed of according to TCSA regulations.

I have included this memorandum in the final analytical report to serve as notice to the program that we have completed all analysis. If we have any of the original sample remaining after analysis is complete we will dispose of it within 90 days. Please note that even though original sample may be left over, it does not mean that a reanalysis of the sample may be requested since the sample has most likely exceeded its holding time and any subsequent analysis may not be valid.

If you have a need to hold these samples in custody longer than 90 days, please sign below and return this memorandum to me within the next 30 days. Also, state briefly your need to hold these samples in custody.

Thank you for your cooperation in this request.

CITY OF ATHENS LANDFILL - MALAKOFF ROAD (3TFADW42)

Facility Name

Program Manager Date

Recycled/Recyclable
Printed with Soy/Canola Ink on paper that contains at least 50% recycled fiber

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
HOUSTON BRANCH
10625 FALLSTONE RD.
HOUSTON, TEXAS 77099

MEMORANDUM

DATE: August 17, 1993

SUBJECT: Laboratory Results for City of Athens Landfill - Malakoff Road

FROM: Diana G. Ayers, Chief, Houston Branch; 6E-H

TO: Ragan Broyles, Chief, Surveillance Branch; 6E-S

ATTN: Stacey Bennett; 6E-SH

Attached are the analytical results for the subject site. Five water samples were received on July 16, 1993 to be analyzed for ABNs, VOAs, pesticides, PCBs, metals, and cyanide. The laboratory numbers assigned to these samples are 3TFADW4201 through 3TFADW4205.

This is a final report.

Attachments

Recycled/Recyclable
Printed with Soy/Canola Ink on paper that contains at least 50% recycled fiber

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
HOUSTON BRANCH
10625 FALLSTONE RD.
HOUSTON, TEXAS 77099

MEMORANDUM

Date: August 12, 1993

From: Michael Daggett, Chief
Organic Section; 6E-HO

To: Diana Ayers, Chief
Houston Branch; 6E-H

Subject: Organic Analysis of Athens Landfill Malakoff-Road.

Attached are the organic results for samples 3TFADW42-01 thru 3TFADW42-05. These samples were analyzed for ABNs, VOAs pesticides and PCBs. There were no target compounds detected in these samples.

This is a final report.

Recycled/Recyclable
Printed with Soy/Canola Ink on paper that contains at least 50% recycled fiber

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
HOUSTON BRANCH
10625 FALLSTONE RD.
HOUSTON, TEXAS 77099

MEMORANDUM

Date: August 16, 1993

Subject: Laboratory Results for Athens Landfill - Malakoff Rd.

From: David C. Stockton, Chief, Inorganic Lab Section, 6E-HI

To: Diana G. Ayers, Chief, Houston Branch, 6E-H

Attached are laboratory results for the subject site. Five (5) water samples were received on 7-16-93 to be analyzed for metals. The laboratory numbers assigned were 3TFDW4201 through 05. This is a final report.

Attachments (5)

Recycled/Recyclable
Printed with Soy/Canola Ink on paper that contains at least 50% recycled fiber

August 17, 1993

U.S. Environmental Protection Agency

Houston Branch Management System

Report for Sample Number 3TFADW4201

Source: ATHENS LANDFILL - MALAKOFF RD

Site Description: STA # DW-01

Date/Time Received: 7/16/93 11:15

Date/Time Collected: 7/15/93 7:20

Sample Type: DW

Date Completed: 8/16/93

Comments:

Parameter	Description	Section	Status	Report Date
ABN	ACID/BASE NEUTRALS	ORGANIC	COMPLETE	8/16/93
HSL	HAZARDOUS SUBSTANCE LIST	METALS	COMPLETE	8/16/93
PCB	POLYCHLORINATED BIPHENYLS	ORGANIC	COMPLETE	8/16/93
PES	PESTICIDES	ORGANIC	COMPLETE	8/16/93
VOA	VOLATILE ORGANIC ANALYSIS	ORGANIC	COMPLETE	8/16/93

Attachment: 1

ORGANIC ANALYSIS DATA

6E-HL Sample NO: 3TFADW42-01

Date Reported: 09-Aug-93

Analyst: M. HUMPHREY

Sample Type: WATER

SEMI-VOLATILE COMPOUNDS BY METHOD 625

units: ug/L

units: ug/L

Compound Name	Results*	Det Limits	Compound Name	Results*	Det Limits
Acenaphthene	ND	2	2,4-Dinitrophenol	ND	30
Acenaphthylene	ND	2	2,4-Dinitrotoluene	ND	6
Anthracene	ND	2	2,6-Dinitrotoluene	ND	6
Benzidine	ND	20	4,6-Dinitro-2-Methylphenol	ND	20
Benzoic Acid	ND	10	Di-n-Butylphthalate	ND	2
Benzo(a)Anthracene	ND	8	Di-n-Octyl Phthalate	ND	4
Benzo(a)Pyrene	ND	8	Fluoranthene	ND	2
Benzo(b)Fluoranthene	ND	8	Fluorene	ND	2
Benzo(g,h,i)Perylene	ND	8	Hexachlorobenzene	ND	2
Benzo(k)Fluoranthene	ND	8	Hexachlorobutadiene	ND	5
Benzyl Alcohol	ND	4	Hexachlorocyclopentadiene	ND	10
bis(2-Chloroethoxy)Methane	ND	2	Hexachloroethane	ND	3
bis(2-Chloroethyl) Ether	ND	2	Indeno(1,2,3-cd) Pyrene	ND	8
bis(2-chloroisopropyl)Ether	ND	2	Isophorone	ND	4
bis-(2-Ethylhexyl)Phthalate	ND	4	2-Methylnaphthalene	ND	2
4-Bromophenylphenyl Ether	ND	8	2-Methylphenol	ND	6
Butylbenzylphthalate	ND	4	4-Methylphenol	ND	6
Carbazole	ND	10	Naphthalene	ND	2
4-Chloroaniline	ND	4	2-Nitroaniline	ND	8
2-Chloronaphthalene	ND	2	3-Nitroaniline	ND	8
2-Chlorophenol	ND	4	4-Nitroaniline	ND	8
4-Chlorophenylphenyl Ether	ND	8	Nitrobenzene	ND	2
4-Chloro-3-Methylphenol	ND	8	2-Nitrophenol	ND	10
Chrysene	ND	8	4-Nitrophenol	ND	13
Dibenzofuran	ND	2	N-Nitrosodiphenylamine	ND	4
Dibenzo(a,h)Anthracene	ND	8	N-Nitroso-Di-n-Propylamine	ND	6
1,2-Dichlorobenzene	ND	3	Pentachlorophenol	ND	15
1,3-Dichlorobenzene	ND	3	Phenanthrene	ND	2
1,4-Dichlorobenzene	ND	3	Phenol	ND	4
3,3'-Dichlorobenzidine	ND	10	Pyrene	ND	2
2,4-Dichlorophenol	ND	6	1,2,4-Trichlorobenzene	ND	3
Diethylphthalate	ND	2	2,4,5-Trichlorophenol	ND	6
2,4-Dimethylphenol	ND	6	2,4,6-Trichlorophenol	ND	6
DimethylPhthalate	ND	2			

(*) ND = Not detected above the listed detection limit.

(*) ND = Not detected above the listed detection limit.

Analyst Notes: _____

Attachment: 1

ORGANIC ANALYSIS DATA

6E-HL Sample NO:3TFADW42-01

Date Reported: 09-Aug-93

Analyst: M. HUMPHREY

Matrix: WATER

TENTATIVELY IDENTIFIED SEMI-VOLATILE COMPOUNDS BY METHOD 625

units: ug/L

RT (min)	CAS #	COMPOUND NAME (*)	Estimated Concentration (**)
		No ABN TIC's detected in this sample.	

(*) ANALYSTS NOTE: The compounds listed are tentatively identified by the best match with the NIH/EPA/Wiley mass spectral data base or by manual interpretation. Standards were not available for confirmation or quantitation.

(**) Estimated concentration is based on a Response Factor of 1.0 to the nearest internal standard.

 Attachment: 1

ORGANIC ANALYSIS DATA

6E-HL SAMPLE NO: 3TFADW42-01 DATE REPORTED: 10-Aug-93

ANALYST: F. Edward O'Neill SAMPLE TYPE: water

VOLATILE COMPOUNDS BY METHOD 624 units: ug/L

CAS#	Compound Name	Results*	Det Limits
67-64-1	acetone	ND	5
107-02-8	acrolein	ND	100
107-13-1	acrylonitrile	ND	100
71-43-2	benzene	ND	2
75-27-4	bromodichloromethane	ND	2
75-25-2	bromoform	ND	2
74-83-9	bromomethane	ND	5
78-93-3	2-butanone	ND	5
75-15-0	carbon disulfide	ND	5
56-23-5	carbon tetrachloride	ND	2
108-90-7	chlorobenzene	ND	2
75-00-3	chloroethane	ND	5
67-66-3	chloroform	ND	2
74-87-3	chloromethane	ND	5
124-48-1	dibromochloromethane	ND	2
75-34-3	1,1-dichloroethane	ND	2
107-06-2	1,2-dichloroethane	ND	2
75-35-4	1,1-dichloroethene	ND	2
156-59-2	cis-1,2-dichloroethene	ND	2
156-60-5	trans-1,2-dichloroethene	ND	2
78-87-5	1,2-dichloropropane	ND	2
10061-01-5	cis-1,3-dichloropropene	ND	2
10061-02-6	trans-1,3-dichloropropene	ND	2
100-41-4	ethylbenzene	ND	5
519-78-6	2-hexanone	ND	5
75-09-2	methylene chloride	ND	5
108-10-1	4-methyl-2-pentanone	ND	5
100-42-5	styrene	ND	5
79-34-5	1,1,2,2-tetrachloroethane	ND	2
127-18-4	tetrachloroethene	ND	2
108-88-3	toluene	ND	5
71-55-6	1,1,1-trichloroethane	ND	2
79-00-5	1,1,2-trichloroethane	ND	2
79-01-6	trichloroethene	ND	2
75-01-4	vinyl chloride	ND	5
108-38-3	m- and/or (CAS# 106-42-3)p-xylene	ND	5
95-47-6	o-xylene	ND	5

(*) ND = Not detected above the listed detection limit.

 Attachment: 1

ORGANIC ANALYSIS DATA

6E-HL SAMPLE NO: 3TFADW42-01 DATE REPORTED: 10-Aug-93

ANALYST: F. Edward O'Neill SAMPLE TYPE: water

TENTATIVELY IDENTIFIED VOLATILE COMPOUNDS BY METHOD 624

(min) RT	CAS#	COMPOUND NAME *	ug/L EST. CONC.
		No VOA TIC's detected in this sample.	

* ANALYSTS NOTE - THE COMPOUNDS LISTED ARE TENTATIVELY IDENTIFIED BY THE BEST MATCH WITH THE NIH/EPA/WILEY MASS SPECTRAL DATA BASE OR BY MANUAL INTERPRETATION. STANDARDS WERE NOT AVAILABLE FOR CONFIRMATION OR QUANTITATION.

**Estimated concentration is based on a RF of 1.0 to internal standard

PESTICIDE/PCB ANALYSIS

SES-HL SAMPLE NO.: STF-DW-1-01 DATE REPORTED: 8 / 9/1993

SAMPLE TYPE: WATER ATHENS LANDFILL-MALAKOFF ROAD

ANALYST: LARRY STRECK

CAS#		UG/L (PPB)
319-84-6	alpha-BHC	ND DL=< 0.05
319-85-7	beta-BHC	ND DL=< 0.05
319-86-8	delta-BHC	ND DL=< 0.05
58-89-9	gamma-BHC (Lindane)	ND DL=< 0.05
76-44-8	Heptachlor	ND DL=< 0.05
309-00-2	Aldrin	ND DL=< 0.05
1024-57-3	Heptachlor epoxide	ND DL=< 0.05
959-98-8	Endosulfan I	ND DL=< 0.05
60-57-1	Dieldrin	ND DL=< 0.10
72-55-9	4,4'-DDE	ND DL=< 0.10
72-20-8	Endrin	ND DL=< 0.10
33213-65-9	Endosulfan II	ND DL=< 0.10
72-54-8	4,4'-DDD	ND DL=< 0.10
7421-93-4	Endrin aldehyde	ND DL=< 0.10
53494-70-5	Endrin ketone	ND DL=< 0.10
1031-07-8	Endosulfan sulfate	ND DL=< 0.10
50-29-3	4,4'-DDT	ND DL=< 0.10
72-43-5	Methoxychlor	ND DL=< 0.50
5103-71-9	alpha-Chlordane	ND DL=< 0.05
5103-74-2	gamma-Chlordane	ND DL=< 0.05
8001-35-2	Toxaphene	ND DL=< 5.00
12674-11-2	Aroclor-1016	ND DL=< 1.00
11104-28-2	Aroclor-1221	ND DL=< 2.00
11141-16-5	Aroclor-1232	ND DL=< 1.00
53469-21-9	Aroclor-1242	ND DL=< 1.00
12672-29-6	Aroclor-1248	ND DL=< 1.00
11097-69-1	Aroclor-1254	ND DL=< 1.00
11096-82-5	Aroclor-1260	ND DL=< 1.00

ND DL = NOT DETECTED, DETECTION LIMIT

US EPA HOUSTON BRANCH

SAMPLE #:	3TFADW42-01	DATE	
SOURCE:	ATHENS LANDFILL MALAKOFF ROAD	RECEIVED:	16-Jul-93
TYPE:	AQUEOUS	DATE	
ANALYSTS:	RC, LC, JL	REPORTED:	16-Aug-93

PARAMETER	CONCENTRATION	DETECTION LIMIT <=	UNITS
ALUMINUM	ND	100	UG/L
ANTIMONY	ND	60	UG/L
ARSENIC	ND	5.8	UG/L
BARIUM	172	10	UG/L
BERYLLIUM	ND	5	UG/L
CADMIUM	ND	5	UG/L
CALCIUM	126000	150	UG/L
CHROMIUM	ND	10	UG/L
COBALT	ND	20	UG/L
COPPER	ND	20	UG/L
IRON	ND	25	UG/L
LEAD	ND	3.3	UG/L
MAGNESIUM	29600	150	UG/L
MANGANESE	ND	5	UG/L
MERCURY	ND	0.2	UG/L
NICKEL	ND	20	UG/L
POTASSIUM	2370	1000	UG/L
SELENIUM	ND	12	UG/L
SILVER	ND	10	UG/L
SODIUM	87100	500	UG/L
THALLIUM	ND	20	UG/L
VANADIUM	ND	30	UG/L
ZINC	ND	20	UG/L

ND: LESS THAN DETECTION LIMIT

August 17, 1993

U.S. Environmental Protection Agency

Houston Branch Management System

Report for Sample Number 3TFADW4202

Source: ATHENS LANDFILL - MALAKOFF RD

Site Description: STA # DW-02

Date/Time Received: 7/16/93 11:15

Date/Time Collected: 7/15/93 7:20

Sample Type: DW

Date Completed: 8/16/93

Comments:

Parameter	Description	Section	Status	Report Date
ABN	ACID/BASE NEUTRALS	ORGANIC	COMPLETE	8/16/93
HSL	HAZARDOUS SUBSTANCE LIST	METALS	COMPLETE	8/16/93
PCB	POLYCHLORINATED BIPHENYLS	ORGANIC	COMPLETE	8/16/93
PES	PESTICIDES	ORGANIC	COMPLETE	8/16/93
VOA	VOLATILE ORGANIC ANALYSIS	ORGANIC	COMPLETE	8/16/93

Attachment: 2

ORGANIC ANALYSIS DATA

6E-HL Sample NO: 3TFADW42-02

Date Reported: 09-Aug-93

Analyst: M. HUMPHREY

Sample Type: WATER

SEMI-VOLATILE COMPOUNDS BY METHOD 625

units: ug/L

units: ug/L

Compound Name	Results*	Det Limits	Compound Name	Results*	Det Limits
Acenaphthene	ND	2	2,4-Dinitrophenol	ND	30
Acenaphthylene	ND	2	2,4-Dinitrotoluene	ND	6
Anthracene	ND	2	2,6-Dinitrotoluene	ND	6
Benzidine	ND	20	4,6-Dinitro-2-Methylphenol	ND	20
Benzoic Acid	ND	10	Di-n-Butylphthalate	ND	2
Benzo(a)Anthracene	ND	8	Di-n-Octyl Phthalate	ND	4
Benzo(a)Pyrene	ND	8	Fluoranthene	ND	2
Benzo(b)Fluoranthene	ND	8	Fluorene	ND	2
Benzo(g,h,i)Perylene	ND	8	Hexachlorobenzene	ND	2
Benzo(k)Fluoranthene	ND	8	Hexachlorobutadiene	ND	5
Benzyl Alcohol	ND	4	Hexachlorocyclopentadiene	ND	10
bis(2-Chloroethoxy)Methane	ND	2	Hexachloroethane	ND	3
bis(2-Chloroethyl) Ether	ND	2	Indeno(1,2,3-cd) Pyrene	ND	8
bis(2-chloroisopropyl)Ether	ND	2	Isophorone	ND	4
bis-(2-Ethylhexyl)Phthalate	ND	4	2-Methylnaphthalene	ND	2
4-Bromophenylphenyl Ether	ND	8	2-Methylphenol	ND	6
Butylbenzylphthalate	ND	4	4-Methylphenol	ND	6
Carbazole	ND	10	Naphthalene	ND	2
4-Chloroaniline	ND	4	2-Nitroaniline	ND	8
2-Chloronaphthalene	ND	2	3-Nitroaniline	ND	8
2-Chlorophenol	ND	4	4-Nitroaniline	ND	8
4-Chlorophenylphenyl Ether	ND	8	Nitrobenzene	ND	2
4-Chloro-3-Methylphenol	ND	8	2-Nitrophenol	ND	10
Chrysene	ND	8	4-Nitrophenol	ND	13
Dibenzofuran	ND	2	N-Nitrosodiphenylamine	ND	4
Dibenzo(a,h)Anthracene	ND	8	N-Nitroso-Di-n-Propylamine	ND	6
1,2-Dichlorobenzene	ND	3	Pentachlorophenol	ND	15
1,3-Dichlorobenzene	ND	3	Phenanthrene	ND	2
1,4-Dichlorobenzene	ND	3	Phenol	ND	4
3,3'-Dichlorobenzidine	ND	10	Pyrene	ND	2
2,4-Dichlorophenol	ND	6	1,2,4-Trichlorobenzene	ND	3
Diethylphthalate	ND	2	2,4,5-Trichlorophenol	ND	6
2,4-Dimethylphenol	ND	6	2,4,6-Trichlorophenol	ND	6
DimethylPhthalate	ND	2			

(*) ND = Not detected above the listed detection limit.

(*) ND = Not detected above the listed detection limit.

Analyst Notes: _____

Attachment: 2

ORGANIC ANALYSIS DATA

6E-HL Sample NO:3TFADW42-02

Date Reported: 09-Aug-93

Analyst: M. HUMPHREY

Matrix: WATER

TENTATIVELY IDENTIFIED SEMI-VOLATILE COMPOUNDS BY METHOD 625

units: ug/L

RT (min)	CAS #	COMPOUND NAME (*)	Estimated Concentration (**)
		No ABN TIC's detected in this sample.	

(*) ANALYSTS NOTE: The compounds listed are tentatively identified by the best match with the NIH/EPA/Wiley mass spectral data base or by manual interpretation. Standards were not available for confirmation or quantitation.

(**) Estimated concentration is based on a Response Factor of 1.0 to the nearest internal standard.

 Attachment: 2

ORGANIC ANALYSIS DATA

6E-HL SAMPLE NO: 3TFADW42-02 DATE REPORTED: 10-Aug-93

ANALYST: F. Edward O'Neill SAMPLE TYPE: water

VOLATILE COMPOUNDS BY METHOD 624 units: ug/L

CAS#	Compound Name	Results*	Det Limits
67-64-1	acetone	ND	5
107-02-8	acrolein	ND	100
107-13-1	acrylonitrile	ND	100
71-43-2	benzene	ND	2
75-27-4	bromodichloromethane	ND	2
75-25-2	bromoform	ND	2
74-83-9	bromomethane	ND	5
78-93-3	2-butanone	ND	5
75-15-0	carbon disulfide	ND	5
56-23-5	carbon tetrachloride	ND	2
108-90-7	chlorobenzene	ND	2
75-00-3	chloroethane	ND	5
67-66-3	chloroform	ND	2
74-87-3	chloromethane	ND	5
124-48-1	dibromochloromethane	ND	2
75-34-3	1,1-dichloroethane	ND	2
107-06-2	1,2-dichloroethane	ND	2
75-35-4	1,1-dichloroethene	ND	2
156-59-2	cis-1,2-dichloroethene	ND	2
156-60-5	trans-1,2-dichloroethene	ND	2
78-87-5	1,2-dichloropropane	ND	2
10061-01-5	cis-1,3-dichloropropene	ND	2
10061-02-6	trans-1,3-dichloropropene	ND	2
100-41-4	ethylbenzene	ND	5
519-78-6	2-hexanone	ND	5
75-09-2	methylene chloride	ND	5
108-10-1	4-methyl-2-pentanone	ND	5
100-42-5	styrene	ND	5
79-34-5	1,1,2,2-tetrachloroethane	ND	2
127-18-4	tetrachloroethene	ND	2
108-88-3	toluene	ND	5
71-55-6	1,1,1-trichloroethane	ND	2
79-00-5	1,1,2-trichloroethane	ND	2
79-01-6	trichloroethene	ND	2
75-01-4	vinyl chloride	ND	5
108-38-3	m- and/or (CAS# 106-42-3)p-xylene	ND	5
95-47-6	o-xylene	ND	5

(*) ND = Not detected above the listed detection limit.

 Attachment: 2

ORGANIC ANALYSIS DATA

6E-HL SAMPLE NO: 3TFADW42-02 DATE REPORTED: 10-Aug-93

ANALYST: F. Edward O'Neill SAMPLE TYPE: water

TENTATIVELY IDENTIFIED VOLATILE COMPOUNDS BY METHOD 624

(min) RT	CAS#	COMPOUND NAME *	ug/L EST. CONC.
		No VOA TIC's detected in this sample.	

* ANALYSTS NOTE - THE COMPOUNDS LISTED ARE TENTATIVELY IDENTIFIED BY THE BEST MATCH WITH THE NIH/EPA/WILEY MASS SPECTRAL DATA BASE OR BY MANUAL INTERPRETATION. STANDARDS WERE NOT AVAILABLE FOR CONFIRMATION OR QUANTITATION.

**Estimated concentration is based on a RF of 1.0 to internal standard

PESTICIDE/PCB ANALYSIS

6E3-HL SAMPLE NO.: 3TFA0W42-02 DATE REPORTED: 8 / 9/1993

SAMPLE TYPE: WATER ATHENS LANDFILL-MALAKOFF ROAD

ANALYST: LARRY STRECK

CAS#		UG/L (PPB)
319-84-6	alpha-BHC	ND DL=< 0.05
319-85-7	beta-BHC	ND DL=< 0.05
319-86-8	delta-BHC	ND DL=< 0.05
58-89-9	gamma-BHC (Lindane)	ND DL=< 0.05
76-44-8	Heptachlor	ND DL=< 0.05
309-00-2	Aldrin	ND DL=< 0.05
1024-57-3	Heptachlor epoxide	ND DL=< 0.05
959-98-8	Endosulfan I	ND DL=< 0.05
60-57-1	Dieldrin	ND DL=< 0.10
72-55-9	4,4'-DDE	ND DL=< 0.10
72-20-8	Endrin	ND DL=< 0.10
33213-65-9	Endosulfan II	ND DL=< 0.10
72-54-8	4,4'-DDD	ND DL=< 0.10
7421-93-4	Endrin aldehyde	ND DL=< 0.10
53494-70-5	Endrin ketone	ND DL=< 0.10
1031-07-8	Endosulfan sulfate	ND DL=< 0.10
50-29-3	4,4'-DDT	ND DL=< 0.10
72-43-5	Methoxychlor	ND DL=< 0.50
5103-71-9	alpha-Chlordane	ND DL=< 0.05
5103-74-2	gamma-Chlordane	ND DL=< 0.05
8001-35-2	Toxaphene	ND DL=< 5.00
12674-11-2	Aroclor-1016	ND DL=< 1.00
11104-28-2	Aroclor-1221	ND DL=< 1.00
11141-16-5	Aroclor-1232	ND DL=< 1.00
53469-21-9	Aroclor-1242	ND DL=< 1.00
12672-29-6	Aroclor-1248	ND DL=< 1.00
11097-69-1	Aroclor-1254	ND DL=< 1.00
11096-82-5	Aroclor-1260	ND DL=< 1.00

ND DL = NOT DETECTED [illegible]

US EPA HOUSTON BRANCH

SAMPLE #:	3TFADW42-02	DATE RECEIVED:	16-Jul-93
SOURCE:	ATHENS LANDFILL MALAKOFF ROAD		
TYPE:	AQUEOUS	DATE REPORTED:	16-Aug-93
ANALYSTS:	RC, LC, JL		

PARAMETER	CONCENTRATION	DETECTION LIMIT <=	UNITS
ALUMINUM	ND	100	UG/L
ANTIMONY	ND	60	UG/L
ARSENIC	ND	5.8	UG/L
BARIUM	166	10	UG/L
BERYLLIUM	ND	5	UG/L
CADMIUM	ND	5	UG/L
CALCIUM	122000	150	UG/L
CHROMIUM	ND	10	UG/L
COBALT	ND	20	UG/L
COPPER	ND	20	UG/L
IRON	ND	25	UG/L
LEAD	ND	3.3	UG/L
MAGNESIUM	28900	150	UG/L
MANGANESE	ND	5	UG/L
MERCURY	ND	0.2	UG/L
NICKEL	ND	20	UG/L
POTASSIUM	2790	1000	UG/L
SELENIUM	ND	12	UG/L
SILVER	ND	10	UG/L
SODIUM	84400	500	UG/L
THALLIUM	ND	20	UG/L
VANADIUM	ND	30	UG/L
ZINC	ND	20	UG/L

ND: LESS THAN DETECTION LIMIT

August 17, 1993

U.S. Environmental Protection Agency

Houston Branch Management System

Report for Sample Number 3TFADW4203

Source: ATHENS LANDFILL - MALAKOFF RD

Site Description: STA # DW-03

Date/Time Received: 7/16/93 11:15

Date/Time Collected: 7/15/93 7:58

Sample Type: DW

Date Completed: 8/16/93

Comments:

Parameter	Description	Section	Status	Report Date
ABN	ACID/BASE NEUTRALS	ORGANIC	COMPLETE	8/16/93
HSL	HAZARDOUS SUBSTANCE LIST	METALS	COMPLETE	8/16/93
PCB	POLYCHLORINATED BIPHENYLS	ORGANIC	COMPLETE	8/16/93
PES	PESTICIDES	ORGANIC	COMPLETE	8/16/93
VOA	VOLATILE ORGANIC ANALYSIS	ORGANIC	COMPLETE	8/16/93

Attachment: 3

ORGANIC ANALYSIS DATA

6E-HL Sample NO: 3TFADW42-03

Date Reported: 09-Aug-93

Analyst: M. HUMPHREY

Sample Type: WATER

SEMI-VOLATILE COMPOUNDS BY METHOD 625

units: ug/L

units: ug/L

Compound Name	Results*	Det Limits	Compound Name	Results*	Det Limits
Acenaphthene	ND	2	2,4-Dinitrophenol	ND	30
Acenaphthylene	ND	2	2,4-Dinitrotoluene	ND	6
Anthracene	ND	2	2,6-Dinitrotoluene	ND	6
Benzidine	ND	20	4,6-Dinitro-2-Methylphenol	ND	20
Benzoic Acid	ND	10	Di-n-Butylphthalate	ND	2
Benzo(a)Anthracene	ND	8	Di-n-Octyl Phthalate	ND	4
Benzo(a)Pyrene	ND	8	Fluoranthene	ND	2
Benzo(b)Fluoranthene	ND	8	Fluorene	ND	2
Benzo(g,h,i)Perylene	ND	8	Hexachlorobenzene	ND	2
Benzo(k)Fluoranthene	ND	8	Hexachlorobutadiene	ND	5
Benzyl Alcohol	ND	4	Hexachlorocyclopentadiene	ND	10
bis(2-Chloroethoxy)Methane	ND	2	Hexachloroethane	ND	3
bis(2-Chloroethyl) Ether	ND	2	Indeno(1,2,3-cd) Pyrene	ND	8
bis(2-chloroisopropyl)Ether	ND	2	Isophorone	ND	4
bis-(2-Ethylhexyl)Phthalate	ND	4	2-Methylnaphthalene	ND	2
4-Bromophenylphenyl Ether	ND	8	2-Methylphenol	ND	6
Butylbenzylphthalate	ND	4	4-Methylphenol	ND	6
Carbazole	ND	10	Naphthalene	ND	2
4-Chloroaniline	ND	4	2-Nitroaniline	ND	8
2-Chloronaphthalene	ND	2	3-Nitroaniline	ND	8
2-Chlorophenol	ND	4	4-Nitroaniline	ND	8
4-Chlorophenylphenyl Ether	ND	8	Nitrobenzene	ND	2
4-Chloro-3-Methylphenol	ND	8	2-Nitrophenol	ND	10
Chrysene	ND	8	4-Nitrophenol	ND	13
Dibenzofuran	ND	2	N-Nitrosodiphenylamine	ND	4
Dibenzo(a,h)Anthracene	ND	8	N-Nitroso-Di-n-Propylamine	ND	6
1,2-Dichlorobenzene	ND	3	Pentachlorophenol	ND	15
1,3-Dichlorobenzene	ND	3	Phenanthrene	ND	2
1,4-Dichlorobenzene	ND	3	Phenol	ND	4
3,3'-Dichlorobenzidine	ND	10	Pyrene	ND	2
2,4-Dichlorophenol	ND	6	1,2,4-Trichlorobenzene	ND	3
Diethylphthalate	ND	2	2,4,5-Trichlorophenol	ND	6
2,4-Dimethylphenol	ND	6	2,4,6-Trichlorophenol	ND	6
DimethylPhthalate	ND	2			

(*) ND = Not detected above the listed detection limit.

(*) ND = Not detected above the listed detection limit.

Analyst Notes: _____

Attachment: 3

ORGANIC ANALYSIS DATA

6E-HL Sample NO:3TFADW42-03

Date Reported: 09-Aug-93

Analyst: M. HUMPHREY

Matrix: WATER

TENTATIVELY IDENTIFIED SEMI-VOLATILE COMPOUNDS BY METHOD 625

units: ug/L

RT (min)	CAS #	COMPOUND NAME (*)	Estimated Concentration (**)
		No ABN TIC's detected in this sample.	

(*) ANALYSTS NOTE: The compounds listed are tentatively identified by the best match with the NIH/EPA/Wiley mass spectral data base or by manual interpretation. Standards were not available for confirmation or quantitation.

(**) Estimated concentration is based on a Response Factor of 1.0 to the nearest internal standard.

 Attachment: 3

ORGANIC ANALYSIS DATA

6E-HL SAMPLE NO: 3TFADW42-03 DATE REPORTED: 10-Aug-93

ANALYST: F. Edward O'Neill SAMPLE TYPE: water

VOLATILE COMPOUNDS BY METHOD 624 units: ug/L

CAS#	Compound Name	Results*	Det Limits
67-64-1	acetone	ND	5
107-02-8	acrolein	ND	100
107-13-1	acrylonitrile	ND	100
71-43-2	benzene	ND	2
75-27-4	bromodichloromethane	ND	2
75-25-2	bromoform	ND	2
74-83-9	bromomethane	ND	5
78-93-3	2-butanone	ND	5
75-15-0	carbon disulfide	ND	5
56-23-5	carbon tetrachloride	ND	2
108-90-7	chlorobenzene	ND	2
75-00-3	chloroethane	ND	5
67-66-3	chloroform	ND	2
74-87-3	chloromethane	ND	5
124-48-1	dibromochloromethane	ND	2
75-34-3	1,1-dichloroethane	ND	2
107-06-2	1,2-dichloroethane	ND	2
75-35-4	1,1-dichloroethene	ND	2
156-59-2	cis-1,2-dichloroethene	ND	2
156-60-5	trans-1,2-dichloroethene	ND	2
78-87-5	1,2-dichloropropane	ND	2
10061-01-5	cis-1,3-dichloropropene	ND	2
10061-02-6	trans-1,3-dichloropropene	ND	2
100-41-4	ethylbenzene	ND	5
519-78-6	2-hexanone	ND	5
75-09-2	methylene chloride	ND	5
108-10-1	4-methyl-2-pentanone	ND	5
100-42-5	styrene	ND	5
79-34-5	1,1,2,2-tetrachloroethane	ND	2
127-18-4	tetrachloroethene	ND	2
108-88-3	toluene	ND	5
71-55-6	1,1,1-trichloroethane	ND	2
79-00-5	1,1,2-trichloroethane	ND	2
79-01-6	trichloroethene	ND	2
75-01-4	vinyl chloride	ND	5
108-38-3	m- and/or (CAS# 106-42-3)p-xylene	ND	5
95-47-6	o-xylene	ND	5

(*) ND = Not detected above the listed detection limit.

 Attachment: 3

ORGANIC ANALYSIS DATA

6E-HL SAMPLE NO: 3TFADW42-03 DATE REPORTED: 10-Aug-93

ANALYST: F. Edward O'Neill SAMPLE TYPE: water

TENTATIVELY IDENTIFIED VOLATILE COMPOUNDS BY METHOD 624

(min) RT	CAS#	COMPOUND NAME *	ug/L EST. CONC.
		No VOA TIC's detected in this sample.	

* ANALYSTS NOTE - THE COMPOUNDS LISTED ARE TENTATIVELY IDENTIFIED BY THE BEST MATCH WITH THE NIH/EPA/WILEY MASS SPECTRAL DATA BASE OR BY MANUAL INTERPRETATION. STANDARDS WERE NOT AVAILABLE FOR CONFIRMATION OR QUANTITATION.

**Estimated concentration is based on a RF of 1.0 to internal standard

Attachment 3

5 6

[illegible]

[illegible] DATE REPORTED: 8 [illegible] 9/1993

SAMPLE TYPE: WATER ATHENS LANDFILL-MALAKOFF ROAD

ANALYST: LARRY STRECK

CAS#		UG/L (PPB)
[illegible]-84-6	alpha-BHC	ND DL=< 0.05
319-85-7	beta-BHC	ND DL=< 0.05
319-86-8	delta-BHC	ND DL=< 0.05
58-89-9	gamma-BHC (Lindane)	ND DL=< 0.05
76-44-8	Heptachlor	ND DL=< 0.05
309-00-2	Aldrin	ND DL=< 0.05
1024-57-3	Heptachlor epoxide	ND DL=< 0.05
959-98-8	Endosulfan I	ND DL=< 0.05
60-57-1	Dieldrin	ND DL=< 0.10
72-55-9	4,4'-DDE	ND DL=< 0.10
72-20-8	Endrin	ND DL=< 0.10
33213-65-9	Endosulfan II	ND DL=< 0.10
72-54-8	4,4'-DDD	ND DL=< 0.10
7421-93-4	Endrin aldehyde	ND DL=< 0.10
53494-70-5	Endrin ketone	ND DL=< 0.10
1031-07-8	Endosulfan sulfate	ND DL=< 0.10
50-29-3	4,4'-DDT	ND DL=< 0.10
72-43-5	Methoxychlor	ND DL=< 0.50
5103-71-9	alpha-Chlordane	ND DL=< 0.05
5103-74-2	gamma-Chlordane	ND DL=< 0.05
8001-35-2	Toxaphene	ND DL=< 5.00
12674-11-2	Aroclor-1016	ND DL=< 1.00
11104-28-2	Aroclor-1221	ND DL=< 2.00
11141-16-5	Aroclor-1232	ND DL=< 1.00
53469-21-9	Aroclor-1242	ND DL=< 1.00
12672-29-6	Aroclor-1248	ND DL=< 1.00
11097-69-1	Aroclor-1254	ND DL=< 1.00
11096-82-5	Aroclor-1260	ND DL=< 1.00

ND DL = NOT DETECTED, DETECTION LIMIT

US EPA HOUSTON BRANCH

SAMPLE #:	3TFADW42-03	DATE RECEIVED:	16-Jul-93
SOURCE:	ATHENS LANDFILL MALAKOFF ROAD		
TYPE:	AQUEOUS	DATE REPORTED:	16-Aug-93
ANALYSTS:	RC, LC, JL		

PARAMETER	CONCENTRATION	DETECTION LIMIT <=	UNITS
ALUMINUM	ND	100	UG/L
ANTIMONY	ND	60	UG/L
ARSENIC	ND	5.8	UG/L
BARIUM	39	10	UG/L
BERYLLIUM	ND	5	UG/L
CADMIUM	ND	5	UG/L
CALCIUM	4440	150	UG/L
CHROMIUM	ND	10	UG/L
COBALT	ND	20	UG/L
COPPER	ND	20	UG/L
IRON	ND	25	UG/L
LEAD	ND	3.3	UG/L
MAGNESIUM	731	150	UG/L
MANGANESE	19	5	UG/L
MERCURY	ND	0.2	UG/L
NICKEL	ND	20	UG/L
POTASSIUM	ND	1000	UG/L
SELENIUM	ND	12	UG/L
SILVER	ND	10	UG/L
SODIUM	57800	500	UG/L
THALLIUM	ND	20	UG/L
VANADIUM	ND	30	UG/L
ZINC	55	20	UG/L

ND: LESS THAN DETECTION LIMIT

August 17, 1993

U.S. Environmental Protection Agency

Houston Branch Management System

Report for Sample Number 3TFADW4204

Source: ATHENS LANDFILL - MALAKOFF RD

Site Description: STA # DW-04

Date/Time Received: 7/16/93 11:15

Date/Time Collected: 7/15/93 8:35

Sample Type: DW

Date Completed: 8/16/93

Comments:

Parameter	Description	Section	Status	Report Date
ABN	ACID/BASE NEUTRALS	ORGANIC	COMPLETE	8/16/93
HSL	HAZARDOUS SUBSTANCE LIST	METALS	COMPLETE	8/16/93
PCB	POLYCHLORINATED BIPHENYLS	ORGANIC	COMPLETE	8/16/93
PES	PESTICIDES	ORGANIC	COMPLETE	8/16/93
VOA	VOLATILE ORGANIC ANALYSIS	ORGANIC	COMPLETE	8/16/93

Attachment: 4

ORGANIC ANALYSIS DATA

6E-HL Sample NO: 3TFADW42-04

Date Reported: 09-Aug-93

Analyst: M. HUMPHREY

Sample Type: WATER

SEMI-VOLATILE COMPOUNDS BY METHOD 625

units: ug/L

Compound Name	Results*	Det Limits
Acenaphthene	ND	2
Acenaphthylene	ND	2
Anthracene	ND	2
Benzidine	ND	20
Benzoic Acid	ND	10
Benzo(a)Anthracene	ND	8
Benzo(a)Pyrene	ND	8
Benzo(b)Fluoranthene	ND	8
Benzo(g,h,i)Perylene	ND	8
Benzo(k)Fluoranthene	ND	8
Benzyl Alcohol	ND	4
bis(2-Chloroethoxy)Methane	ND	2
bis(2-Chloroethyl) Ether	ND	2
bis(2-chloroisopropyl)Ether	ND	2
bis-(2-Ethylhexyl)Phthalate	ND	4
4-Bromophenylphenyl Ether	ND	8
Butylbenzylphthalate	ND	4
Carbazole	ND	10
4-Chloroaniline	ND	4
2-Chloronaphthalene	ND	2
2-Chlorophenol	ND	4
4-Chlorophenylphenyl Ether	ND	8
4-Chloro-3-Methylphenol	ND	8
Chrysene	ND	8
Dibenzofuran	ND	2
Dibenzo(a,h)Anthracene	ND	8
1,2-Dichlorobenzene	ND	3
1,3-Dichlorobenzene	ND	3
1,4-Dichlorobenzene	ND	3
3,3'-Dichlorobenzidine	ND	10
2,4-Dichlorophenol	ND	6
Diethylphthalate	ND	2
2,4-Dimethylphenol	ND	6
DimethylPhthalate	ND	2

units: ug/L

Compound Name	Results*	Det Limits
2,4-Dinitrophenol	ND	30
2,4-Dinitrotoluene	ND	6
2,6-Dinitrotoluene	ND	6
4,6-Dinitro-2-Methylphenol	ND	20
Di-n-Butylphthalate	ND	2
Di-n-Octyl Phthalate	ND	4
Fluoranthene	ND	2
Fluorene	ND	2
Hexachlorobenzene	ND	2
Hexachlorobutadiene	ND	5
Hexachlorocyclopentadiene	ND	10
Hexachloroethane	ND	3
Indeno(1,2,3-cd) Pyrene	ND	8
Isophorone	ND	4
2-Methylnaphthalene	ND	2
2-Methylphenol	ND	6
4-Methylphenol	ND	6
Naphthalene	ND	2
2-Nitroaniline	ND	8
3-Nitroaniline	ND	8
4-Nitroaniline	ND	8
Nitrobenzene	ND	2
2-Nitrophenol	ND	10
4-Nitrophenol	ND	13
N-Nitrosodiphenylamine	ND	4
N-Nitroso-Di-n-Propylamine	ND	6
Pentachlorophenol	ND	15
Phenanthrene	ND	2
Phenol	ND	4
Pyrene	ND	2
1,2,4-Trichlorobenzene	ND	3
2,4,5-Trichlorophenol	ND	6
2,4,6-Trichlorophenol	ND	6

(*) ND = Not detected above the listed detection limit.

(*) ND = Not detected above the listed detection limit.

Analyst Notes: _____

Attachment: 4

ORGANIC ANALYSIS DATA

6E-HL Sample NO:3TFADW42-04

Date Reported: 09-Aug-93

Analyst: M. HUMPHREY

Matrix: WATER

TENTATIVELY IDENTIFIED SEMI-VOLATILE COMPOUNDS BY METHOD 625

units: ug/L

RT (min)	CAS #	COMPOUND NAME (*)	Estimated Concentration (**)
		No ABN TIC's detected in this sample.	

(*) ANALYSTS NOTE: The compounds listed are tentatively identified by the best match with the NIH/EPA/Wiley mass spectral data base or by manual interpretation. Standards were not available for confirmation or quantitation.

(**) Estimated concentration is based on a Response Factor of 1.0 to the nearest internal standard.

 Attachment: 4

ORGANIC ANALYSIS DATA

6E-HL SAMPLE NO: 3TFADW42-04 DATE REPORTED: 10-Aug-93

ANALYST: F. Edward O'Neill SAMPLE TYPE: water

VOLATILE COMPOUNDS BY METHOD 624 units: ug/L

CAS#	Compound Name	Results*	Det Limits
67-64-1	acetone	ND	5
107-02-8	acrolein	ND	100
107-13-1	acrylonitrile	ND	100
71-43-2	benzene	ND	2
75-27-4	bromodichloromethane	ND	2
75-25-2	bromoform	ND	2
74-83-9	bromomethane	ND	5
78-93-3	2-butanone	ND	5
75-15-0	carbon disulfide	ND	5
56-23-5	carbon tetrachloride	ND	2
108-90-7	chlorobenzene	ND	2
75-00-3	chloroethane	ND	5
67-66-3	chloroform	ND	2
74-87-3	chloromethane	ND	5
124-48-1	dibromochloromethane	ND	2
75-34-3	1,1-dichloroethane	ND	2
107-06-2	1,2-dichloroethane	ND	2
75-35-4	1,1-dichloroethene	ND	2
156-59-2	cis-1,2-dichloroethene	ND	2
156-60-5	trans-1,2-dichloroethene	ND	2
78-87-5	1,2-dichloropropane	ND	2
10061-01-5	cis-1,3-dichloropropene	ND	2
10061-02-6	trans-1,3-dichloropropene	ND	2
100-41-4	ethylbenzene	ND	5
519-78-6	2-hexanone	ND	5
75-09-2	methylene chloride	ND	5
108-10-1	4-methyl-2-pentanone	ND	5
100-42-5	styrene	ND	5
79-34-5	1,1,2,2-tetrachloroethane	ND	2
127-18-4	tetrachloroethene	ND	2
108-88-3	toluene	ND	5
71-55-6	1,1,1-trichloroethane	ND	2
79-00-5	1,1,2-trichloroethane	ND	2
79-01-6	trichloroethene	ND	2
75-01-4	vinyl chloride	ND	5
108-38-3	m- and/or (CAS# 106-42-3)p-xylene	ND	5
95-47-6	o-xylene	ND	5

(*) ND = Not detected above the listed detection limit.

 Attachment: 4

ORGANIC ANALYSIS DATA

6E-HL SAMPLE NO: 3TFADW42-04 DATE REPORTED: 10-Aug-93

ANALYST: F. Edward O'Neill SAMPLE TYPE: water

TENTATIVELY IDENTIFIED VOLATILE COMPOUNDS BY METHOD 624

(min) RT	CAS#	COMPOUND NAME *	ug/L EST. CONC.
		No VOA TIC's detected in this sample.	

* ANALYSTS NOTE - THE COMPOUNDS LISTED ARE TENTATIVELY IDENTIFIED BY THE BEST MATCH WITH THE NIH/EPA/WILEY MASS SPECTRAL DATA BASE OR BY MANUAL INTERPRETATION. STANDARDS WERE NOT AVAILABLE FOR CONFIRMATION OR QUANTITATION.

**Estimated concentration is based on a RF of 1.0 to internal standard

PESTICIDES/PCB ANALYSIS

GEG-HL SAMPLE NO.: 3TF40W42-04 DATE REPORTED: 8 / 9 /1993

SAMPLE TYPE: WATER ATHENS LANDFILL-MALAKOFF ROAD

ANALYST: LARRY STRECK

CAS#		UG/L (PPB)
319-84-6	alpha-BHC	ND DL=< 0.05
319-85-7	beta-BHC	ND DL=< 0.05
319-86-8	delta-BHC	ND DL=< 0.05
58-89-9	gamma-BHC (Lindane)	ND DL=< 0.05
76-44-8	Heptachlor	ND DL=< 0.05
309-00-2	Aldrin	ND DL=< 0.05
1024-57-3	Heptachlor epoxide	ND DL=< 0.05
959-98-8	Endosulfan I	ND DL=< 0.05
60-57-1	Dieldrin	ND DL=< 0.10
72-55-9	4,4'-DDE	ND DL=< 0.10
72-20-8	Endrin	ND DL=< 0.10
33213-65-9	Endosulfan II	ND DL=< 0.10
72-54-8	4,4'-DDD	ND DL=< 0.10
7421-93-4	Endrin aldehyde	ND DL=< 0.10
53494-70-5	Endrin ketone	ND DL=< 0.10
1031-07-8	Endosulfan sulfate	ND DL=< 0.10
50-29-3	4,4'-DDT	ND DL=< 0.10
72-43-5	Methoxychlor	ND DL=< 0.50
5103-71-9	alpha-Chlordane	ND DL=< 0.05
5103-74-2	gamma-Chlordane	ND DL=< 0.05
8001-35-2	Toxaphene	ND DL=< 5.00
12674-11-2	Aroclor-1016	ND DL=< 1.00
11104-28-2	Aroclor-1221	ND DL=< 2.00
11141-16-5	Aroclor-1232	ND DL=< 1.00
53469-21-9	Aroclor-1242	ND DL=< 1.00
12672-29-6	Aroclor-1248	ND DL=< 1.00
11097-69-1	Aroclor-1254	ND DL=< 1.00
11096-82-5	Aroclor-1260	ND DL=< 1.00

ND DL = NOT DETECTED, DETECTION LIMIT

US EPA HOUSTON BRANCH

SAMPLE #:	3TFADW42-04	DATE RECEIVED:	16-Jul-93
SOURCE:	ATHENS LANDFILL MALAKOFF ROAD		
TYPE:	AQUEOUS	DATE REPORTED:	16-Aug-93
ANALYSTS:	RC, LC, JL		

PARAMETER	CONCENTRATION	DETECTION LIMIT <=	UNITS
ALUMINUM	116	100	UG/L
ANTIMONY	ND	60	UG/L
ARSENIC	ND	5.8	UG/L
BARIUM	137	10	UG/L
BERYLLIUM	ND	5	UG/L
CADMIUM	ND	5	UG/L
CALCIUM	14100	150	UG/L
CHROMIUM	ND	10	UG/L
COBALT	ND	20	UG/L
COPPER	ND	20	UG/L
IRON	66	25	UG/L
LEAD	ND	3.3	UG/L
MAGNESIUM	3100	150	UG/L
MANGANESE	16	5	UG/L
MERCURY	ND	0.2	UG/L
NICKEL	ND	20	UG/L
POTASSIUM	3160	1000	UG/L
SELENIUM	ND	12	UG/L
SILVER	ND	10	UG/L
SODIUM	35400	500	UG/L
THALLIUM	ND	20	UG/L
VANADIUM	ND	30	UG/L
ZINC	ND	20	UG/L

ND: LESS THAN DETECTION LIMIT

August 17, 1993

U.S. Environmental Protection Agency

Houston Branch Management System

Report for Sample Number 3TFADW4205

Source: ATHENS LANDFILL - MALAKOFF RD

Site Description: STA # L-21

Date/Time Received: 7/16/93 11:15

Date/Time Collected: 7/15/93 8:25

Sample Type: DW

Date Completed: 8/16/93

Comments:

Parameter	Description	Section	Status	Report Date
ABN	ACID/BASE NEUTRALS	ORGANIC	COMPLETE	8/16/93
HSL	HAZARDOUS SUBSTANCE LIST	METALS	COMPLETE	8/16/93
PCB	POLYCHLORINATED BIPHENYLS	ORGANIC	COMPLETE	8/16/93
PES	PESTICIDES	ORGANIC	COMPLETE	8/16/93
VOA	VOLATILE ORGANIC ANALYSIS	ORGANIC	COMPLETE	8/16/93

Attachment: 5

ORGANIC ANALYSIS DATA

6E-HL Sample NO: 3TFADW42-05

Date Reported: 09-Aug-93

Analyst: M. HUMPHREY

Sample Type: WATER

SEMI-VOLATILE COMPOUNDS BY METHOD 625

units: ug/L

units: ug/L

Compound Name	Results*	Det Limits	Compound Name	Results*	Det Limits
Acenaphthene	ND	2	2,4-Dinitrophenol	ND	30
Acenaphthylene	ND	2	2,4-Dinitrotoluene	ND	6
Anthracene	ND	2	2,6-Dinitrotoluene	ND	6
Benzidine	ND	20	4,6-Dinitro-2-Methylphenol	ND	20
Benzoic Acid	ND	10	Di-n-Butylphthalate	ND	2
Benzo(a)Anthracene	ND	8	Di-n-Octyl Phthalate	ND	4
Benzo(a)Pyrene	ND	8	Fluoranthene	ND	2
Benzo(b)Fluoranthene	ND	8	Fluorene	ND	2
Benzo(g,h,i)Perylene	ND	8	Hexachlorobenzene	ND	2
Benzo(k)Fluoranthene	ND	8	Hexachlorobutadiene	ND	5
Benzyl Alcohol	ND	4	Hexachlorocyclopentadiene	ND	10
bis(2-Chloroethoxy)Methane	ND	2	Hexachloroethane	ND	3
bis(2-Chloroethyl) Ether	ND	2	Indeno(1,2,3-cd) Pyrene	ND	8
bis(2-chloroisopropyl)Ether	ND	2	Isophorone	ND	4
bis-(2-Ethylhexyl)Phthalate	ND	4	2-Methylnaphthalene	ND	2
4-Bromophenylphenyl Ether	ND	8	2-Methylphenol	ND	6
Butylbenzylphthalate	ND	4	4-Methylphenol	ND	6
Carbazole	ND	10	Naphthalene	ND	2
4-Chloroaniline	ND	4	2-Nitroaniline	ND	8
2-Chloronaphthalene	ND	2	3-Nitroaniline	ND	8
2-Chlorophenol	ND	4	4-Nitroaniline	ND	8
4-Chlorophenylphenyl Ether	ND	8	Nitrobenzene	ND	2
4-Chloro-3-Methylphenol	ND	8	2-Nitrophenol	ND	10
Chrysene	ND	8	4-Nitrophenol	ND	13
Dibenzofuran	ND	2	N-Nitrosodiphenylamine	ND	4
Dibenzo(a,h)Anthracene	ND	8	N-Nitroso-Di-n-Propylamine	ND	6
1,2-Dichlorobenzene	ND	3	Pentachlorophenol	ND	15
1,3-Dichlorobenzene	ND	3	Phenanthrene	ND	2
1,4-Dichlorobenzene	ND	3	Phenol	ND	4
3,3'-Dichlorobenzidine	ND	10	Pyrene	ND	2
2,4-Dichlorophenol	ND	6	1,2,4-Trichlorobenzene	ND	3
Diethylphthalate	ND	2	2,4,5-Trichlorophenol	ND	6
2,4-Dimethylphenol	ND	6	2,4,6-Trichlorophenol	ND	6
DimethylPhthalate	ND	2			

(*) ND = Not detected above the listed detection limit.

(*) ND = Not detected above the listed detection limit.

Analyst Notes: _____

Attachment: 5

ORGANIC ANALYSIS DATA

6E-HL Sample NO:3TFADW42-05

Date Reported: 09-Aug-93

Analyst: M. HUMPHREY

Matrix: WATER

TENTATIVELY IDENTIFIED SEMI-VOLATILE COMPOUNDS BY METHOD 625

units: ug/L

RT (min)	CAS #	COMPOUND NAME (*)	Estimated Concentration (**)
		No ABN TIC's detected in this sample.	

(*) ANALYSTS NOTE: The compounds listed are tentatively identified by the best match with the NIH/EPA/Wiley mass spectral data base or by manual interpretation. Standards were not available for confirmation or quantitation.

(**) Estimated concentration is based on a Response Factor of 1.0 to the nearest internal standard.

ORGANIC ANALYSIS DATA

6E-HL SAMPLE NO: 3TFADW42-05 DATE REPORTED: 10-Aug-93

ANALYST: F. Edward O'Neill SAMPLE TYPE: water

VOLATILE COMPOUNDS BY METHOD 624 units: ug/L

CAS#	Compound Name	Results*	Det Limits
67-64-1	acetone	ND	5
107-02-8	acrolein	ND	100
107-13-1	acrylonitrile	ND	100
71-43-2	benzene	ND	2
75-27-4	bromodichloromethane	ND	2
75-25-2	bromoform	ND	2
74-83-9	bromomethane	ND	5
78-93-3	2-butanone	ND	5
75-15-0	carbon disulfide	ND	5
56-23-5	carbon tetrachloride	ND	2
108-90-7	chlorobenzene	ND	2
75-00-3	chloroethane	ND	5
67-66-3	chloroform	ND	2
74-87-3	chloromethane	ND	5
124-48-1	dibromochloromethane	ND	2
75-34-3	1,1-dichloroethane	ND	2
107-06-2	1,2-dichloroethane	ND	2
75-35-4	1,1-dichloroethene	ND	2
156-59-2	cis-1,2-dichloroethene	ND	2
156-60-5	trans-1,2-dichloroethene	ND	2
78-87-5	1,2-dichloropropane	ND	2
10061-01-5	cis-1,3-dichloropropene	ND	2
10061-02-6	trans-1,3-dichloropropene	ND	2
100-41-4	ethylbenzene	ND	5
519-78-6	2-hexanone	ND	5
75-09-2	methylene chloride	ND	5
108-10-1	4-methyl-2-pentanone	ND	5
100-42-5	styrene	ND	5
79-34-5	1,1,2,2-tetrachloroethane	ND	2
127-18-4	tetrachloroethene	ND	2
108-88-3	toluene	ND	5
71-55-6	1,1,1-trichloroethane	ND	2
79-00-5	1,1,2-trichloroethane	ND	2
79-01-6	trichloroethene	ND	2
75-01-4	vinyl chloride	ND	5
108-38-3	m- and/or (CAS# 106-42-3)p-xylene	ND	5
95-47-6	o-xylene	ND	5

(*) ND = Not detected above the listed detection limit.

 Attachment: 5

ORGANIC ANALYSIS DATA

6E-HL SAMPLE NO: 3TFADW42-05 DATE REPORTED: 10-Aug-93

ANALYST: F. Edward O'Neill SAMPLE TYPE: water

TENTATIVELY IDENTIFIED VOLATILE COMPOUNDS BY METHOD 624

(min) RT	CAS#	COMPOUND NAME *	ug/L EST. CONC.
		No VOA TIC's detected in this sample.	

* ANALYSTS NOTE - THE COMPOUNDS LISTED ARE TENTATIVELY IDENTIFIED BY THE BEST MATCH WITH THE NIH/EPA/WILEY MASS SPECTRAL DATA BASE OR BY MANUAL INTERPRETATION. STANDARDS WERE NOT AVAILABLE FOR CONFIRMATION OR QUANTITATION.

**Estimated concentration is based on a RF of 1.0 to internal standard

PESTICIDE/PCB ANALYSIS

6E3-HL SAMPLE NO.: 3TFA0W42-05 DATE REPORTED: 8 / 9/1993

SAMPLE TYPE: WATER ATHENS LANDFILL-MALAKOFF ROAD

ANALYST: LARRY STRECK

CAS#		UG/L (PPB)
319-84-6	alpha-BHC	ND DL=< 0.05
319-85-7	beta-BHC	ND DL=< 0.05
319-86-8	delta-BHC	ND DL=< 0.05
58-89-9	gamma-BHC (Lindane)	ND DL=< 0.05
76-44-8	Heptachlor	ND DL=< 0.05
309-00-2	Aldrin	ND DL=< 0.05
1024-57-3	Heptachlor epoxide	ND DL=< 0.05
959-98-8	Endosulfan I	ND DL=< 0.05
60-57-1	Dieldrin	ND DL=< 0.10
72-55-9	4,4'-DDE	ND DL=< 0.10
72-20-8	Endrin	ND DL=< 0.10
33213-65-9	Endosulfan II	ND DL=< 0.10
72-54-8	4,4'-DDD	ND DL=< 0.10
7421-93-4	Endrin aldehyde	ND DL=< 0.10
53494-70-5	Endrin ketone	ND DL=< 0.10
1031-07-8	Endosulfan sulfate	ND DL=< 0.10
50-29-3	4,4'-DDT	ND DL=< 0.10
72-43-5	Methoxychlor	ND DL=< 0.50
5103-71-9	alpha-Chlordane	ND DL=< 0.05
5103-74-2	gamma-Chlordane	ND DL=< 0.05
8001-35-2	Toxaphene	ND DL=< 5.00
12674-11-2	Aroclor-1016	ND DL=< 1.00
11104-28-2	Aroclor-1221	ND DL=< 2.00
11141-16-5	Aroclor-1232	ND DL=< 1.00
53469-21-9	Aroclor-1242	ND DL=< 1.00
12672-29-6	Aroclor-1248	ND DL=< 1.00
11097-69-1	Aroclor-1254	ND DL=< 1.00
11096-82-5	Aroclor-1260	ND DL=< 1.00

ND DL = NOT DETECTED, DETECTION LIMIT

US EPA HOUSTON BRANCH

SAMPLE #:	3TFADW42-05	DATE RECEIVED:	16-Jul-93
SOURCE:	ATHENS LANDFILL MALAKOFF ROAD		
TYPE:	AQUEOUS	DATE REPORTED:	16-Aug-93
ANALYSTS:	RC, LC, JL		

PARAMETER	CONCENTRATION	DETECTION LIMIT <=	UNITS
ALUMINUM	ND	100	UG/L
ANTIMONY	ND	60	UG/L
ARSENIC	ND	5.8	UG/L
BARIUM	ND	10	UG/L
BERYLLIUM	ND	5	UG/L
CADMIUM	ND	5	UG/L
CALCIUM	ND	150	UG/L
CHROMIUM	ND	10	UG/L
COBALT	ND	20	UG/L
COPPER	ND	20	UG/L
IRON	ND	25	UG/L
LEAD	ND	3.3	UG/L
MAGNESIUM	ND	150	UG/L
MANGANESE	ND	5	UG/L
MERCURY	ND	0.2	UG/L
NICKEL	ND	20	UG/L
POTASSIUM	ND	1000	UG/L
SELENIUM	ND	12	UG/L
SILVER	ND	10	UG/L
SODIUM	ND	500	UG/L
THALLIUM	ND	20	UG/L
VANADIUM	ND	30	UG/L
ZINC	ND	20	UG/L

ND: LESS THAN DETECTION LIMIT

ATTACHMENT B
PHOTODOCUMENTATION LOG

Photo No.

1

Site Name:
Athens City Landfill #2
(Malakoff Road)

Photographer/Witness Mark McDonnell/J. Fuqua

Location:
Athens, Texas

Date 07/15/93 Time AM Direction

Description Station 01, 02

Project # WA #25-6JZZ

Photo No.

2

Page 1
Of 8

Photographer/Witness Mark McDonnell/J. Fuqua

Date 07/15/93 Time AM Direction

Description Station 03

Photo No.

3

Site Name:
Athens City Landfill #2
(Malakoff Road)

Photographer/Witness Mark McDonnell/J. Fuqua

Location:
Athens, Texas

Date 07/15/93 Time AM Direction

Description Station 04

Project # WA #25-6JZZ

Photo No.

4

Page 2
Of 8

Photographer/Witness Mark McDonnell/J. Fuqua

Date 06/30/93 Time AM Direction

Description Station 5,6

Photo No.

5

Site Name:
Athens City Landfill #2
(Malakoff Road)

Photographer/Witness Mark McDonnell/J. Fuqua

Location:
Athens, Texas

Date 06/30/93 Time AM Direction

Description Station 08

Project # WA #25-6JZZ

Photo No.

6

Page 3
Of 8

Photographer/Witness Mark McDonnell/J. Fuqua

Date 06/30/93 Time AM Direction

Description Station 09

Photo No.

7

Site Name:
Athens City Landfill #2
(Malakoff Road)

Photographer/Witness Mark McDonnell/J. Fuqua

Location:
Athens, Texas

Date 06/30/93 Time AM Direction

Description Station 10

Project # WA #25-6JZZ

Photo No.

8

Page 4
Of 8

Photographer/Witness Mark McDonnell/J. Fuqua

Date 06/30/93 Time AM Direction

Description Station 11

Photo No.

9

Site Name:
Athens City Landfill #2
(Malakoff Road)
Location:
Athens, Texas
Project # WA #25-6JZZ

Photographer/Witness Mark McDonnell/J. Fuqua
Date 06/30/93 Time AM Direction
Description Station 12

Photo No.

10

Page 5
Of 8

Photographer/Witness Mark McDonnell/J. Fuqua
Date 06/30/93 Time AM Direction
Description Station 13

Photo No.

11

Site Name:
Athens City Landfill #2
(Malakoff Road)

Photographer/Witness Mark McDonnell/J. Fuqua

Location:
Athens, Texas

Date 06/29/93 Time PM Direction

Description Station 15

Project # WA #25-6JZZ

Photo No.

12

Page 6
Of 8

Photographer/Witness Mark McDonnell/J. Fuqua

Date 06/29/93 Time PM Direction

Description Station 16

Photo No.

13

Site Name:
Athens City Landfill #2
(Malakoff Road)

Photographer/Witness Mark McDonnell/J. Fuqua

Location:
Athens, Texas

Date 06/29/93 Time PM Direction

Description Station 17

Project # WA #25-6JZZ

Photo No.

14

Page 7
Of 8

Photographer/Witness Mark McDonnell/J. Fuqua

Date 06/29/93 Time PM Direction

Description Station 18

Photo No.

15

Site Name:
Athens City Landfill #2
(Malakoff Road)

Photographer/Witness Mark McDonnell/J. Fuqua

Location:
Athens, Texas

Date 06/29/93 Time PM Direction

Description Station 19

Project # WA #25-6JZZ

Photo No.

VOID

Page 8
Of 8

Photographer/Witness

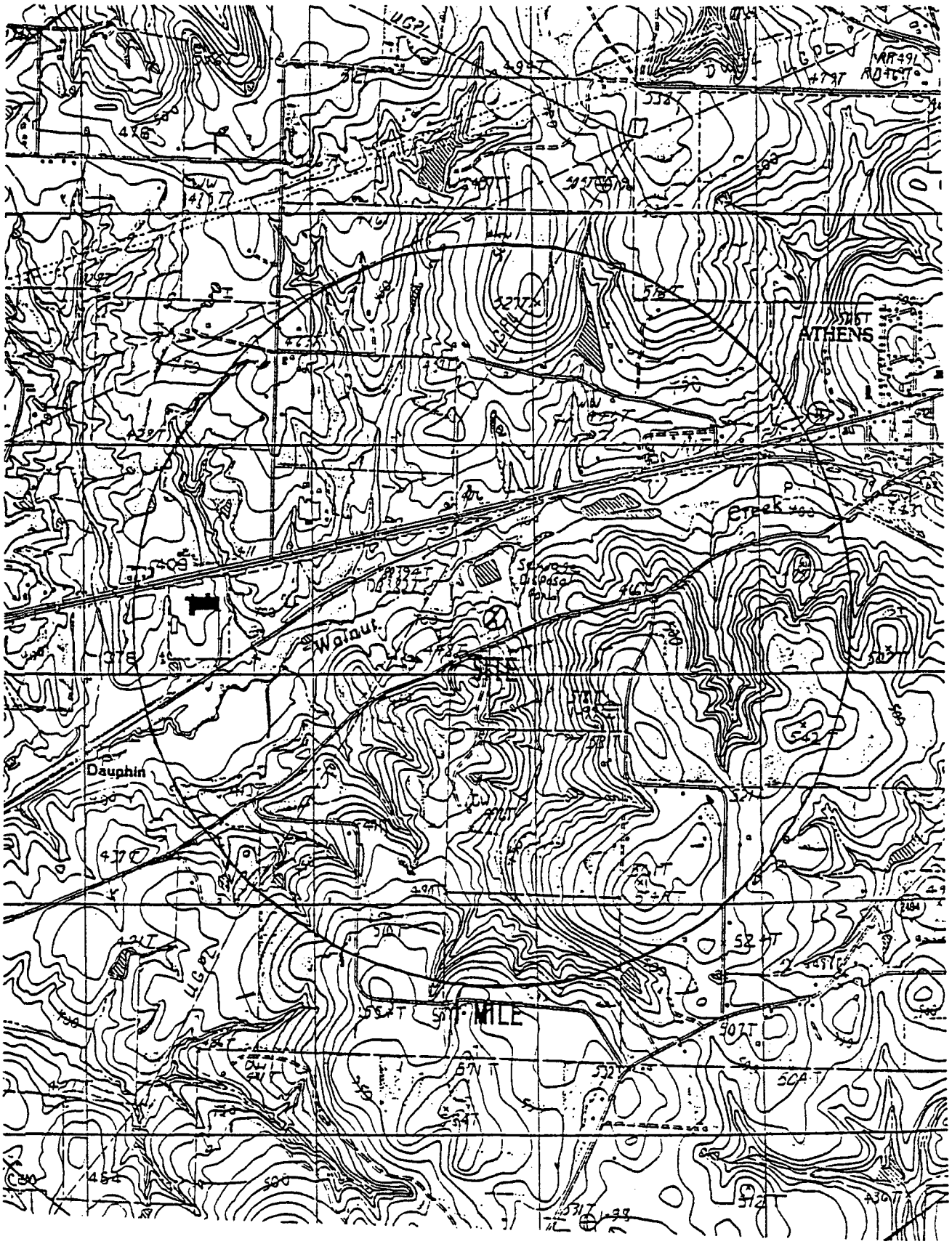
Date Time Direction

Description

REFERENCES

REFERENCE 1

United States Department of Interior, Geologic Survey, 7.5 Minute Series Topographic Map, Mallard Hill, Texas Provisional Edition, 1984.



U.S.G.S. 7.5 MIN. TOPOGRAPHIC MAP

FLUOR DANIEL

SITE LOCATION MAP
CITY OF ATHENS LANDFILL (MALAKOFF RAOD)
ATHENS, TEXAS

CAD FILE No. LOC-MAP

REFERENCE 2

McDonnell, Mark A., Fluor Daniel, Inc. City of Athens Landfill Site Reconnaissance Logbook, May 5 and 6, 1993.

City of Athens, Site Reconnaissance
Mark A. McDonnell Jean Koeninger
May 5 Wednesday 1993 Fluor Daniel

10:35 AM arrived in Athens and went to city Hall on pinkerton St to meet w/ Don Herriage. Asst City Manager.

Danny Holloway

Leroy Sims owner area on both sides on city water sewer and sanitary. N. pinkerton Road fill per Don Herriage. Mr Herriage took us on a tour of the fill. One mile creek.

10:45am to Noon Mr Herriage took us to N pinkerton Road Location. Property now owned by Mr. Leroy Sims. Landfill is located at 0.7 mi N. of City Hall on Right Hand Side of Road. Area is heavily over grown with trees and vegetation. Limits of land fill are unknown.

Noon to 1 lunch

1:00 Met with Danny Holloway
Athens Sanitation Department
Mr. Holloway Said that

2-01

Wed May 5, 1993 M. McDonnell Jeank

the Malakoff Rd Location is on both sides of College St., being the N side, sewage treatment plant side, and south side, _____ operating Company.

1:45 photo 24 Looking North Down Pinkerton Road at south end of Fill.

1:50 photo 23 Looking across site northeast across overgrown fill.

Brown colored Leachate and rain runoff goes north along road to 1 mile creek. Suggest further investigation. Cows and pigs on land on right (E.) side of Pinkerton.

1:55 Photo 22 21-20 Shot of sidewall of fill looking east from pinkerton Rd. Directly adjacent to road.

Runoff has scoured and exposed trash along roadsides.

Wed May 5, 1993 M. McDonnell Jeank.

One mile creek forms Northern edge of the Pinkerton Rd. Landfill. Trash and runoff from fill ends up in the creek.

Photo 19 2:07 pm. Pigs observed on Pinkerton Road looking S. on Road at 1 mile creek crossing.

Fill material is also on West side of the road south of the gate entrance as well. 2:15 pm left for Sand Flat Road location.

Directions to Sand Flat Road: From the intersection of Pinkerton & Corsicana go west along Kaufman/175 cutoff for 4.8 miles. Turn Right on CR 3918 and then left on CR 3914 1.0 mile. Entrance to site is on the right 6 ft chain link fence w 3 strand barbed wire double swing gate.

Exact fill location is marked by Black X, on topo map Stockard quad. Cross Larue Branch to get to get up the hill. Site is well vegetated and repaired and reseeded annually by Athens Sanitation Dept per Don Herriage. See photos

Wed May 5, 1993 M. McDonnell
Jean Koenigsberg Fluor Daniel

3:15 Photos 18 to 10 include panoramic of cap looking south plus various shots of cap at X_1 including 2 shots from crest, taken at 3:00 to 3:15. Cap and vegetation well maintained and in good shape.

X_2 cap is in good shape. 4 photos 9, 8, 7, 6 3:30. 2 looking south and two looking north from X_2 crest.

Sample well to the south owned by city at 455 T. All other houses in immediate vicinity are vacant per Danny Holloway. To the North there are no houses.

City well is 0.3 mi south of entrance gate see photo # 5 gate taken at 3:40. Photo 4 and 3 are of well. Field decision made to sample here need pumping/sampling strategy.

3:45 left to go to Malakoff Rd Location.

Wed May 5, 1993 M. McDonnell
Jean Keninger Fluor Daniel

From 175 take Corsicana out of town and left at HCFCA training road sign (green sign on left).

Right on C. Get accurate directions later

Arrived 4:00 pm at Malakoff Rd Site.

Photo 2 and 1 on west edge of property looking south across property. Used for regional fire training area.

Start Camera #2 4:15 pm.

Shots 24 to 18 various shots of Fire training facilities.

4:30 photos 17 to 9 of Buried, empty, leaker drums on ~~south~~ North edge of mowed area. Liquid and solid contents Discovered pits small and lagoons with oily contents. Will sketch, characterize and photo Tomorrow a.m.

2-05

Mark A. McDonnell Jean Koeninger
Wed May 5, 1993.

5:00 left Malakoff site and drove west looking for water wells. Nearest ~~[illegible]~~ 0.75 miles take left go 0.35 mi to house and trailer these wells will likely be downgradient wells at 471T.
Nearest well to North is at residence visible from site entrance. Nearest to east is new log home being constructed along Malakoff Road.

Log cabin and potential upgradient well is 0.45 miles to east but creek aquitard is present, aquifer discontinuity.

0.25 miles south of 466T has potential upgradient well also

Directions to site, take malakoff/College St.

M. McDonnell

2-06

Mark McDonnell, Jean Koeninger, Fluor Daniel
Thur May 6, 1993.

Directions to Malakoff Rd. Take 31 Corsicana west from town to AARON St and go left. (Gary's Paint & Body Shop) Go south on AARON to Malakoff Rd College St and go Right 1.55 miles to Perryman Operating Company Inc. E.O Fisher Unit well #

8:20 Stopped at Gary's Paint & Body Shop
Mr. Herriage told us yesterday that the owners of the property S. of Malakoff Rd were here.

Gary Morris his dad lives on property.
Owner is Eldon Morris 677-3648
Gary can get us on the property. Colorcancer Landfill contents have sunk 1 to 5 little or no cover. Access through Perryman gate. Has a 80 to 90 ft well which became unusable due to parasites and excessive sediment. This was his domestic well and he had to put in a 300' well and. There is no soil cover and we will verify this. Mr. Morris Several cows have died drinking low spot leachate but not sure.
675-8778 677-2668 Gary.

Mark McDonnell Jean Koeninger Fluor Daniel
Thursday May 6, 1993

Met with Eldon Morris. Cows have drank water from sinkholes. Land fill fences do not extend South of fenceline at middle of property.

Photo 8 and 7 of cistern type well. Looking south and down. 9:30 am. W.L. ~ 35' deep in cistern.

Photo 6 and 5 looking west and down at deep well outlet. Photo 4 and 3 looking NW at cows grazing, not fill area but they are also kept next door on fill area

Panoramic #15 looking north from point ① on map.
Panoramic #14 9:40 looking due north at differential settlement and overall subsidence, trash tires and debris at surface but no proper cap.

Photos 2 and 1 at 9:50 looking ~~south~~ north at ③ and 4 at trench settlement

10:00 am now at fill area N. of Malakoff
10:15 camera #3 Photo slab looking west and buses from slab looking east. 24 & 23

Mark A. McDonnell Jean Koenigen
Fluor Daniel May 6, 1993

Photo 22 from slab N. to Drums past boats. 10:15

Panoramic #13 looking NE 10:15 am off edge of dropoff some drums empty some full of solids leakers and see map.

Pan #12 10:30 looking ~~[illegible]~~ North m.m from point on map.

Photo 21 to 16 successive photos of unknown oily/chemical sludge full of water orange/yellow color & route of entry see map location

Pan #11 10:45 looking N.~~E~~ W m.m. at lower elevation stained area

Photo ~~14~~ ~~11:00~~ 10:45 a.m. looking West to Black Stained Area
Photo 13 ~~11:00~~ 10:45 a.m. looking east looking at 14 drums
photo 12, 11, 10 of drums
contents unknown.

9 photos left.

Pan #10 looking West Across entire Site. ~~11:00~~ 10:50 a.m. am.

Photo #9 ~~11:15~~ 11:00 a.m.m. am looking S. at 10 drums.
Photo #8 of distillate drums bulges. (2)
looking N. 11:00.

2-09

Mark A. McDonnell Jean Koeninger
Fluor Daniel May 6, 1993

Photo #7 11:05 am of fuel tank storage
and stained area black. Looking SE

Malakoff College Rd Site Done for now
Eat lunch & go By Don Herriages office to
pick up his files.

12:40 Went by Don's Office to go through
files. Left them to be copied with
Secretary, took with us.

6776603
1:15 Waylon Padgett is fire chief to
contact per Don Herriage.

Need drawing City of Athens
Sanitary Landfill
Closure Plan
Phase II
Velvin & weeks
June '89
JOB 1169

Left on College pass 19 11:54 pass 4 way stop.
on RHS

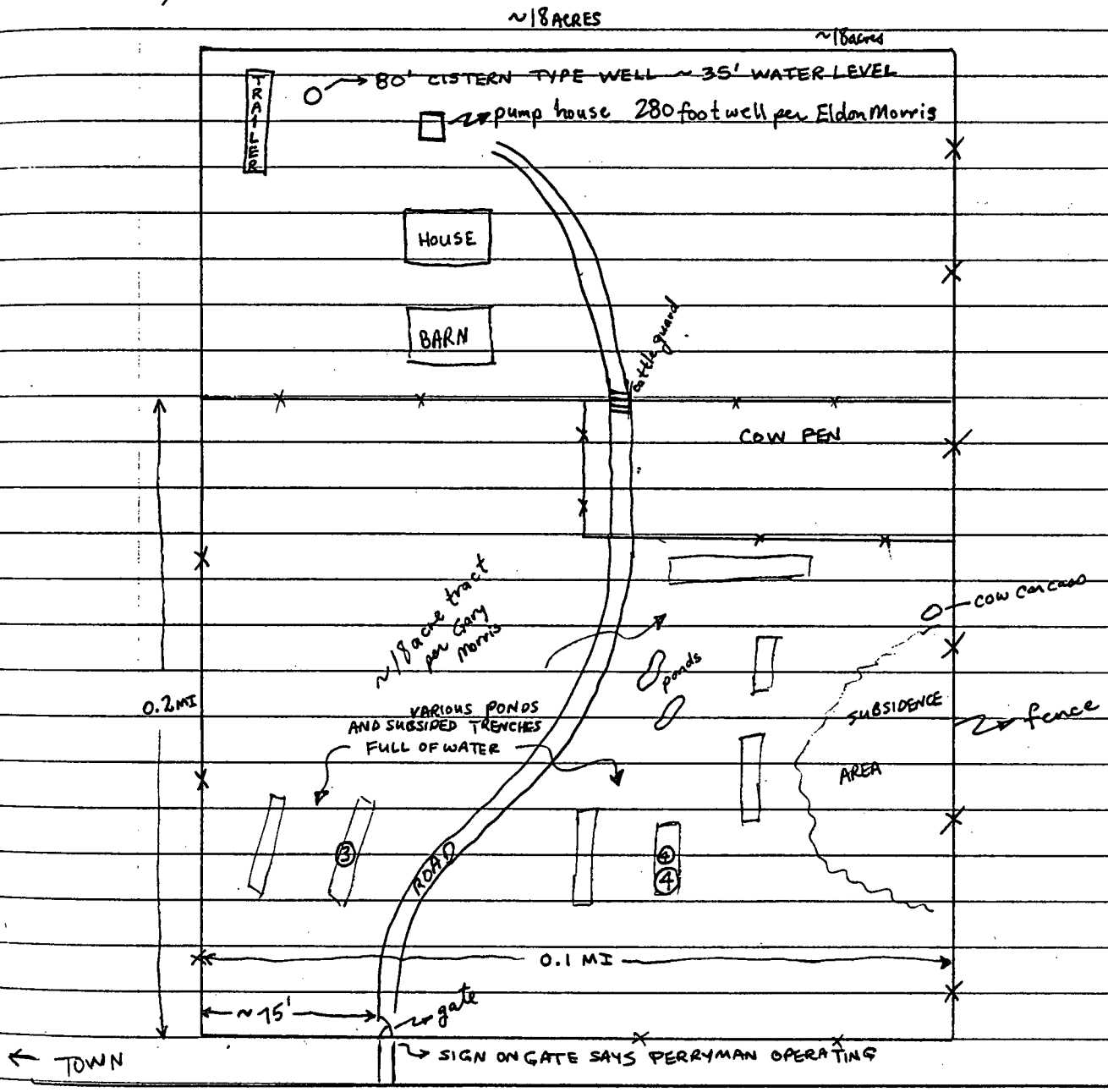
2-10

← TOWN
CO

Mark A. McDonnell, Jean Koeninger
Fluor Daniel May 6, 1993 THUR

This is a sketch of Malakoff Rd-College St site south of of Road. ③ ④ photo locations

SE



1-11

Mark A. McDonnell Jean Koenniger
May 6, 1993 Thur Athens Site Recons

675-8778 677-2668

Gary's Paint & Body
FOREIGN & DOMESTIC CARS
BOAT REPAIR

GARY MORRIS
OWNER

911 W. CORSICANA
ATHENS, TEXAS 75751

REFERENCE 3

Record of Communication. From: Mark A. McDonnell, Fluor Daniel, Inc. To: Wayne Padgett, City of Athens Fire Department, May 11, 1993.

RECORD OF TELEPHONE CONVERSATION

Mark A. McDonnell
FS on behalf of

From: Mark A. McDonnell **Date:** 05-11-93

Location: FDI, Dallas **Time:** 3:15 PM

Subject:

To: Athens, Malakoff Road **Number:**

Location:

Other Ref.:

Spoke to Mr. Waylon Padgett, City of Athens Fire Department (903) 677-6603. Mr. Padgett confirmed current land use as a fire training area twice per year. Also used for SCBA training and rescue operations. The fuel storage tanks onsite have contaminated gasoline with diesel that goes in the metal troughs for fires. Drums likely contaminated fuels as well to the best of his knowledge.

Mr. Padgett was unaware of the small oily ponds and runoff from these ponds at the back of the property. He was also unaware that contamination may be spreading to offsite locations during heavy rains.

Mr. Padgett suggested I call Mr. David Williams with the Henderson County Fire Chiefs association. His number is (903) 469-3350. Mr. Padgett said that the TACB is aware of the fire training operations and that they are notified prior to each exercise. TACB rules make exceptions for fire fighting.

REFERENCE 4

Texas Department of Health, Permit Files for Municipal Landfill Permit #263, obtained by Mr. Keith Westberry of Fluor Daniel, Inc., March, 1993.

1.4 . Solid Waste - Henderson County

December 7, 1971

Honorable Claude [illegible] Myers
Mayor of Athens
P. O. Drawer [illegible]
Athens, Texas 7[illegible]

Subject: Solid Waste - Henderson County
Athens - Proposed Incinerator and Site Evaluation
N 32°11.60' W 95°52.75'

Dear Mayor Myers:

The City of Athens' proposal for the establishment and operation of a municipal solid waste disposal site has been reviewed and evaluated by this Department. The city's proposal for the installation of an incinerator to burn brush at the site location requires the issuance of a construction permit from the Texas Air Control Board and it is presently being processed by them.

Based on the information provided by the City of Athens, a field inspection by this Department, an evaluation by the Texas Water Quality Board, and site approval by the Henderson County Commissioners Court, the Texas State Department of Health has no objection to the operation of a sanitary landfill at the proposed location provided the following conditions are met:

1. To minimize vertical and lateral percolation of water into and from the landfill, the trenches should be excavated down to the silty clay layer which overlies the water bearing sand, and the side of the trenches should be lined with blankets of clay to prevent lateral movement of waters in the sand strata.

2. When available space of any existing disposal site now serving the city is exhausted, the site is to be properly closed in accordance with Section E-3.1 of this Department's "Municipal Solid Waste Rules, Standards, and Regulations".

SP 4-01

Please note that acceptance of this proposal is not necessarily perpetual and may be revoked at any time if the operating conditions do not meet the minimum standards set forth in this Department's "Municipal Solid Waste Rules, Standards, and Regulations" or for any other good cause. The disposal operations must at all times be in conformity with applicable State and local laws and regulations and are subject to inspection by State and local authorities and health officers at any time.

We wish to commend you for your interest in providing proper solid waste disposal facilities for the residents of Athens and for your cooperation in these site approval procedures. Whenever we can assist you in your solid waste activities, please let us know.

Sincerely,

DLH

David L. Houston, P. E., Chief
Environmental Development Program
Division of Sanitary Engineering

TDT:kn

cc: Region 7, TSDH
Texas Water Quality Board
County Judge
County Health Officer
Mr. Neal Velvin, Consulting Engineer

4-02

State Department of Health

AUSTIN TEXAS

INTER-OFFICE

To: G. R. Herzik, Jr., P. E.
Attn: Charles K. Foster, P. E.
For: David Houston, P. E.

FROM Victor O. Cain, Jr., P.E.

TO

SUBJECT Solid Waste - Henderson County
City of Athens - Proposed Incinerator & Site Evaluation
N 32° 11.60' W 95° 53.75'

On October 28, 1971, the writer met with Robert Faulk, City Administrator, and N. I. Rounsavall, Street and Sanitation Supt. to discuss and inspect the proposed sanitary landfill site. The site is in a good location and the City of Athens is putting a great deal of thought into how the site will be operated. I can see no reason that the site should not be approved, if it is operated according to sanitary landfill practices.

/jgh

4-03

SIGNED Victor O. Cain Jr.

DATE November 2, 1971

FORM NO. AG-3-A

Below and on attached pages are comments on observations and recommendations in a form suitable for transmission to the local official(s) responsible for the site.

COMMENTS

The City is still operating the landfill site approximately 5 acres, on the property with the sewer plant. Most of it is an area type operation but there is a trench near the entrance which is used for wet weather dumping. They have a lease on 14 acres across the road and up hill from the present site. The soil in the added area appears to be the same as the upper part of the old site. Mr. Leopard, City Manager, said they had their application for a permit about ready to send in.

RECOMMENDATION

The lower side of the area type landfill has some exposed trash which should be properly covered.

Name of Site _____

E-2.3 6. Is blowing paper a problem?..... No
If so, is a portable fence or other suitable enclosure provided near the unloading area to catch windblown materials?..... --
Also, if required, is necessary equipment available for wetting deposited solid waste?..... --

E-2.4 7. Name hazardous materials accepted in significant quantities (insecticides, offal, chemicals, etc.) and special provisions for their disposal. NONE

E-2.5 8. Is a separate disposal area or site being used for disposal of large items (brush, tires, appliances, etc.)?..... No

E-2.6 9. Were rats and/or signs of rat infestation observed?..... No
Fly population: light, medium, heavy, none..... NONE
Were fly larvae observed?..... No
Were mosquitoes observed?..... No
Were mosquito larvae observed?..... No
Other vector problems..... No

10. Are adequate signs posted at entrance stating hours of operation and rules and regulations governing the site?..... No *

E-2.7 11. Is salvaging permitted? No Is it adequately controlled? No
Is scavenging permitted?..... No

E-2.8(a)(b)(c) 12. Frequency of cover required..... daily

13. How often is earth cover actually being applied?..... daily

14. Method being used (trench, area, etc.)?..... trench & area

E-2.8 15. Are closed sections of the landfill properly maintained?..... Yes

16. Are special provisions of the permit being met?..... --

Operational Standards - Collection

D-2 1. Are the vehicles used to transport solid waste properly covered? Yes

L-2 2. Are the vehicles used to transport putrescibles and/or liquids constructed to prevent the leakage of liquids?..... YEs

D-3 3. Is solid waste kept in transport vehicles for an extended period of time that may create a health hazard?..... No

4. Is there a mandatory refuse collection ordinance in force?..... Yes
Collection fee charged per resident per month..... 1.10

Date of previous inspection 5-10-72

This inspection was made due to Routine

Brief description of the site: _____

Is operator cooperative? Comments: _____

4-05

Name of Site _____

Location

C-1.1, C-1.6 1. Was the site location permitted or approved by TSDH or licensed by county?..... Yes
By SHD Date _____

E-1.2 2. Do adequate public roads and highways provide access to site?... Yes

E-1.2 3. Have provisions been made for all-weather access from the entrance of the site to the unloading area?..... No
If not, is wet-weather access provided to an alternate disposal area?..... YEs

Water Pollution

E-1.3(a) 1. Is solid waste deposited within 500 feet of a drinking water supply well, water treatment plant or raw water intake structure which furnishes water to a public water system?..... No

E-1.3(b) 2. Are soil conditions such that groundwater may be contaminated from leachates?..... No
Were leachates observed? If so, please comment..... _____

3. Is refuse placed in water or is standing water observed in trenches?..... _____

E-1.3(c) 4. Can surface drainage enter working face or excavations?..... _____

5. Depth of deepest excavation on the site..... 20
Type of deep soil..... clay

6. Depth to nearest water-bearing sand..... 22'

7. How often is the site inundated?..... never

8. Land characteristics: Flat, rolling, swampy, etc..... rolling

9. Distance of site to nearest water course..... at site

E-1.3(d) 10. Have monitor wells been drilled?..... No

Operational Standards - Disposal

E-2.1 1. Is evidence of burning of refuse observed?..... No
Is the burning of refuse legally permitted?..... No

E-2.1 2. Is an adequate supply of water under pressure available at the site, an adequate stockpile of earth on hand, or is there a nearby organized fire department?..... Yes
Which?..... fire dept. & earth

E-2.2 3. Is an attendant on duty during operating hours?..... Yes
If not, are appropriate signs posted directing vehicles where to unload?..... —

4-06

E-1.2 4. Is the site adequately fenced?..... Yes
Are the gates kept locked when attendant is not on duty?..... Yes
Should fencing and locked gates be required?..... —
Why? —

E-2.2 5. Is refuse confined to as small an area as practicable?..... Yes

INSPECTION REPORT

EXISTING MUNICIPAL SOLID WASTE DISPOSAL SITE

TEXAS STATE DEPARTMENT OF HEALTH

TSDH No. 321125 - 955400 Permit No. _____

1. Location: County Henderson City Athens Region 7
   Street or Road Old Malakoff Hwy. 3 mi. West of Courthouse
   Geographic Coordinates N. 32°11'25" W. 95°54'00"

2. Name of Disposal Site City Site Owner City and E. O. Fisher
   Site Operator (City, County, Private) City
   Area Served Athens Population 9582

3. Distance from Disposal Site:
   To Nearest Airport ..... 5 mi. +
   To Nearest Residence or Business ..... 1½ mi. +
   To Public Road ..... at site

4. Operation Classification:
   Population of County ..... --
   In Extraterritorial Jurisdiction of a City (Name) ..... Athens
   In City Limits (Name) ..... Athens

5. Type of Operation:
   At Time of Inspection ..... Type I
   Required Operation ..... Type I

6. Equipment: Name and Model D5 Cat dozer Drott Excavating Swing Loader Mod. 40

7. Initial Site Size ..... 14 (5 city owned, leased) Acres
   Area Now Available for Landfilling ..... 19 Acres
   Operational Life Remaining ..... 12 Years
   Approximate Date Site First Used 1977

8. Amount and Type of Waste Handled:
   Volume ..... Cu. Yds./
   Weight ..... 102 Tons/wk.
   Type of Waste Received ..... all municipal

9. Number of Employees: Collection 11 Disposal 2

10. Name, Title and Address of Persons Participating in Inspection:
    N. T. Rounsavall, P. O. Drawer C, Athens, Texas 75751

    Other Persons Contacted: James Leonard

11. Name and Address of Officials Responsible for Site:
    Mayor or County Judge Claude Myers
    City Manager or County Commissioner James Leonard
    Garbage Superintendent or Operator N. T. Rounsavall

Inspection by A. J. Thompson, R.S. Date 12-17-74 Time 1:35 PM
Weather Conditions clear and cool

4-07

Approved by W. T. Ballard, P. E. Date 1/15/75
TSDH
(Oct. 1974)

State Department of Health

AUSTIN TEXAS

INTER-OFFICE

FROM A. J. Thompson, R. S.

TO To: G. R. Herzik, Jr., P. E.
Attn: C. K. Foster, P. E.
For: David Houston, P. E.

SUBJECT Solid Waste - City of Athens - Henderson County, Texas

On December 17, 1974, an inspection was made of the Athens City Landfill. The City is operating a pretty fair landfill. There is some exposed material on the back side of the area type landfill, however, Mr. Rounsavall said that as soon as he got some dry weather he intends to bring down some more dirt and cover the exposed material.

Mr. James Leopard, City Manager, said he had most of the material together to send in an application for a permit to operate a solid waste site on the present site and 14 acres across the road above this site. The land looks like an almost ideal site.

/dm

JAN 1975
RECEIVED
ENVIRONMENTAL
ENGINEERING

408

SIGNED A. J. Thompson R.S.

DATE January 6, 1975

FORM NO. AC-

TEXAS STATE DEPARTMENT OF HEALTH

APPLICATION FOR A PERMIT TO OPERATE A
MUNICIPAL SOLID WASTE FACILITY

N-. 263

NOTE: This form and supporting documents should be submitted in seven copies. An application for a State permit is not required for a municipal solid waste facility which has a valid license issued by a county having an adopted licensing system and exercising its authority under that system.

Name of Applicant City of Athens
(city, county, individual, or company)

Type of Facility (check one):

____ Incinerator

____ Composting

____ Transfer

____ Reclamation/Salvage

X Landfill

____ Other

Type of Operation (check one)

X I

____ II

____ III

____ IV

____ Brush-Demolition Fill

____ Brush Site

Facility is: Existing December 7, 1971 (Date established); Proposed ____ (check one).

adjacent ____ ~~yards~~ to nearest public road; 4.1 miles to nearest airport

Street Address or Location of the Site:

2.74 miles west of Athens on the old Athens - Malakoff Road.

Site is located in: (fill in one of following blanks)

City limits of City of ____

Extraterritorial jurisdiction of City of Athens

Neither of the above ____

The facility will serve approximately 10,000 persons and it is estimated that it will receive an average of approximately 17 tons per day of municipal solid waste. The estimated life of the facility is 8 years.

It is requested that the permit be issued for a site of 20 acres. If the permit is issued, it is understood that a public hearing will be required before the permit can be renewed or extended. Also, that expansion or modification of a permitted site will require submission of a new permit application.

The name, address, and telephone number of the owner of the site is as follows:

City of Athens
City Hall
Athens, Texas 75751
214- 675-5131

The name, address, and telephone number of the governmental entity or firm responsible for the operation of the facility is as follows:

Same as above

Enclosed with the completed application are the following required documents:

1. A map indicating the exact location of the site. (The enclosure should be all or a portion of a Half-Scale Texas Highway Department County Map or a United States Geological Survey 7½-Minute Quadrangle Sheet or equivalent.)

2. A list of names and addresses of property owners whose property is adjacent or contiguous to the solid waste site, with the approximate distance between the nearest boundaries of the site and the contiguous properties indicated. (A sketch or map is desirable.)

3. A legal description of the land on which the site is located.

(NOTE: The Texas State Department of Health "Municipal Solid Waste Regulations" require that data presented in support of an application for a permit for a Type I operation serving more than 5,000 persons and for a Type IV operation shall be prepared under the direction of a registered professional engineer. The "Texas Engineering Practice Act", Article 3271a, Vernon's Texas Civil Statutes, makes it unlawful for engineering plans, specifications, and estimates for certain public works to be prepared except under the direct supervision of a registered professional engineer; it is suggested that the applicant consult his legal counsel concerning the applicability of this statute to this permit application.)

OTHER PERTINENT INFORMATION: (Include any information you feel will assist the Department in its evaluation. Additional information may be required upon review of this application. The applicant will provide such information upon request.)

James E. Leopard
(Signature of Applicant for Permit)

James E. Leopard, City Administrator
(Typed or Printed Name)

P. O. Drawer C
(Street or P. O. Box)

Athens, Texas 75751
(City) (State) (Zip Code)

214- 675-5131
(Telephone Number)

2. A list of names and addresses of property owners whose property is adjacent or contiguous to the solid waste site, with the approximate distance between the nearest boundaries of the site and the contiguous properties indicated. (A sketch or map is desirable.)

3. A legal description of the land on which the site is located.

(NOTE: The Texas State Department of Health "Municipal Solid Waste Regulations" require that data presented in support of an application for a permit for a Type I operation serving more than 5,000 persons and for a Type IV operation shall be prepared under the direction of a registered professional engineer. The "Texas Engineering Practice Act", Article 3271a, Vernon's Texas Civil Statutes, makes it unlawful for engineering plans, specifications, and estimates for certain public works to be prepared except under the direct supervision of a registered professional engineer; it is suggested that the applicant consult his legal counsel concerning the applicability of this statute to this permit application.)

OTHER PERTINENT INFORMATION: (Include any information you feel will assist the Department in its evaluation. Additional information may be required upon review of this application. The applicant will provide such information upon request.)

James E. Leopard
(Signature of Applicant for Permit)

James E. Leopard, City Administrator
(Typed or Printed Name)

P. O. Drawer C
(Street or P. O. Box)

Athens, Texas 75751
(City) (State) (Zip Code)

214- 675-5131
(Telephone Number)

UNFILMED DOCUMENTS

TEXAS DEPARTMENT OF HEALTH

BUREAU OF SOLID WASTE MANAGEMENT

Applicant: CITY OF ATHENS

Permit Application No. 263

County: HENDERSON

The below listed documents, from the above referenced file, that belong in this location in the file were not microfilmed and the original documents are retained in the file folder.

DATE ON DOCUMENT	DESCRIPTION OF DOCUMENT
April 1, 1975	Area map
	Property map

At such time as funding is available, large documents will be filmed on 35mm film.

4-13

Jack Carmichael

DEC 12 1975

Texas Department of Health Resources

Frank L. Duff, M.D., Dr.P.H.
Director
Lex T. Neill, M.D.
Regional Director

Public Health Region 7
P. O. Box [illegible]
[illegible] W. Front St.
Tyler, Texas 75701
(214) 595-3585

Members of the Board

Robert D. Moreton, Chairman
William L. Foran, Vice-Chairman
N. L. Barker Jr.
Roderic M. Bell
Johnnie M. Benson
H. Eugene Brown
Bill Burton
Charles Max Cole
Francis A. Cooley
William J. Edwards
Sterling H. Fly Jr.
Raymond G. Garrett
Bob D. Glaze
Blanchard T. Hollins
Raul Jimenez
Maria LaMantia
Philip Lewis
Royce E. Wisenbaker

December 10, 1975

Honorable Tommy G. Smith, Mayor
City of Athens
P. O. Drawer C
Athens, Texas 75751

Subject: Solid Waste Disposal Site
City of Athens, Henderson County

Dear Mayor Smith:

Victor O. Cain, Jr., R. S., has reported to us on his inspection on October 7, 1975, of the solid waste disposal site serving the City of Athens.

According to Mr. Cain's report, your city is operating the site generally in accordance with the procedures outlined in the Municipal Solid Waste Regulations; however, there is a need for some improvements and the following recommendations are offered for your consideration:

1. Dikes or diversion dams should be built to keep surface runoff water from entering the trench.

2. A portable fence should be put at the site to help control blowing paper.

If we may be of assistance to you, please let us know.

Sincerely,

W. T. Ballard
Regional Engineer

WTB:das

cc: Mr. James Leopar
Honorable Winston Reagan
Jack Carmichael, P. E.

4-14

INSPECTION REPORT

EXISTING MUNICIPAL SOLID WASTE DISPOSAL SITE

TEXAS STATE DEPARTMENT OF HEALTH

Coordinates N 321125 - W 9554 Permit No. [illegible]

1. Location: County Henderson City Athens Region 7
   Street or Road Old Malakoff Road
   Geographic Coordinates N 32° 11'25" W 95°[illegible]

2. Name of Disposal Site City Site Owner lease
   Site Operator (City, County, Private) City
   Area Served City and County Population 11,000

3. Distance from Disposal Site:
   To Nearest Airport ..... 2+ miles
   To Nearest Residence or Business ..... 2 miles
   To Public Road ..... next to

4. Operation Classification:
   Population of County 30,000
   In Extraterritorial Jurisdiction of a City (Name) ..... Yes-Athens
   In City Limits (Name) ..... No

5. Type of Operation:
   At Time of Inspection I
   Required Operation I

6. Equipment: Name and Model Cat D-5, Drott 40 Cruz-Air

7. Initial Site Size ..... 14 Acres
   Area Now Available for Landfilling ..... 13½ Acres
   Operational Life Remaining ..... 3+ Years
   Approximate Date Site First Used 1974

8. Amount and Type of Waste Handled:
   Volume ..... ? Cu. Yds./
   Weight ..... ? Tons/
   Type of Waste Received ..... All

9. Number of Employees: Collection 9 Disposal 2

10. Name, Title and Address of Persons Participating in Inspection:
    James Leopard, City Administrator

    Other Persons Contacted:

11. Name and Address of Officials Responsible for Site:
    Mayor ~~County Judge~~ Tommy G. Smith
    City ~~Manager Commissioner~~ Administrator James Leopard
    Garbage Superintendent or Operator

Inspection by Victor O. Cain, Jr., RS Date 10-7-75 Time 9:15 AM
Weather Conditions cloudy and cool

Approved by W. T. Ballard, P. E. Date 12/10/75
TSDH
(Oct. 1974)

4-15

Name of Site Athens

Location

C-1.1, C-1.6 1. Was the site location permitted or approved by TSDH or licensed by county?..... _____
By _____ Date _____

E-1.2 2. Do adequate public roads and highways provide access to site?... Yes

E-1.2 3. Have provisions been made for all-weather access from the entrance of the site to the unloading area?..... Yes
If not, is wet-weather access provided to an alternate disposal area?..... —

Water Pollution

E-1.3(a) 1. Is solid waste deposited within 500 feet of a drinking water supply well, water treatment plant or raw water intake structure which furnishes water to a public water system?..... No

E-1.3(b) 2. Are soil conditions such that groundwater may be contaminated from leachates?..... No
Were leachates observed? If so, please comment..... No

3. Is refuse placed in water or is standing water observed in trenches?..... No

E-1.3(c) 4. Can surface drainage enter working face or excavations?..... Yes*

5. Depth of deepest excavation on the site..... 20'
Type of deep soil..... clay

6. Depth to nearest water-bearing sand..... ?

7. How often is the site inundated?..... Never

8. Land characteristics: Flat, rolling, swampy, etc..... rolling

9. Distance of site to nearest water course..... Next to site

E-1.3(d) 10. Have monitor wells been drilled?..... —

Operational Standards - Disposal

E-2.1 1. Is evidence of burning of refuse observed?..... No
Is the burning of refuse legally permitted?..... —

E-2.1 2. Is an adequate supply of water under pressure available at the site, an adequate stockpile of earth on hand, or is there a nearby organized fire department?..... Yes
Which?..... Earth & Fire Dept.

E-2.2 3. Is an attendant on duty during operating hours?..... Yes
If not, are appropriate signs posted directing vehicles where to unload?..... —

E-1.2 4. Is the site adequately fenced?..... Yes
Are the gates kept locked when attendant is not on duty?..... Yes
Should fencing and locked gates be required?..... —
Why? _____

E-2.2 5. Is refuse confined to as small an area as practicable?..... Yes

Name of Site Athens

E-2.3 6. Is blowing paper a problem?..... Yes *
If so, is a portable fence or other suitable enclosure provided near the unloading area to catch windblown materials?..... No
Also, if required, is necessary equipment available for wetting deposited solid waste?..... --

E-2.4 7. Name hazardous materials accepted in significant quantities (insecticides, offal, chemicals, etc.) and special provisions for their disposal. None

E-2.5 8. Is a separate disposal area or site being used for disposal of large items (brush, tires, appliances, etc.)?..... Yes

E-2.6 9. Were rats and/or signs of rat infestation observed?..... No
Fly population: light, medium, heavy, none..... light
Were fly larvae observed?..... No
Were mosquitoes observed?..... No
Were mosquito larvae observed?..... No
Other vector problems..... None

10. Are adequate signs posted at entrance stating hours of operation and rules and regulations governing the site?..... Yes

E-2.7 11. Is salvaging permitted? No Is it adequately controlled? —
Is scavenging permitted?..... No

E-2.8(a)(b)(c) 12. Frequency of cover required..... daily

13. How often is earth cover actually being applied?..... daily

14. Method being used (trench, area, etc.)..... Trench

E-2.8 15. Are closed sections of the landfill properly maintained?..... Yes

16. Are special provisions of the permit being met?..... --

Operational Standards - Collection

D-2 1. Are the vehicles used to transport solid waste constructed and maintained to prevent the loss of material while in transit?..... Yes

D-3 2. Is solid waste kept in transport vehicles for an extended period of time that may create a health hazard?..... No

3. Is there a mandatory refuse collection ordinance in force?..... Yes
Collection fee charged per resident per month..... 2.20

Date of previous inspection _____

This inspection was made due to Routine survey

Brief description of the site: _____

Is operator cooperative? Comments: _____

Below and on attached pages are comments on observations and recommendations in a form suitable for transmission to the local official(s) responsible for the site.

COMMENTS

The landfill operated by the City of Athens was in very good shape. They have a problem with blowing paper and surface water can run into the trench when it rains.

RECOMMENDATIONS

1. Dikes or diversion dams should be built to keep surface runoff water from entering the trench.

2. A portable fence should be put at the site to help control blowing paper.

November 14, 1976

Honorable Tom C. Smith
Mayor of Athens
P. O. Drawer C
Athens, Texas 75751

Subject: Solid Waste - Henderson County
City of Athens - Permit Application No. 763
Old Malakoff Road
Coordinates: N 32° 11.75' W 95° 54.00'

Dear Mayor Smith:

On November 4, 1976, Mr. Victor O. Cain, Jr., R.S., from our Regional office, inspected the subject municipal solid waste disposal facilities. During this inspection, our representative was accompanied by Mr. S. L. Koussavall, Sanitation Superintendent.

Our inspection report reveals that the site is operated generally in compliance with the exception of the following conditions of noncompliance as keyed to this Department's "Municipal Solid Waste Management Regulations" dated January 1976:

1. Excessive windblown waste. (E-2.3)

2. Waste scattered along the access road to the site. (D-1.9)

In order for this municipal solid waste site to become compliant, the following corrective action must be taken:

1. A portable fence or other suitable enclosure must be provided near the unloading area to control windblown material, or a water source and necessary equipment for wetting deposited waste shall be readily available.

2. Waste materials along the road leading to the disposal site must be picked up regularly.

If you have any questions concerning solid waste management, or if we can be of any assistance, please do not hesitate to contact us here in Austin or Mr. W. T.

4-19

Honorable Tommy G. [illegible]ith
[illegible] r 16, 1975

[illegible]

HMm

[illegible]

4-20

INSPECTION REPORT

MUNICIPAL SOLID WASTE DISPOSAL SITE

TEXAS DEPARTMENT OF HEALTH RESOURCES

1. xxxxxxxxx application No. 267 Classification I
2. Location: County Henderson City Athens Zip 7
   Street or Road Old Malakoff Road
   Coordinates N 32°11.25' W 95°54'
3. Name of Disposal Site City Site Owner City
   Site Operator (City, County, Private) City
   Area Served City and County Population Served 11,000
4. Officials Contacted During Visit Evelyn Cain, City Administrator
5. Persons Participating in Inspection N. I. Rounsavall, Sanitation Supt.
6. Officials Responsible for Site Tommy Smith, Mayor; Evelyn Cain, City Administrator
7. Purpose of Inspection Routine survey
8. Date of Last Inspection 10-7-75 Date of Last Correspondence 12-10-75
9. Land Use Within One Mile of Disposal Site Pasture, Timber, homes
10. Brief Description of Site and Operation: Trench X Area ____ Other ____
    Depth at Deepest Excavation 15'
11. Size of Site 14 acres Amount of Land Remaining 10 acres
12. Distance to: Public Road next to Water Well 1/2 mile Residence 1 mile
    Stream next to Airport 2+ miles Business 1 mile
13. Refuse Collection: City X County ____ Contractor X Individuals X

14. Access

E-1.2b A. All weather access to an unloading area provided?.....Yes
D-1.9 B. Is waste along the road to the site a problem?.....Yes *

E-1.2c 15. Security

A. Is the site adequately fenced with lockable gates?.....Yes
B. If lockable gates are used, are adequate containers provided outside the gates when the site is closed?.....—
C. If containers are provided, are they effectively utilized?.....—
D. If lockable gates are not provided are alternate means of access control authorized by the Department?.....—
E. If alternate means are authorized, are they effective?.....—

16. Water Pollution

E-1.4a A. Is solid waste placed in groundwater? .....No
E-1.4a B. Were leachates observed? (If yes, discuss in comments).....No
E-1.5 C. Is solid waste deposited within 500 feet of a public water system raw water intake or a water treatment plant?.....No
E-1.5 D. Solid waste deposited within 500 feet of a drinking water supply well?..No
E-1.6a E. Can surface drainage enter working face or excavation?.....No

NOV 1976 RECEIVED SOLID WASTE BRANCH

4-21

[illegible]	E.	Site subject to flooding? No When flooded? -- Use application as source --

17. Operational Standards

E-2.1	A.	[illegible] No Burning authorized --
E-2.1	[illegible]	[illegible] Yes [illegible] Earth [illegible]
E-2.2	[illegible]	[illegible] Yes
E-2.2	[illegible]	Adequate [illegible] for internal control [illegible] on duty --
E-2.2	[illegible]	Unloading of waste confined to as small an area as possible
E-2.3	F.	Blowing paper problem Yes * Controls None
E-2.4	G.	Are hazardous materials accepted? No If yes, cover in comments.
E-2.5	H.	Adequate provisions for: Brush OK Dead animals OK Bulky items OK
E-2.6	I.	Fly population light Evidence of rodents No Birds No
E-2.7	J.	Is scavenging occurring? No
E-2.9	K.	Is cover adequate and applied at required frequency? Yes
E-2.9	L.	Closed sections of landfill properly maintained? Yes
	M.	Is site in compliance with all permit special provisions? -- If no, explain in comments.
	N.	Adequate equipment and maintenance of equipment provided? Yes
	O.	Adequate staff provided for proper disposal? Yes
E-2.7	P.	If salvaging is practiced is it adequately controlled? Yes

18. Improvements since previous inspection:

19. Summary of non-compliance: 1.o; 2.1

20. Comments (use additional sheets as necessary):

21. Recommendations (use additional sheets as necessary):

22. Action requested of Central Office:

Inspected by Victor O. Cain, Jr. Victor O. Cain, Jr., R.S. Date 11-4-76

Approved by W. T. Ballard W. T. Ballard, P.E. Date 11-10-76

(Please attach copies of letters originated by Regional Office)

4-22

[illegible] 5/76

COMMENTS

The solid waste dispo site operated by Athens was in good shape with the exception of windblown waste and waste is scattered along the road to the site.

RECOMMENDATIONS

1. Waste materials along the road leading to the disposal site must be picked up regularly.

2. A portable fence or other suitable enclosure must be provided near the unloading area to control windblown material.

September 29, 1977

Honorable Tommy G. Smith
Mayor of Athens
P. O. Drawer C
Athens, Texas 75751

Subject: Solid Waste - Henderson County
City of Athens - Permit Application No. 263
Old Malakoff Road
Coordinates N 32°11.25' W 95°54.00'

Dear Mayor Smith:

On September 20, 1977, Mr. Victor O. Cain, Jr., R. S., from our regional office inspected the subject municipal solid waste facility. During this inspection our representative was accompanied by Mr. N. I. Rounsavall, Sanitation Superintendent.

At the time of the inspection the site was being operated in general compliance with the Texas Department of Health's "Municipal Solid Waste Management Regulations", dated April 1977.

We appreciate the courtesy and cooperation extended to our representative during this inspection. If we can be of any assistance to you regarding solid waste management, please do not hesitate to contact us here in Austin or Mr. W. T. Ballard, P. E., Regional Director of Environmental and Consumer Health Protection, located at 1517 West Front Street, P. O. Box 2501, Tyler, Texas 75701; telephone number (214)595-3585.

Sincerely yours,

Jack L. Carmichael, P. E.
Director
Division of Solid Waste Management

LEL:kjh

cc: Region 7, TDH
City Health Officer

4-24

No CMS. Type I

INSPECTION REPORT

MUNICIPAL SOLID WASTE DISPOSAL SITE

TEXAS DEPARTMENT OF HEALTH RESOURCES

1. ~~Permit~~ (or Application) No. 263 Classification I Region 7
Site Operator (per A-4.38, Regs.) City
Site Owner City
2. Site Location: County Henderson City Athens
Directions to Site Old Malakoff Road
Coordinates: N 32°11.25' W 95°54.00' Name of Site Athens
Area Served City and County Population 11,000+
3. Official(s) Responsible for Site Operation Tomay Smith, Mayor, Evelyn Cain,
Ci City Administrator
4. Officials Contacted During Inspection None
5. Persons Participating in Inspection N. I. Rousseau, Sanitation Supr.
6. Purpose of Inspection: Routine X Site Evaluation ____ Compliance Schedule ____
Complaint By: ____ Other ____
7. Date of Last Inspection 11-4-76 Date of Last Correspondence 11-16-76
8. Land Use Within One Mile pasture, timber, homes
9. Description of Site and Operation: Trench X Area ____ Other ____
Maximum Depth of Excavation 15' Soil Characteristics clay type
10. Size of Site (Acres) 14 Remaining (Acres) 5 (Years) 1-2 years
11. Distance and Direction to: Public Road next to N Water Well 1/2 mi.
Stream next to site Airport 2 miles Residence 1 mi. Business 1 mi.
12. Refuse Collection By: City X County ____ Contractor ____ Individuals X
13. Date of Inspection 9-20-77 TDHR Representative(s) Victor O. Cain, Jr., R.S.
Date of Next Inspection 4-78
14. Findings

Access

F-2.10 A. Is adequate all-weather access to an unloading area provided? . . . . . Yes
C-5.2 B. Are waste materials scattered along the route to the disposal site creating a problem? . . . . . No
C-4.1 C. Are collection vehicles maintained in a sanitary condition? . . . . . Yes

Security

F-2.2 D. Is the site provided with a suitable fence? Yes Lockable gates? . . . . Yes
Has an alternate means of access control been approved by the Department? —
Does the alternate means provide adequate control? . . . . . —

Water Pollution

E-3.3e(5)E. Is solid waste deposited within 500 feet of a drinking water source (water supply well No, intake of water treatment plant No, or raw water intake for a public water system No)? . . . . . No

TDHR 5/77 4-25

F-2.4 F. Is solid waste placed in uncontained water? No Explain --

F-2.4 G. Is lining of excavations or disposal areas required? . . . . . No
If so, has site operator notified the Department of liner completion prior to acceptance of solid waste? . . . . . --
Is site considered adequate to receive solid waste? . . . . . Yes

F-2.4 H. [illegible] site? -- [illegible] . . . . . --
When closed [illegible] . . . . . --

F-2.4 I. Can surface drainage water working [illegible] activity [illegible] . . . . . No

F-2.4 J. Is water which has been in contact with solid waste being discharged from the site? No Is discharge authorized by TWQB? . . . . . --

Operational Standards

F-2.1 K. Is adequate fire protection provided? . . . . . Yes
Method? . . . . . Earth

F-2.2 L. Is unloading of waste confined to as small an area as practical? . . . . Yes

F-2.2 M. Is an attendant on duty when site is open? . . . . . Yes
Are adequate signs posted for internal control when attendant is not on duty? . . . . . Yes

F-2.3 N. Is blowing waste confined satisfactorily? . . . . . Yes
Controls --

O. Hazardous, Mixed and Special Wastes:

F-2.5a Are water or waste water treatment plant sludges or grease trap wastes accepted? No If yes, type --
Are disposal procedures adequate? . . . . . --

F-2.5b Are dead animals or slaughterhouse wastes accepted? Yes Disposal procedures adequate? . . . . . Yes

F-2.5c,d Are significant amounts of TWQB Class I industrial solid wastes accepted? No
If so, has approval been obtained from the Department? . . . . . --
Is operation compliant with Department's approval requirements? . . . . . Yes

F-2.6 Are hazardous wastes (EPA List) accepted? No Specify kind --
If so, has approval been obtained from the Department? -- Are pesticide containers that have not been rendered unusable covered upon receipt? . . . . . --

F-2.7 & D-3 P. Adequate provisions for: bulky items? . . . . . OK
brush and construction-demolition wastes? . . . OK

F-2.8 Q. Burning observed or in evidence? No Is burning authorized by TACB? . --

F-2.9 R. Fly population: Heavy ____ Medium ____ Light X None ____
Evidence of rodents? No Birds? No

F-2.11 S. Is salvaging allowed? Yes Is it adequately controlled? . . . . . Yes

F-2.11 T. Is scavenging occurring? (Explain in comments) . . . . . No

F-2.13 U. Is cover adequate and applied at required frequency? . . . . . Yes
Are closed sections of the landfill properly maintained? . . . . . Yes

F-2.14 V. Is ponded water a source of obnoxious odors? . . . . . No

Permit Requirements

E-2 W. If site is not permitted, was the site in operation prior to October 16, 1974. Yes X No ____

H-2.2 X. Is site in compliance with permit special provisions? . . . . . --
If no, explain in comments.

TDHR 5/77

4-26

15. Improvements since previous inspection: _____

16. Summary of non-compliance: _____

17. Comments (use additional sheets if necessary): _____

Operation Considered To Be: Satisfactory _____ Unsatisfactory _____

18. Recommendations (use additional sheets if necessary): _____

19. Action Requested of Central Office: _____

20. Unclassified sites: Where the site operator has not been officially notified of the required type of operation (by letter or by issuance of a permit) state type operation recommended and justification. Type _____ Reasons (screening, traffic, etc.) _____

Have these conditions changed since previous inspection? _____

(Please attach copies of letter originated by Regional Office)

Inspected By Victor O. Cain, Jr., R.S. Date 9-20-77

Approved By W. T. Ballard, P.E. Date 9/26/77

4-27

TDEH 5/77

COMMENTS

The solid waste disposal site operated by the City of Athens was in good shape and generally in compliance with our regulations.

RECOMMENDATIONS

NONE.

March 15, 1978

Honorable Tommy G. Smith
Mayor of Athens
P. O. Drawer C
Athens, Texas 75751

Subject: Solid Waste - Henderson County
City of Athens - Permit Application No. 263
Old Malakoff Road

Dear Mayor Smith:

On March 1, 1978, Mr. Victor O. Cain, Jr., R.S., from our regional office, inspected the subject municipal solid waste facility. During this inspection, our representative was accompanied by Mr. H. T. Roumsavall, Sanitation Superintendent.

At the time of the inspection, the site was being operated in general compliance with the Texas Department of Health Resources' "Municipal Solid Waste Management Regulations", dated April 1977, except for excessive windblown waste. A portable fence or other suitable means must be employed to confine windblown materials to the smallest area practical. It shall be the responsibility of the site operator to collect, and return to the disposal site all windblown materials as necessary to minimize unhealthy, unsafe, or unsightly conditions.

We appreciate the courtesy and cooperation extended to our representative during this inspection. If we can be of any assistance to you regarding solid waste management, please do not hesitate to contact us here in Austin or Mr. W. T. Ballard, P.E., Regional Director of Environmental and Consumer Health Protection, located at P. O. Box 2501, Tyler, Texas 75701; telephone number (214) 595-3585.

Sincerely yours,

Jack C. Carmichael, P.E.
Director
Division of Solid Waste Management

PAS:mcg

cc: Region 7, TDH

4-29

MAR 1978
RECEIVED
SOLID WASTE
MANAGEMENT

INSPECTION REPORT

MUNICIPAL SOLID WASTE DISPOSAL SITE

TEXAS DEPARTMENT OF HEALTH RESOURCES

1. ~~Permit~~ (or Application) No. 263 Classification I Region 7
   Site Operator (per A-4.38, Regs.) City
   Site Owner City
2. Site Location: County Henderson City Athens
   Directions to Site Old Malakoff Road
   Coordinates: N 32°11.25' W 95°54.00' Name of Site Athens
   Area Served City and County Population 11,000+
3. Official(s) Responsible for Site Operation Tommy Smith, Mayor; Jack Brewer, Acting City Manager
4. Officials Contacted During Inspection Jack Brewer, Acting City Manager
5. Persons Participating in Inspection N. I. Rounsavall, Sanitation Supt.
6. Purpose of Inspection: Routine X Site Evaluation ____ Compliance Schedule ____
   Complaint By: ____ Other ____
7. Date of Last Inspection 9-20-77 Date of Last Correspondence 9-29-77
8. Land Use Within One Mile pasture, timber, homes
9. Description of Site and Operation: Trench X Area ____ Other ____
   Maximum Depth of Excavation 15' Soil Characteristics clay
10. Size of Site (Acres) 14 Remaining (Acres) 5 (Years) 1-2 yrs.
11. Distance and Direction to: Public Road next to Water Well 1/2 mi.
    Stream next to site Airport 2 mi. Residence 1 mi. Business 1 mi.
12. Refuse Collection By: City X County ____ Contractor ____ Individuals X
13. Date of Inspection 3-1-78 TDHR Representative(s) Victor O. Cain, Jr., R.S.
    Date of Next Inspection 9-78
14. Findings

Access

F-2.10 A. Is adequate all-weather access to an unloading area provided? . . . . . Yes

C-3.2 B. Are waste materials scattered along the route to the disposal site creating a problem? . . . . . No

C-4.1 C. Are collection vehicles maintained in a sanitary condition? . . . . . Yes

Security

F-2.2 D. Is the site provided with a suitable fence? Yes Lockable gates?. . . . Yes
Has an alternate means of access control been approved by the Department? —
Does the alternate means provide adequate control?. . . . . —

Water Pollution

E-3.3e(5)E. Is solid waste deposited within 500 feet of a drinking water source (water supply well No, intake of water treatment plant No, or raw water intake for a public water system No)? . . . . . No

TDHR 5/77

4-30

F-2.4 F. Is solid waste placed in unconfined water? No Explain --

F-2.4 G. Is lining of excavations or disposal areas required? . . . . . No
If so, did site operator notify the Department of liner completion prior to acceptance of solid waste?. . . . . --
Is site considered adequate to receive solid waste?. . . . . Yes.

F-2.4 H. Is flood protection provided for site? No Is it required?. . . . . No
When flooded? (Refer to permit application, where appropriate) --

F-2.4 I. Can surface drainage enter working face or actively used excavation? . . No

F-2.4 J. Is water which has been in contact with solid waste being discharged from the site? No Is discharge authorized by TWQB? . . . . . --

Operational Standards

F-2.1 K. Is adequate fire protection provided?. . . . . Yes
Method?. . . . . Earth

F-2.2 L. Is unloading of waste confined to as small an area as practical? . . . Yes

F-2.2 M. Is an attendant on duty when site is open? . . . . . Yes
Are adequate signs posted for internal control when attendant is not on duty?. . . . . Yes

F-2.3 N. Is blowing waste confined satisfactorily?. . . . . No *
Controls None

O. Hazardous, Mixed and Special Wastes:

F-2.5a Are water or waste water treatment plant sludges or grease trap wastes accepted? No If yes, type --
Are disposal procedures adequate?. . . . . --

F-2.5b Are dead animals or slaughterhouse wastes accepted? No Disposal procedures adequate? . . . . . --

F-2.5c,d Are significant amounts of TWQB Class I industrial solid wastes accepted? No
If so, has approval been obtained from the Department? . . . . . --
Is operation compliant with Department's approval requirements?. . . . . Yes

F-2.6 Are hazardous wastes (EPA List) accepted? No Specify kind --
If so, has approval been obtained from the Department? -- Are pesticide containers that have not been rendered unusable covered upon receipt? . . . . . --

F-2.7 & D-3 P. Adequate provisions for: bulky items? . . . . . OK
brush and construction-demolition wastes?. . . OK

F-2.8 Q. Burning observed or in evidence? No Is burning authorized by TACB? . ____

F-2.9 R. Fly population: Heavy ____ Medium ____ Light ____ None X
Evidence of rodents? No Birds? No

F-2.11 S. Is salvaging allowed? No Is it adequately controlled?. . . . . --

F-2.11 T. Is scavenging occurring? (Explain in comments) . . . . . No

F-2.13 U. Is cover adequate and applied at required frequency? . . . . . Yes
Are closed sections of the landfill properly maintained? . . . . . Yes

F-2.14 V. Is ponded water a source of obnoxious odors? . . . . . No

Permit Requirements

E-2 W. If site is not permitted, was the site in operation prior to October 16, 1974. Yes X No ____

E-3.2 X. Is site in compliance with permit special provisions?. . . . . ____
If no, explain in comments.

TDHR 5/77

15. Improvements since previous inspection: _____

16. Summary of non-compliance: _____

17. Comments (use additional sheets if necessary): _____

Operation Considered To Be: Satisfactory ___X___ Unsatisfactory _____

18. Recommendations (use additional sheets if necessary): _____

19. Action Requested of Central Office: _____

20. Unclassified sites: Where the site operator has not been officially notified of the required type of operation (by letter or by issuance of a permit) state type operation recommended and justification. Type _____ Reasons (screening, traffic, etc.)_____

Have these conditions changed since previous inspection? _____

(Please attach copies of letter originated by Regional Office)

Inspected By Victor O. Cain Victor O. Cain, Jr., R.S. Date 3-1-78

Approved By W. T. Ballard W. T. Ballard, P.E. Date 3-10-78

4-32

TCHR 5/77

COMMENTS

This is a good operation and the site was generally in compliance with our Regulations. The only problem was excessive blowing paper.

RECOMMENDATION

1. A portable fence or other suitable means must be employed to confine windblown materials to the smallest area practical. It shall be the responsibility of the site operator to collect, and return to the disposal site all windblown materials as necessary to minimize unhealthy, unsafe, or unsightly conditions.

TEXAS AIR CONTROL BOARD

8520 SHOAL CREEK BOULLVARD
AUSTIN, TEXAS 78758
512/451-5711

JOHN L. BLAIR
Chairman
CHARLES R. JAYNES
Vice Chairman

BILL STEWART, P. E.
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WILLIAM N. ALLAN
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FRED HARTMAN
D. JACK KILIAN, M. D.
FRANK H. LEWIS
WILLIAM D. PARISH
JEROME W. SORENSON, P. E.

November 6, 1978

Mr. Cody Thompson
City Administrator
City of Athens
P. O. Box C
Athens, Texas 75751

Dear Mr. Thompson:

Our investigation and review of information provided by you indicates that there is no practical alternative to burning wood waste at the referenced site and the burning will not cause or contribute to a violation of any Federal ambient air standard. Therefore, pursuant to Rule 131.03.01.002(a) of Regulation I, I am authorizing burning if the following conditions and precautions are observed.

1. Only wood waste will be burned. No household or industrial garbage or rubbish will be burned.

2. A nuisance condition will not be created.

3. Outdoor burning will be limited to once every two weeks.

4. The initial burning will be commenced only between the hours of 9 a.m. and 1 p.m.

5. All permits, rules, and regulations of the Texas Department of Health must be complied with.

4-34

This authorization is in effect through April 30, 1979. Outdoor burning of material of this nature is prohibited after that date unless additional authorization pursuant to Rule 131.03.01.002(a) is obtained.

Sincerely,

Bill Stewart, P.E.
Executive Director

cc: Mr. Richard Leard, P.E., Regional Supervisor, Tyler
Mr. Jack C. Carmichael, P.E., Director, Solid Waste Management Division, Texas Department of Health, Austin

4-35

REFERENCE 5

Record of Communication. From: Mark A. McDonnell, Fluor Daniel, Inc., To: Noel Luper, Texas Water Commission, District 5, April 14, 1993.

FLUOR DANIEL, INC.

RECORD OF TELEPHONE COMMUNICATION

DATE: April 14, 1993

TIME: 1:40 p.m.

PERSON CONTACTED: Mr. Noel Luper

AGENCY: Texas Water Commission, District 5, Tyler, Texas

PHONE NUMBER: (903) 566-0476

I spoke to Mr. Luper today and he checked his files for Texas Department of Health Permit #263. He has no files on this site. Mr. Luper surmised that the landfill was closed about 1979 judging from the low permit number. It is possible that an application was filed but no permit was issued. The information on microfiche is all that is available.

Mark McDonnell

Mark McDonnell

REFERENCE 6

Fluor Daniel, Inc. Hazardous Waste Quantity Calculations and Sketches, Mark A. McDonnell, June 17, 1994.

FLUOR DANIEL

CALCULATIONS and SKETCHES

DATE 6/17/94
CONT. NO. 06635324
BY M. McDonnell CHK'D
SHEET NO. 11

ATHENS LANDFILL #2 - MALAKOFF ROAD
EPA TXD980062352
HAZARDOUS WASTE QUANTITY CALCULATIONS (AREAS)

MW		gals/mol
16	C_1	6.40
30	C_2	9.67
44	C_3	10.44
58	IC_4	12.40
58	C_4	11.95
72	IC_5	13.88
72	C_5	13.74
86	IC_6	15.5
86	C_6	15.59
100	IC_7	17.2
100	C_7	17.49
114	C_8	19.41
28	$C_2^=$	9.64
42	$C_3^=$	9.67

LANDFILL REF FIG 2-B

$A = 0.1\,mi \times 0.2\,mi$
$= 528\,ft \times 1056\,ft = \underline{557,568\,ft^2}$

DRUM DISPOSAL AREA REF FIELD NOTEBOOK PAGE 6, FIG 3A

$A = 80' \times 25' = \underline{2,000\,ft^2}$

SMALL OILY SLUDGE POND REF FIELD NOTEBOOK PAGE 8, FIG 3A

$A = 15\,ft \times 30\,ft = \underline{450\,ft^2}$

SLUDGE POND RUNOFF AREA REF FIELD NOTEBOOK PAGE 8, FIG 3A

$A = 40\,ft \times 75\,ft = \underline{3,000\,ft^2}$

MISC		
MW		gals/mol
44	CO_2	6.47
34	H_2S	5.18
28	N_2	4.16
2	H_2	1.38

BLACK STAINED AREA REF FIELD NOTEBOOK PAGE 9, FIG 3A

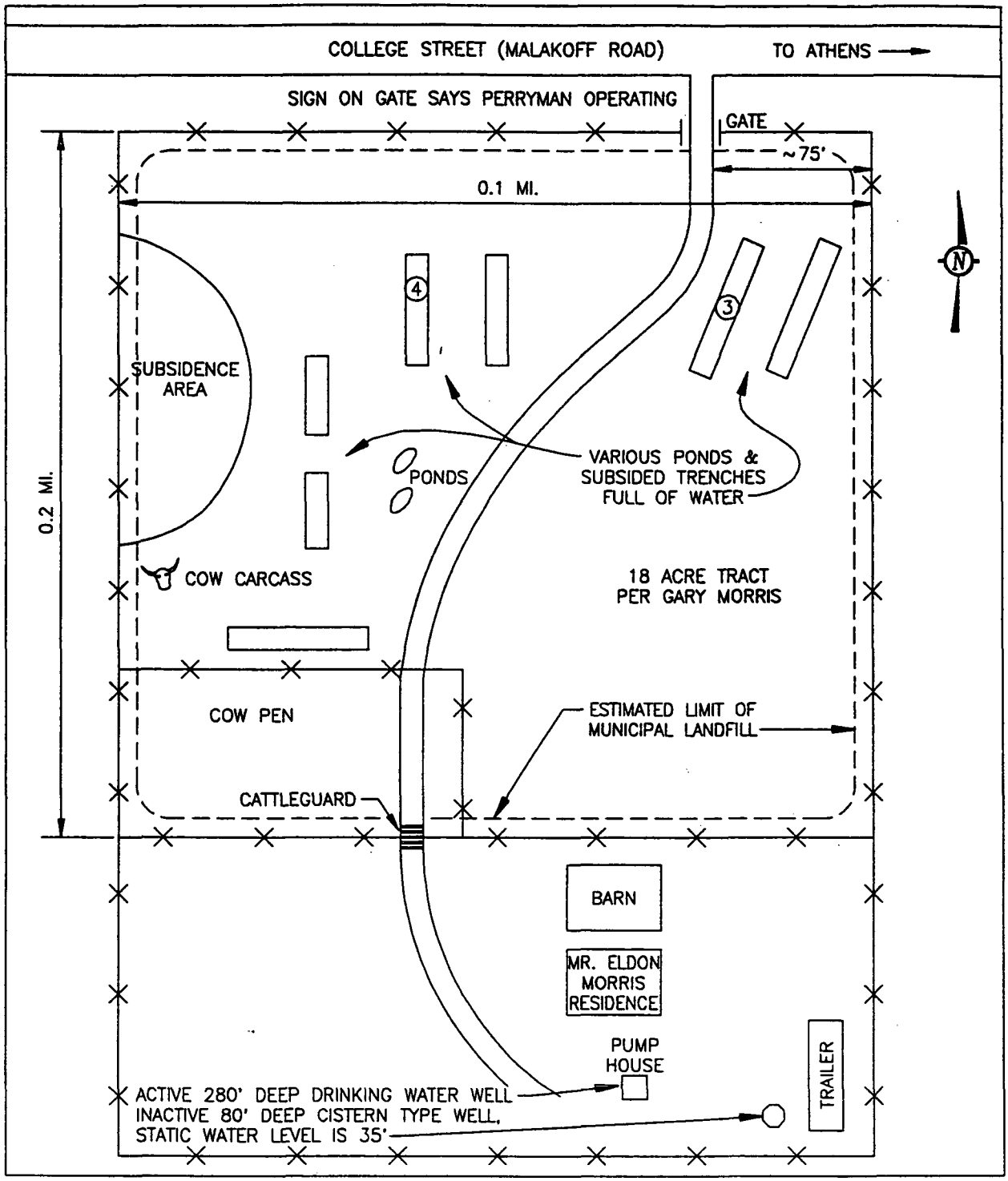
$A = 30\,ft \times 40\,ft = \underline{1,200\,ft^2}$

ABOVE GROUND FUEL TANK STORAGE AREA, FIG 3A, FIELD NOTEBOOK PAGE 9

$A = 40\,ft \times 50' = \underline{2,000\,ft^2}$

6-01

FORM E-050 REV. 6/88
PRINTED IN U.S.A.



LEGEND:

- STRUCTURE
- ROAD
- FENCE
- CISTERN TYPE WELL
- (3) PHOTO LOCATIONS

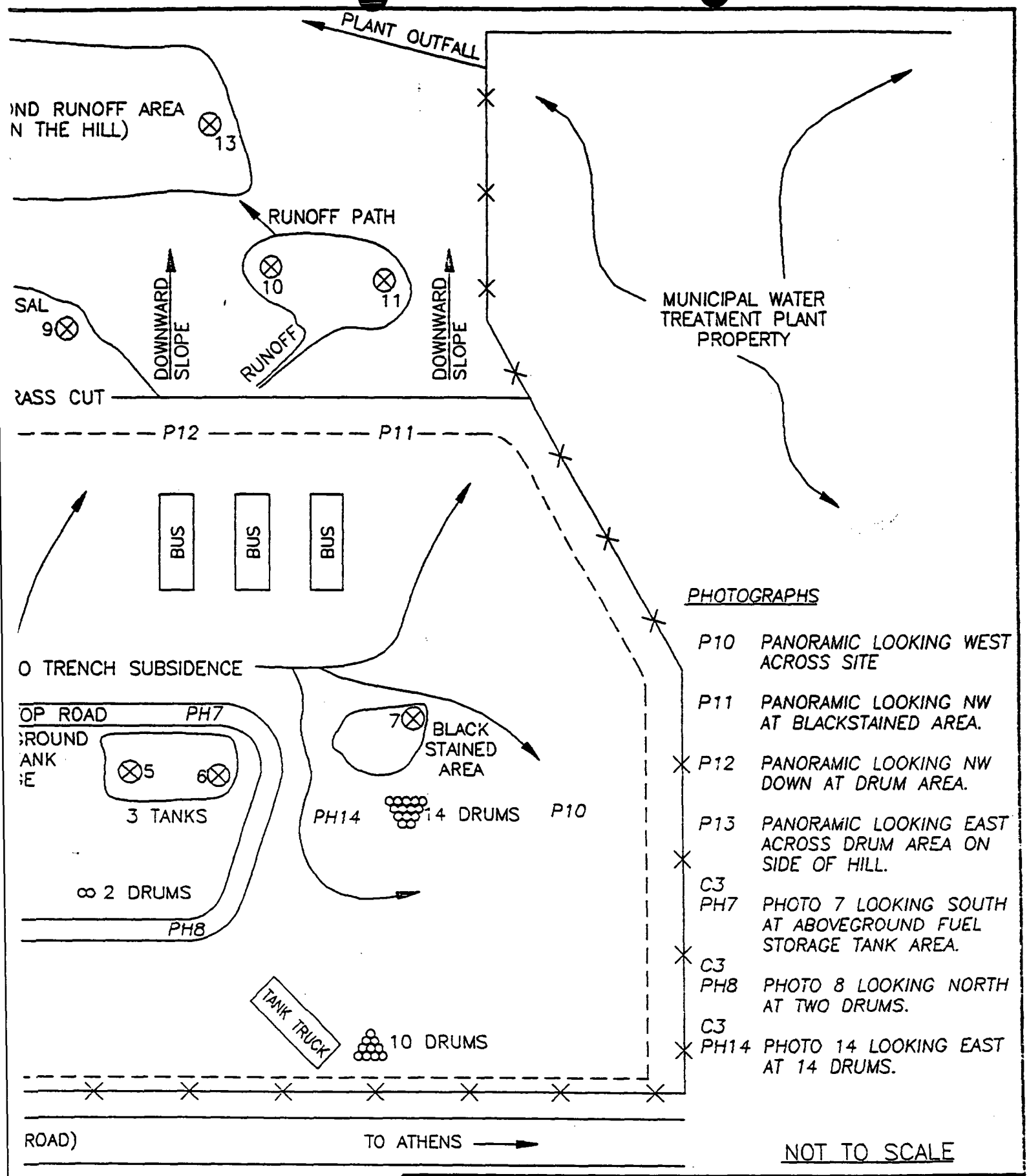
6-02

NOT TO SCALE

FLUOR DANIEL

FIGURE 2B
SITE SKETCH
CITY OF ATHENS (MALAKOFF ROAD)
SOUTHERN HALF OF THE SITE
ATHENS, TEXAS

CAD FILE No. FIG-2B

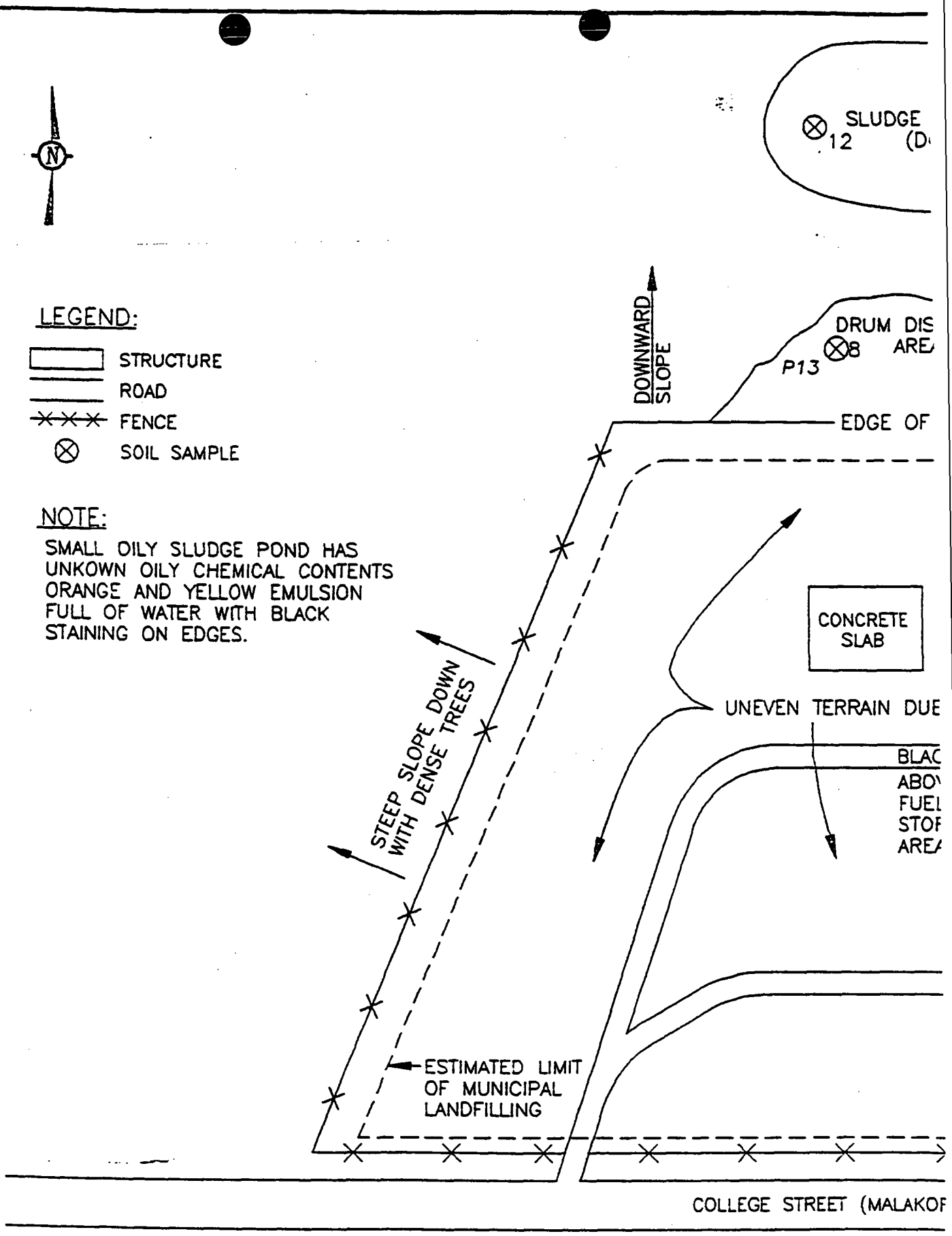


6-03

FLUOR DANIEL

FIGURE 3A
SAMPLING LOCATION MAP
CITY OF ATHENS LANDFILL (MALAKOFF ROAD)
NORTHERN HALF OF SITE
ATHENS, TEXAS

CAD FILE No. FG-3A


N
SLUDGE
12
(D
LEGEND:
STRUCTURE
ROAD
FENCE
SOIL SAMPLE
NOTE:
SMALL OILY SLUDGE POND HAS UNKOWN OILY CHEMICAL CONTENTS ORANGE AND YELLOW EMULSION FULL OF WATER WITH BLACK STAINING ON EDGES.
DOWNWARD SLOPE
DRUM DIS
8
ARE
P13
EDGE OF
CONCRETE SLAB
UNEVEN TERRAIN DUE
STEEP SLOPE DOWN WITH DENSE TREES
BLAC
ABO
FUEL
STOF
AREA
ESTIMATED LIMIT OF MUNICIPAL LANDFILLING
COLLEGE STREET (MALAKOF

6-04

Mead

COMPOSITION

CITY OF ATHENS LANDFILL

MALAKOFF ROAD SI SAMPLING

FIELD NOTEBOOK

wide ruled
100 sheets • (200 pages)
9¾ x 7½ in/24.7 x 19.0 cm

09910 © The Mead Corporation, Dayton, Ohio 45463

0 43100 09910 9

6-05

6/29/93 Tue Mark McDonnell Page 6

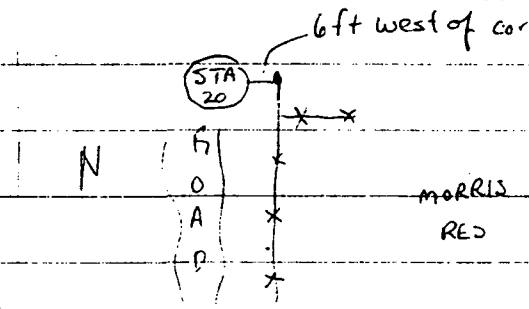
4:20 Arrived at ~~South~~ North half and set up station w Jarrod Fugua, George Farmer. George cut brush at STA 8, 9 and set stakes. Area 80 x 25'

4:35 Review plans and conducted H&S tailgate meeting

4:45 Went to get keys from Gary Morris

5:28 TOOK SAMPLE STA 20. LOCATION BELOW:

SURFACE SOIL PER PLAN. SEE PHOTO 24 ON DEDICATED CAMERA.



5:38 TOOK SAMPLE STA 19. LOCATION IS HIGH POINT OF FENCED PARCEL DUE WEST (1:00) of MR. MORRIS RESIDENCE. DEPTH WAS SURFACE GRAB. (NOT PER PLAN) TO SATISFY Background Requirement for # 15, 16, 17, 18 which are also grab samples. SEE PHOTO 23

6-06

6/30/93 WED Mark A. McDonnel Page 8

8:08 am Station 12, photo 18 took sample of oily dirt.
Surface grab per plan.

8:10 am Station 13, photo 17 took sample of oily dirt
Surface grab per plan.

Note: this area is approx. 40 ft across and 75 feet long.

8:16 Station 11, photo 16 took sample of oily dirt
Surface grab per plan.

8:20 Station 10, photo 15 took sample of oily dirt
Surface grab per plan.

Note: Small pond size is 15'x30'.

8:44 Station 14, photo 14 took background sample. Surface grab per plan.

6-07

M.M.

~~[illegible] PHOTO 12~~
~~[illegible]~~
~~[illegible] PHOTO 13~~
8 9:41 PHOTO 11
9 9:46 PHOTO 10

8 6/30/93 WED Mark A. McDonnell Page 9.

9:04 STATION 7 sample taken, oily mat area ~ 30'x40' estimated due to high grass. See photo 13. Soil underneath mat (thin mat.)

9:15 station 5, 6, 6 is duplicate, soil surface grab per plan. Soil is oily with odor. Tank area ~ 40'x50'. See photo 12

Note: 4 jars per sample today., 28oz, 24oz. all samples surface grab per plan.

6-08

REFERENCE 7

Mullican, Jerry W. Texas Department of Water Resources. Letter to Mr. Jack Carmichael, October 2, 1978.

EXCELLENT BACKGROUND INFO
GEOLOGY
GROUNDWATER

Solid waste mmn
Copy sent to Region 7
10-11-78
GEW

TEXAS DEPARTMENT OF WATER RESOURCES
1700 N. Congress Avenue
Austin, Texas

TEXAS WATER DEVELOPMENT BOARD
A. L. Black, Chairman
Robert B. Gilmore, Vice Chairman
Milton T. Potts
John H. Garrett
George W. McCleskey
Glen E. Roney

Harvey Davis
Executive Director

TEXAS WATER COMMISSION
Joe D. Carter, Chairman
Dorsey B. Hardeman
Joe R. Carroll

October 2, 1978

Mr. Jack C. Carmichael, P.E.
Director, Division of Solid Waste Management
Texas Department of Health
1100 West 49th Street
Austin, Texas 78756

OCT 1978
RECEIVED
P. H. REGION 7

OCT 1978
RECEIVED
SOLID WASTE
MANAGEMENT.

Dear Mr. Carmichael:

RE: Municipal Solid Waste
City of Athens
Permit Application No. 1255
Proposed Site Evaluation
Henderson County

The Texas Department of Water Resources has received your letter dated September 19, 1978 requesting us to review and evaluate the water quality aspects of the application and supporting information from the City of Athens for a municipal solid waste disposal site.

Based upon the information available to this Department, it appears that the site may present a potential hazard to the ground and surface water quality of the area. Our evaluation is based upon the following considerations:

1. The proposed 80-acre disposal facility is located on the undivided Wilcox Group of Eocene age which consists for the most part of silty and sandy clay with interbedded sand, silt, clay, and lignite. The Wilcox is an important regional aquifer which is demonstrated by the fact that the largest capacity and deepest wells in Anderson, Cherokee, Freestone, and Henderson Counties produce from this unit. The outcrop of sand bodies within the Wilcox constitute recharge zones for the regional aquifer.

2. According to the application, most of the site will be developed by the trench method of solid waste disposal with the depth of excavation varying across the site from 6 to 15 feet. The subsurface soil conditions at the site were investigated by a total of 19 soil borings with completion depths ranging from 25 to 40 feet. Ground water was measured at depths between 8 and 27 feet in 12 of these borings approximately one month after the date of drilling. The logs of the borings reveal that the subsurface soil materials at the site consist of a heterogeneous mixture of sand, silt, silty and sandy clay, and lignite. Significant areas of the sides and bottoms of the proposed landfill trenches at the facility would not be capable of complying with either the permeability or plasticity specifications established for soil materials by the Texas Department of Health in the Municipal Solid Waste Management Regulations of April, 1977.

2-01

3. While the application indicates that "all areas subjected to solid waste disposal shall be lined with the equivalent of 3 feet of soil with a permeability of not more than $1x10^{-7}$ cm/sec with a liquid limit of not less than 30 and a plasticity index of not less than 15", adequate information has not been submitted with regard to the construction specifications (i.e. compaction density, moisture content, lift thickness, etc.) of any compacted soil liner which may be placed at the facility.

4. Approximately 26 acres of the site with topography described as "ravines and gulleys" are proposed to be developed by the area fill method of solid waste disposal. In general, unless adequate precautions are taken, the potential exists for surface water problems to develop in such areas of moderate slope due to the discharge of water which has been contaminated by contact with deposited solid waste.

If this site is approved by the Texas Department of Health, the following suggestions may be considered to decrease the hazard to the ground and surface water quality of the area. Methods other than those indicated may be employed to achieve the desired result of improved ground and surface water protection.

1. Any disposal operation at this site should be carried out in such a manner that deposited solid waste does not come into contact with soil materials exhibiting a permeability greater than $1x10^{-7}$ cm/sec. Any such soil materials which are encountered in the excavations should be lined with suitable soil material to prevent the exfiltration of leachates.

2. Surface water diversion facilities should be constructed to divert runoff from the site and to prevent contaminated water from leaving the site.

3. Contaminated water should not be discharged from the site, but used instead for aiding in compaction of the refuse.

If we may be of further assistance, please contact us.

Sincerely yours,

Jerry W. Mullican
Director of Solid Waste &
Underground Injection

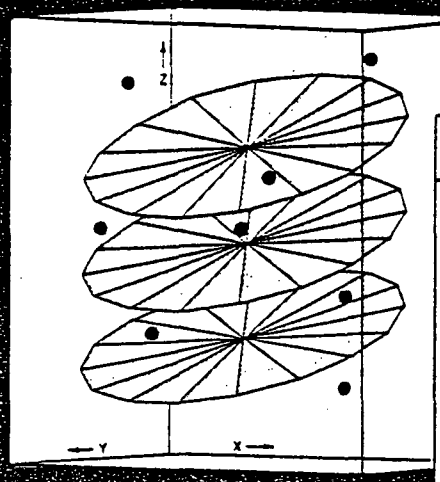
GT/jlh
cc: TDWR District 5 Office - Kilgore

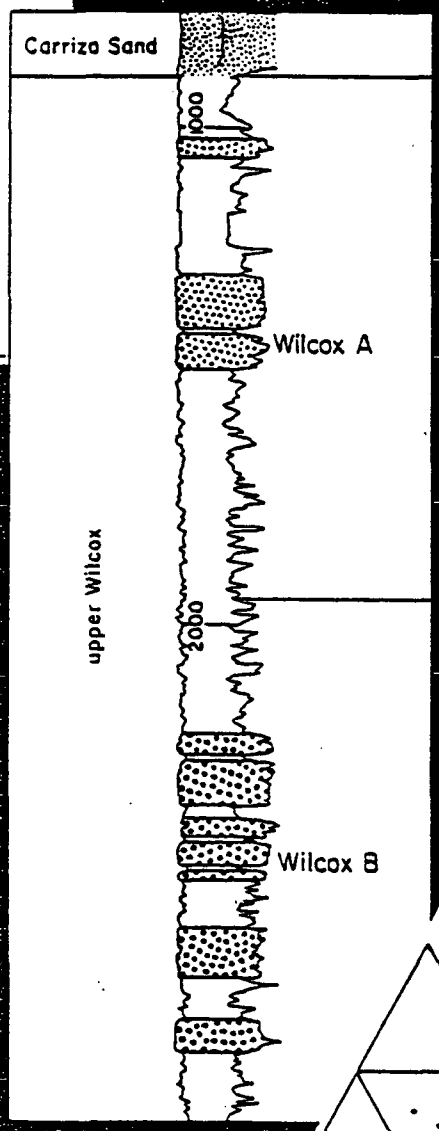
2-02

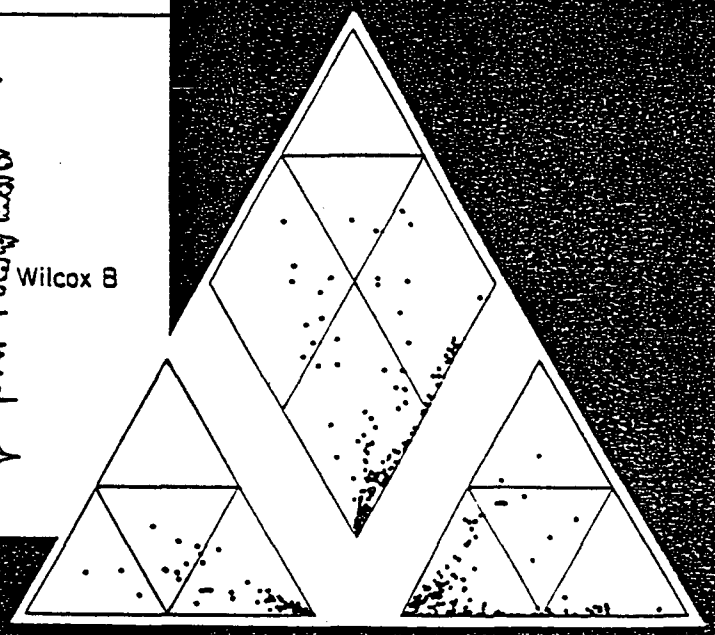
REFERENCE 8

Bureau of Economic Geology, The University of Texas at Austin, The Wilcox Group and Carrizo Sand in the Sabine Uplift Area, Texas: Groundwater Hydraulics and Hydrochemistry, 1991.

The Wilcox Group and Carrizo Sand (Paleogene) in the Sabine Uplift Area, Texas: Ground-Water Hydraulics and Hydrochemistry







1991

Bureau of Economic Geology
W. L. Fisher, Director
The University of Texas at Austin Austin, Texas 78713-7508

3-01

in flow rates between channel-fill and interchannel facies is expected in the Sabine Uplift area.

The Carrizo Sand unconformably overlies the Wilcox Group (fig. 2) and is a relatively homogeneous, multilateral fluvial sand about 50 to 150 ft (15 to 45 m) thick (Ayers and Lewis, 1985). The Wilcox and Carrizo generally behave as separate aquifers, owing to marine-transgressive muds at the top of the Wilcox (Sabinetown Formation of Plummer [1932]) that impede cross-formational flow. At many localities, however, the Carrizo Sand comes in contact with upper Wilcox sands, suggesting the two units are at least partly interconnected on the regional scale. Consequently, the collective terms "Carrizo-Wilcox" or "Wilcox-Carrizo" are often used as names for the regional aquifer system.

The Wilcox-Carrizo system crops out in a large, semicircular area over the Sabine Uplift (fig. 1) and basinward in some smaller areas. Unconfined (water table) conditions prevail at shallow depths in these outcrops, but, owing to stratification in the Wilcox, confined (artesian) conditions commonly occur at depth. Further downdip, where the Reklaw Formation overlies the Carrizo (fig. 2), confined conditions prevail. The Reklaw is a leaky aquitard through which significant recharge and discharge occur regionally (Fogg and Kreitler, 1982; Fogg and others, 1983b). The Reklaw becomes sandier, and presumably leakier, toward the north. In fact, in and north of Smith County (fig. 1), Reklaw sediments are almost indistinguishable on electric and induction logs from sands of the underlying Carrizo and the overlying Queen City Formations. In the south half of the East Texas Basin, where clays in the Reklaw aquitard are more laterally continuous, much of the leakage can be attributed to local disruption of the clays caused by faulting, salt dome growth, and incision of streams. The Queen City is a comparatively minor aquifer that occurs predominantly under unconfined conditions in the study area.

Vertical leakage is also important within the Wilcox as a mechanism of ground-water movement between sand bodies. Owing to the stratified sand and mud fabric of the Wilcox, average hydraulic conductivity of the unit is generally lower in the vertical direction than in the horizontal direction by a factor of at least 100 (Fogg and others, 1983b). Supporting evidence for the low vertical conductivity includes the fact that vertical hydraulic gradients in the East Texas Basin are rather steep (>0.05) almost everywhere (Fogg and Kreitler, 1982; Fogg and Prouty, 1986). Vertical ground-water flow within the Wilcox occurs as slow leakage, which is generally minute locally but can account for considerable flow volume over a large region.

Ground-Water Chemistry

Chemistry of Wilcox-Carrizo ground water typically follows a predictable trend from recharge to discharge area, as shown by Fogg and Kreitler (1982) and in this study. Ground water in recharge areas tends to be relatively high in dissolved calcium (Ca^{2+}) and silica (SiO_2) and low in pH, sodium (Na^+), and bicarbonate (HCO_3^-). As ground water flows through the aquifers, this tendency reverses, leading to ground water high in pH and in Na^+ and HCO_3^-. The evolution in water chemistry is caused by rock-water interactions such as dissolution, precipitation, and ion exchange.

Because of systematic hydrochemical variations, the water-chemistry data can be used as a natural tracer to estimate general ground-water circulation patterns. This has been demonstrated in the Wilcox-Carrizo system by (1) Fogg and Kreitler (1982) and Kaiser and Ambrose (1986), who showed good correlation between ground-water chemistry and ground-water circulation estimated from hydraulic-head data; and by (2) Kreitler and Wuerch (1981), who showed good correlation between HCO_3^- concentration and carbon-14 age dates of ground water.

Quality of ground water in Wilcox and Carrizo sands in the East Texas Basin and Sabine Uplift area is generally more than adequate for domestic use. Water containing less than 1,000 mg/L total dissolved solids (TDS) can typically be found at depths less than 1,000 ft (<305 m). As one might expect, however, the extreme heterogeneity of the Wilcox can cause marked local variations in water quality. This is generally not evident from the published water-chemistry data, because they come almost entirely from water samples collected in water wells, which preferentially tap the most permeable sands containing the highest quality water. Estimates of ground-water TDS from electrical resistivity logs, however, have shown that ground water in the finer grained interchannel sediments tends to be substantially higher in TDS than does ground water in the more permeable channel-fill sands (Henry and others, 1979; Fogg and Kreitler, 1982; Dutton, 1985, 1986).

3-02

REFERENCE 9

Fluor Daniel, Inc., Calculations and Sketches, Wells Within 4 miles of the Site, Mark A. McDonnell, June 19, 1994.

FLUOR DANIEL

CALCULATIONS and SKETCHES

DATE 6/19/94
CONT. NO. 06635324
BY Mark McP. CHK'D
SHEET NO. 1/1

ATITENS LANDFILL #2 - MALAKOFF ROAD

Wells within 4 miles of Site

0-1 mile

Well	Distance From Source	A/I	Use	Ref
Meredith Residence	0.45 mi E	Active	Domestic	Photo 3
Morris Residence 80'	0.1 mi S	Inactive	—	
Morris Residence	0.1 mi S	Active	Domestic	Recon Notes page 6,7,8

ADDITIONAL RINGS

1-2 mi
2-3 mi
3-4 mi

See attached data from TWDB.

MW	gals/mol
16 C_1	6.40
30 C_2	9.67
44 C_3	10.44
58 IC_4	12.40
58 C_4	11.95
72 IC_5	13.88
72 C_5	13.74
86 IC_6	15.5
86 C_6	15.59
100 IC_7	17.2
100 C_7	17.49
114 C_8	19.41
28 $C_2^=$	9.64
42 $C_3^=$	9.67

MISC MW	gals/mol
44 CO_2	6.47
34 H_2S	5.18
28 N_2	4.16
2 H_2	1.38

9-01

FORM E-050 REV. 6/88
PRINTED IN U.S.A.

Athens Municipal Landfill
Malakoff Road Location
Water Wells By Distance Ring

Note: All Wells Located in Range 34 East
File: waterwel.wk3

Distance Ring (miles)	Number of Wells	Well Number	Section Number	Formation	Depth (Feet)
0 to 1	0	NA	NA	NA	NA
1 to 2	4	101	50	Wilcox	732
		603	49	Wilcox	465
		507	49	Wilcox	42
		203	49	Carrizo	27
2 to 3	3	304	49	Wilcox	150
		403	50	Wilcox	205
		504	49	Wilcox	386
3 to 4	6	102	50	Wilcox	794
		103	50	Wilcox	800
		104	50	Wilcox	859
		702	50	Wilcox	590
		806	49	Wilcox	445
		807	49	Wilcox	365

Source:
Texas Water Development Board
Ground Water Data System
Ground Water Quality Samples for
Henderson County
Page 11 through 13.

9-02

9-03

GROUND WATER QUALITY SAMPLES
COUNTY - Henderson

Well	Aquifer	Well Depth (Feet)	Date of Collection	Agency Code	Lab Code	Reliability Code	Temp. Deg. C	pH	Silica (SiO2) MG/L	Calcium (Ca) MG/L	Magnesium (Mg) MG/L	Sodium (Na) MG/L	Potassium (K) MG/L	Carbonate (CO3) MG/L	Bicarb. (HCO3) MG/L	Sulfate (SO4) MG/L	Chloride (Cl) MG/L	Fluoride (F) MG/L	Nitrate (NO3) MG/L	Dissolved Solids MG/L	Spec. Cond.* (micromhos)	Hardness as CaCO3 MG/L
34 45 401	124RKCZ	510	05/01/1961					7.4	11	8	2	46		0	132	15	4	0.2	0.2	151	257	30
	124RKCZ	510	06/04/1975				21	7.7	10	12	2	36	4	0	126	16	5	0.2	0.4	147	250	40
	124RKCZ	510	11/17/1981				21	8.1	12	10	3	34	5	0	122	15	2	0.1	0.3	141	239	39
34 45 403	124RKCZ	517	07/26/1963 U				22	8.0	15	9	3	51		0	149	12	7			170	274	[illegible]
	124RKCZ	517	07/26/1963					8.2		11	4	41		0	137	13	4	0.2	0.4	140	261	[illegible]
34 45 404	124WLCX	600	11/18/1970					8.0	11	9	3	51	3	0	153	18	7	0.1	0.4	177	300	35
34 45 406	124CRRZ	522	01/04/1963					7.6	11	10	3	43		0	151	8	1	0.1	0.1	150	254	40
	124CRRZ	522	04/15/1967				22	8.1	12	10	3	41	4	0	143	12	3	0.1	0.0	155	260	38
34 45 702	124WLCX	770	11/19/1970					8.5	12	2	1	145		5	357	4	20	0.3	0.4	365	616	10
34 45 703	124QNCT	42	04/26/1936 U							64	61	144		0	6	346	254			871		410
34 45 704	124WLCX	500	04/29/1936 U											0	171	5	10			157		
34 49 104	124WLCX	17	04/04/1936 U											0	61	53	28			149		
34 49 201	124WLCX	377	09/09/1970				22	7.7	16	9	4	65	1	0	193	11	41	0.1	0.4	264	450	38
	124WLCX	377	06/03/1978					8.2	14	7	1	92	1	0	201	7	58	0.1	1.6	260	462	22
34 49 203	124CRRZ	27	03/16/1936 U							13	0	134		0	61	5	185			366		35
34 49 204	124WLCX	498	04/23/1974					7.1	14	3	0	111		0	220	5	44	0.1	0.6	265	510	8
34 49 205	124WLCX	433	06/09/1987				22	8.6	15	5	1	94	1	3	198	7	38	0.1	0.0	261	462	[illegible]
34 49 304	124WLCX	150	09/10/1970				21	7.8	35	35	6	14	3	0	156	5	10	0.1	0.4	185	290	112
34 49 401	124WLCX	382	03/17/1936 U							8	8	60		0	195	5	15			191		51
34 49 402	124WLCX	36	02/10/1936 U							3	3	36		0	79	5	270			357		21
	124WLCX	36	07/13/1970	02	01			8.7		3	2	191		17	453	18	5	0.4	<.4	459	795	14
	124WLCX	36	09/09/1971 U	02	01																	
	124WLCX	36	07/25/1972	02	01			8.6		1	1	181		14	436	20	6	0.3	<.4	438	775	9
34 49 504	124WLCX	386	10/02/1970				22	8.3	17	10	2	63		0	179	7	14	0.1	0.4	201	332	34
	124WLCX	386	06/03/1975					7.9	15	12	1	62	2	0	178	6	14	0.3	0.5	200	348	35
	124WLCX	386	11/04/1986				24	8.1	16	8	2	65	2	0	176	8	13	0.1	0.0	201	332	29

* Depth value here reflects the bottom of the SAMPLED INTERVAL which was different from the completed well depth
U after date of collection signifies unbalanced or partial chemical analysis

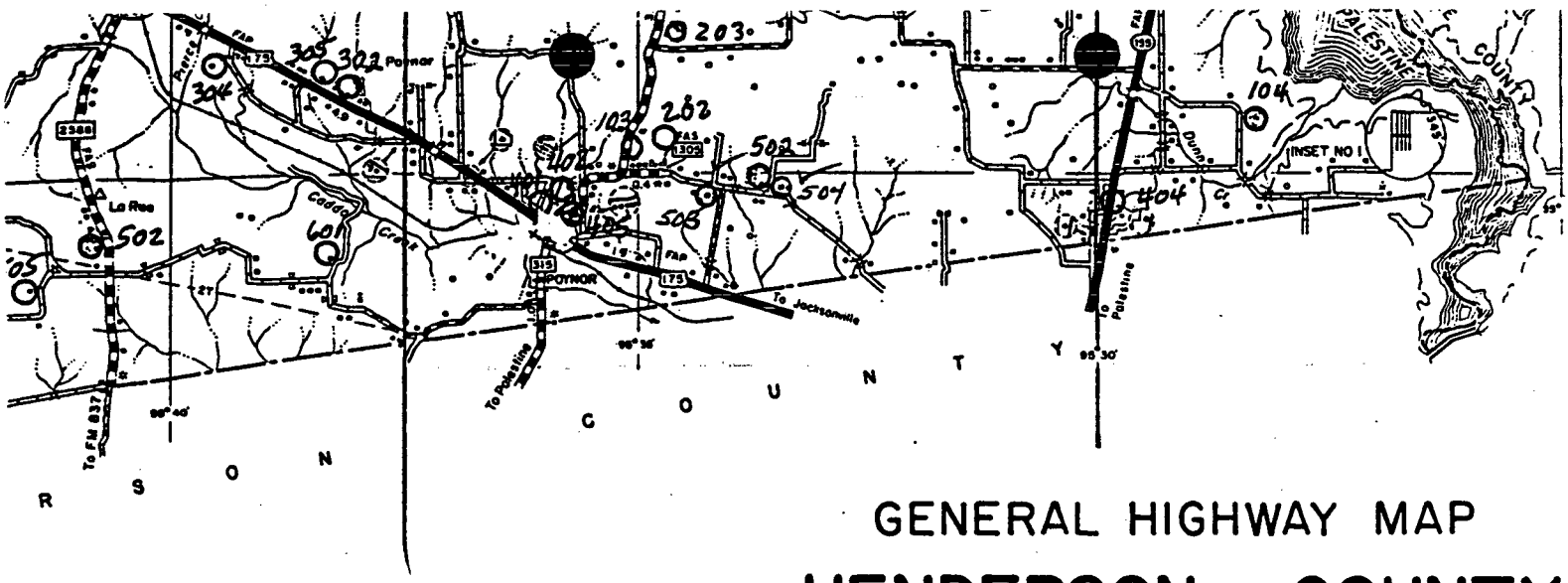
	124WLCX	859	08/25/1965						8.2		15	1	63			0	156	10	26	0.2	2.0	193	357	44
34 50 201	124WLCX	649	05/02/1949						7.9	15	15	2	52	2		0	132	40	9	0.2	1.2	201	323	46
	124WLCX	649	05/01/1961						7.8	15	14	2	54			0	133	40	8	0.1	0.2	198	321	[illegible]
	124WLCX	649	06/14/1977					24	8.4	14	16	3	51			1	134	40	8	0.1	0.6	197	325	[illegible]
	124WLCX	649	06/07/1982					26	8.1	15	14	2	51			0	132	39	7	0.1	0.0	193	328	45
	124WLCX	649	11/06/1986					25	8.2	15	15	1	52	2		0	134	39	6	0.1	0.0	196	322	44

204

GROUND WATER QUALITY SAMPLES
COUNTY - Henderson

Well	Aquifer	Well Depth (Feet)	Date of Collection	Agency Code	Lab Code	Relia-bility Code	Temp. Deg. C	pH	Silica (SiO2) MG/L	Calcium (Ca) MG/L	Magnesium (Mg) MG/L	Sodium (Na) MG/L	Potassium (K) MG/L	Carbonate (CO3) MG/L	Bicarb. (HCO3) MG/L	Sulfate (SO4) MG/L	Chloride (Cl) MG/L	Fluoride (F) MG/L	Nitrate (NO3) MG/L	Dissolved Solids MG/L	Spec. Cond. (micromhos)	Hardness as CaCO3 MG/L
34 49 505	124WLCX	43	02/07/1936 U							46	30			0	67	37	98			244		239
34 49 506	124WLCX	82	02/07/1936 U								87	166		0	85	257	270			822		
34 49 507	124WLCX	42	02/07/1936 U							58	39	242		0	61	95	485			948		305
34 49 508	124WLCX	54	02/07/1936 U							69	23	160		0	67	31	375			690		267
34 49 509	124WLCX	378	03/02/1983					7.6		8	2	60		0	161	8	13	0.4	0.0	170	300	28
34 49 603	124WLCX	465	09/11/1970				23	8.1	13	5	2	54		0	143	11	5	0.1	0.4	160	258	20
34 49 606	124CRRZ	23	03/13/1936 U							19	6	2		0	67	5	14			78		71
34 49 702	124WLCX	380	10/05/1970				23	8.3	15	2	1	91		0	222	8	14	0.1	0.4	240	390	11
34 49 703	124WLCX	44	04/21/1936 U							600	450	1090		0	274	2900	1830			7004		3350
34 49 704	124WLCX	21	04/02/1936 U								6	26		0	49	17	16			89		
34 49 806	124WLCX	445	05/00/1965 U					8.9	13	4	1	111			185	8	38	0.1		266		12
	124WLCX	445	05/05/1965 U					8.4		4	1	105			227	7	33	0.2	0.4	262	472	13
34 49 807	124WLCX	365	10/02/1970				21	8.2	18	10	2	38		0	127	5	6	0.1	0.4	141	217	34
34 49 808	124WLCX	251	10/07/1970				22	7.3	35	26	7	26		0	129	5	27	0.3	0.4	190	302	95
34 49 809	124WLCX	50	04/02/1936 U											0	440	28	110			578		
34 49 903	124RKLW	40	03/05/1936 U								5	9		0	6	5	25			42		
34 50 101	124WLCX	732	09/27/1950 U					8.3	12	3	0	71			161	7	5	12.0		189		12
	124WLCX	732	08/25/1965					8.1		4	2	101		0	188	5	51	0.2	0.4	258	483	19
	124WLCX	732	02/11/1972				21	8.5	5	16	2	7		1	34	10	16	0.1	0.4	74	140	47
	124WLCX	732	06/03/1975				23	8.1	16	8	1	68	1	0	171	6	12	0.3	0.5	194	315	23
	124WLCX	732	11/04/1986				24	8.2	17	4	1	64	1	0	160	7	11	0.2	0.0	183	300	12
34 50 102	124WLCX	794	05/02/1936 U							24	5	24		0	134	5	16			139		81
34 50 103	124WLCX	800	05/19/1949 U					8.0	28	2	0	71		0	156	4	3	16.0		201		9
34 50 104	124WLCX	859	03/17/1954 U					8.0	15	18	3	8		0	60	4	9			86		57
	124WLCX	859	03/20/1954 U					8.3	16	3	1	118			120	0	112			311		12

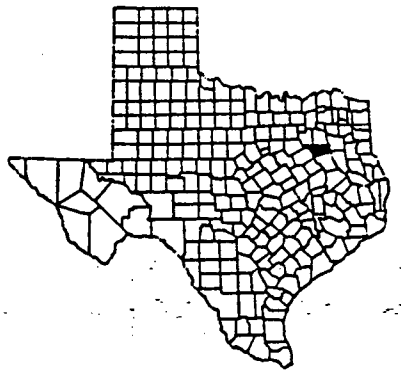
* Depth value here reflects the bottom of the SAMPLED INTERVAL which was different from the completed well depth
U after date of collection signifies unbalanced or partial chemical analysis



GENERAL HIGHWAY MAP

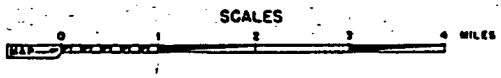
HENDERSON COUNTY TEXAS

PREPARED BY THE
TEXAS STATE HIGHWAY DEPARTMENT
PLANNING SURVEY DIVISION
IN COOPERATION WITH THE
U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION



KEY TO COUNTIES

SCALES



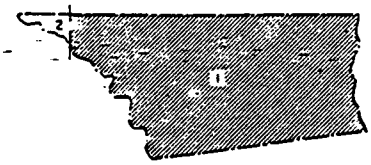
1965

1960 CENSUS FIGURES

HIGHWAYS REVISED TO SEPTEMBER 1, 1970

ION NORTH AMERICAN DATUM

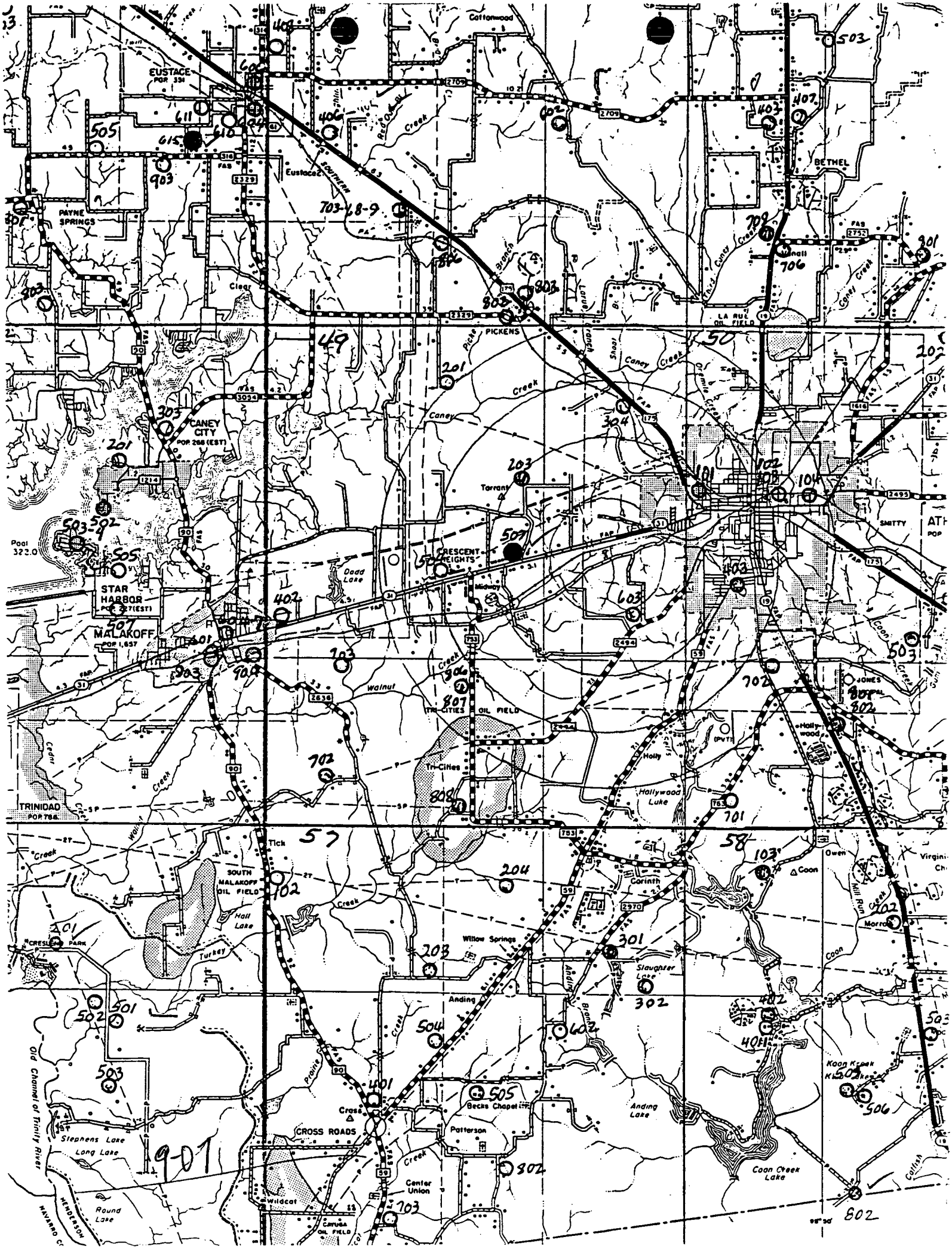
rey and U. S. Geological Survey. Compiled
radial triangulation and sketchmaster.
checked:1965 Photographs:1940-69



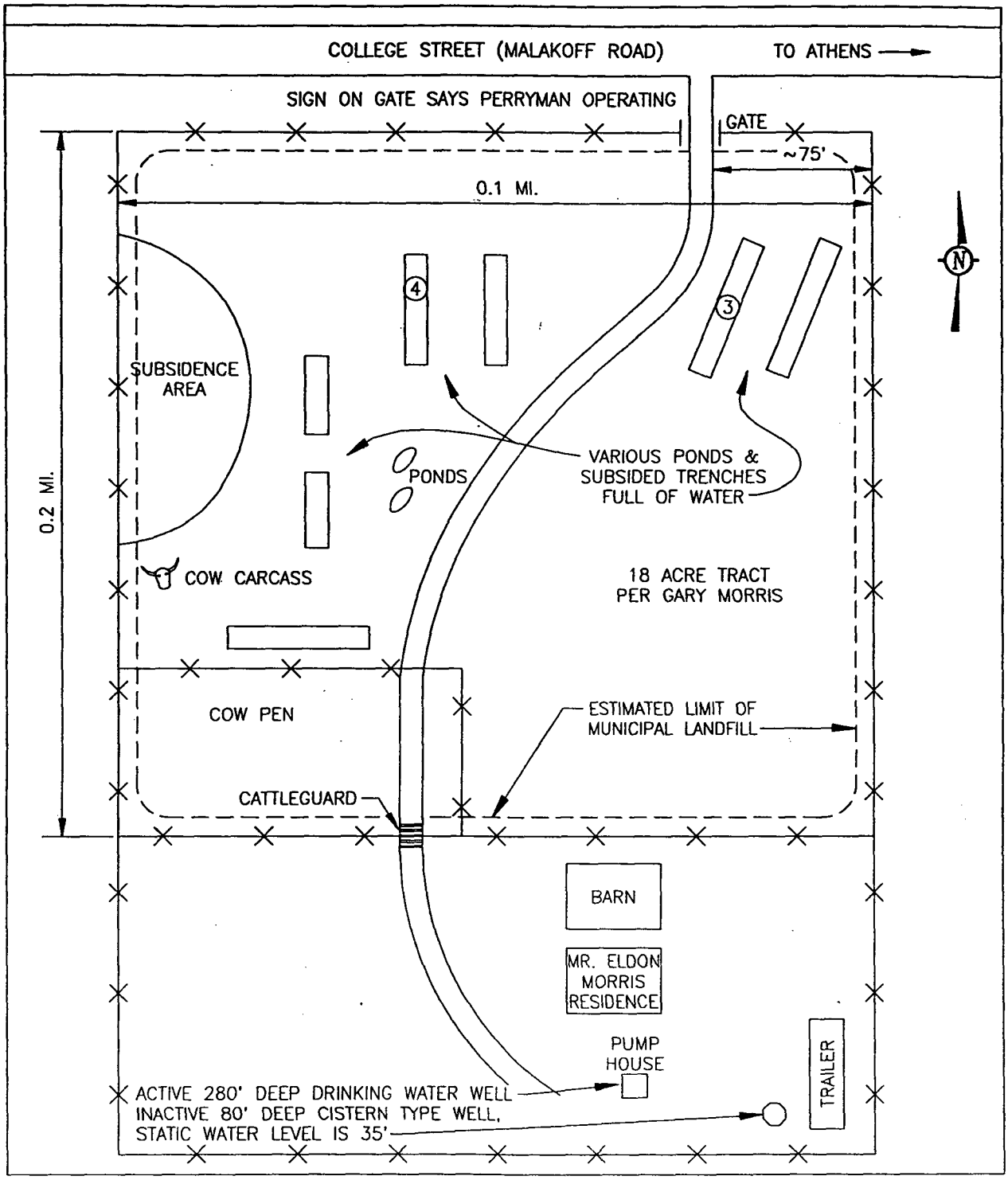
KEY TO SHEETS

Sheet 1 of 2 base sheets and 3 supplementary she

9-06



EUSTACE
POP 331
Cottonwood
BETHEL
PAYNE SPRINGS
Eustace
Clear
PICKENS
LA RUE OIL FIELD
CANEY CITY
POP 268 (EST)
Tarrant
CRESCENT HEIGHTS
Midway
Dodd Lake
STAR HARBOR
POP 227 (EST)
MALAKOFF
POP 1,657
Pool 322.0
TRI-CITIES OIL FIELD
Tri-Cities
Holly
Hollywood Lake
Hollywood
JONES
SMITTY
TRINIDAD
POP 786
Tick
SOUTH MALAKOFF OIL FIELD
Hall Lake
Corinth
Coon
Owen
Willow Springs
Slaughter Lake
Anding
Anding Lake
Becks Chapel
Patterson
CROSS ROADS
Cross
Center Union
Wildcat
CAYUGA OIL FIELD
Stephens Lake
Long Lake
Round Lake
Old Channel of Trinity River
Coon Creek Lake
Koon Creek
Mill Run
Virginia
Morrow
Turkey
Walnut
Creek
Caney
Third Caney Creek
Coon Creek
Cedar
Prairie
Anding Branch
Larue Branch
Shoal Br.
Red Oak Br.
Pickens Branch
Oremile Creek
Cattish
49
50
57
58
19-07



LEGEND:

- STRUCTURE
- ROAD
- FENCE
- CISTERN TYPE WELL
- PHOTO LOCATIONS

NOT TO SCALE

FLUOR DANIEL

FIGURE 2B
SITE SKETCH
CITY OF ATHENS (MALAKOFF ROAD)
SOUTHERN HALF OF THE SITE
ATHENS, TEXAS

CAD FILE No. FIG-2B

9-08

CITY OF ATHENS #1, #2
SITE RECONNAISSANCE
NOTEBOOK
FLUOR DANIEL INC

SITE INSPECTION
PROJECT

BOORUM & PEASE
B&P

Composition Book • 9¾ in. x 7½ in.

Available As:

Item No.	Sheets	Ruling
09-9130	60	College Ruled & Margin
09-9132	60	College Ruled & Margin & Paged
09-9134	100	College Ruled & Margin

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9-09

Mark A. McDonnell Jean Koeninger
Wed May 5, 1993.

5:00 left Malakoff site and drove west looking for water wells. Nearest ~~[illegible]~~ 0.75 miles take left go 0.35 mi to house and trailer these wells will likely be downgradient wells at 471T.
Nearest well to North is at residence visible from site entrance. Nearest to east is new log home being constructed along Malakoff Road.

Log cabin and potential upgradient well is 0.45 miles to east but creek aquitard is present, aquifer discontinuity.

0.25 miles south of 466T has potential upgradient well also

Directions to site, take malakoff/College St.

M. McDonnell

9-10

Mark McDonnell, Jean Koeninger, Fluor Daniel
Thur May 6, 1993.

Directions to Malakoff Rd. Take 31 Corsicana
west from town to AARON St and go left.
(Gary's Paint & Body Shop) Go south on AAron
to Malakoff Rd College St and go Right 1.55 miles
to Perryman Operating Company Inc. E.O Fisher Unit well #1.

8:20 Stopped at Gary's Paint & Body Shop
Mr. Herriage told us yesterday that
the owners of the property S. of Malakoff Rd
were here.

Gary Morris his dad lives on property.
Owner is Eldon Morris 677-3648
Gary can get us on the property. Colorcancer
Landfill contents have sunk 1 to 5
little or no cover. Access through
Perryman gate. Has a 80 to 90 ft well
which became unusable due to parasites and
675-8778 677-2668 Gary.
excessive sediment. This was his
domestic well and he had to put
in a 300' well and. There is no soil cover
and we will verify this. Mr. Morris
Several cows have died drinking low
spot leachate but not sure.

9-11

Mark McDonnell Jean Koeninger Fluor Daniel
Thursday May 6, 1993

Met with Eldon Morris. Cows have drank water from sinkholes. Landfill trenches do not extend South of fenceline at middle of property.

Photo 8 and 7 of cistern type well. Looking south and down. 9:30 am. W.L. ~ 35' deep in cistern.

Photo 6 and 5 looking west and down at deep well outlet. Photo 4 and 3 looking NW at cows grazing, not fill area but they are also kept next door on fill area

Panoramic #15 looking north from point ① on map.
Panoramic #14 9:40 looking due north at differential settlement and overall subsidence, trash tires and debris at surface but no proper cap.

Photos 2 and 1 at 9:50 looking ~~south~~ north at ③ and 4 at trench settlement

10:00 am now at fill area N. of Malakoff
10:15 camera #3 Photo slab looking west and buses from slab looking east. 24 & 23

REFERENCE 10

United States Department of Commerce, County and City Data Book, 1988.

A Statistical Abstract Supplement

County and City Data Book

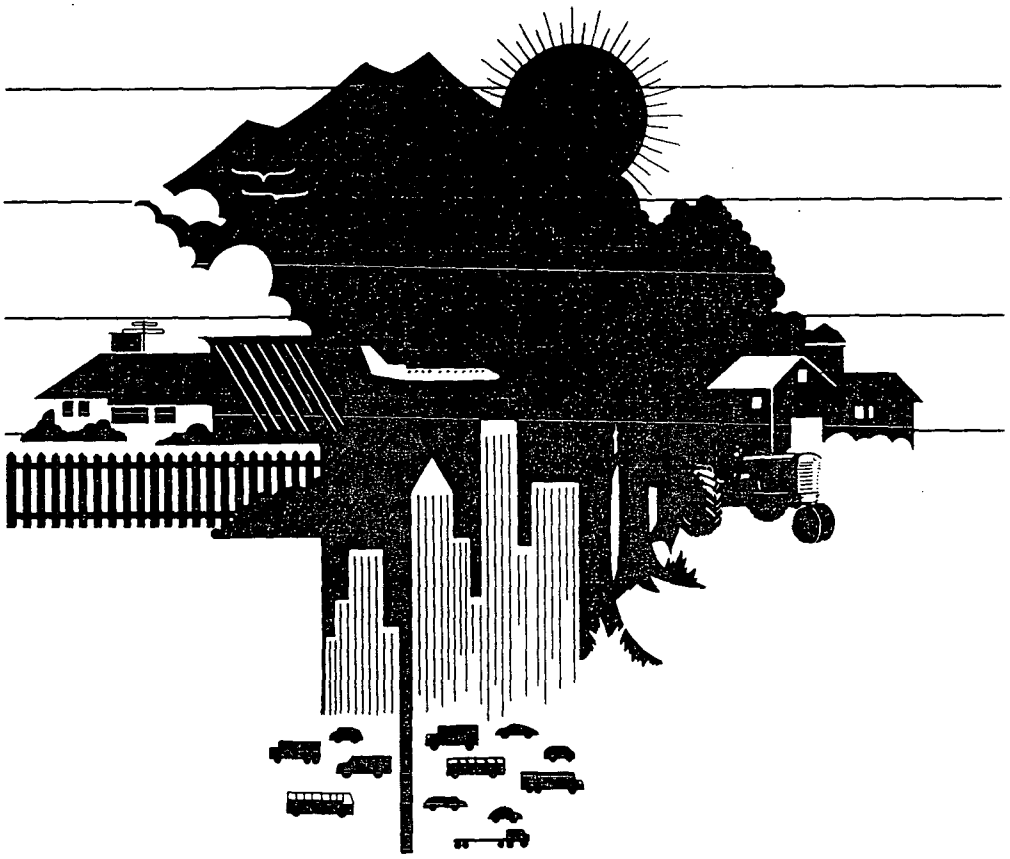
1988

States

Counties

Cities of 25,000 or More

Places of 2,500 or More



U.S. Department of Commerce

C. William Verity, Secretary
Donna C. Tuttle, Deputy Secretary
Robert Ortner, Under Secretary for Economic Affairs

BUREAU OF THE CENSUS
John G. Keane, Director

County	Population characteristics—Con.												Households					
	1984—Con.									1980			1985			1980		
	Percent—									Percent—							Percent—	
	Under 5 years	5 to 14 years	15 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 to 74 years	75 years and over	American Indian, Eskimo, and Aleut	Asian and Pacific Islander	Hispanic[1]	Number	Percent change, 1980-1985	Persons per household	Number	Female family householder[2]	One-person[3]
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
TEXAS—Con.																		
Falls	S	S	S	S	S	S	S	S	S	.14	.12	9.42	6 800	-1.8	2.53	6 920	10.6	29.5
Fannin	6.9	14.2	11.9	11.5	12.0	10.0	11.7	12.0	9.9	.25	.11	1.33	9 300	.8	2.54	9 267	6.8	25.2
Fayette	S	S	S	S	S	S	S	S	S	.14	.06	5.14	7 900	5.4	2.56	7 487	5.7	26.0
Fisher	S	S	S	S	S	S	S	S	S	.17	.10	18.79	2 100	-4.7	2.67	2 204	4.4	23.9
Floyd	S	S	S	S	S	S	S	S	S	.23	.12	33.89	3 100	-6.4	2.88	3 307	5.2	20.4
Foard	S	S	S	S	S	S	S	S	S	.19	.09	11.03	700	-14.4	2.48	860	7.1	28.0
Fort Bend	10.9	18.4	13.0	25.0	16.2	7.4	5.1	2.5	1.5	.21	2.85	20.37	57 600	44.5	3.15	39 840	6.8	12.0
Franklin	S	S	S	S	S	S	S	S	S	.26	.15	1.13	2 700	4.0	2.59	2 616	5.0	22.0
Freestone	S	S	S	S	S	S	S	S	S	.15	.24	2.03	6 400	14.9	2.58	5 608	8.3	26.0
Frio	S	S	S	S	S	S	S	S	S	.17	.12	68.39	4 100	1.6	3.48	4 041	10.4	18.1
Gaines	S	S	S	S	S	S	S	S	S	.23	.13	30.63	4 500	8.0	3.23	4 190	5.0	16.9
Galveston	8.4	15.1	16.9	18.5	13.1	9.9	8.9	5.7	3.4	.27	.90	12.02	77 400	11.7	2.72	69 284	10.5	21.3
Garza	S	S	S	S	S	S	S	S	S	.41	.24	24.33	1 900	5.3	2.80	1 842	7.7	19.7
Gillespie	S	S	S	S	S	S	S	S	S	.14	.03	10.04	6 200	18.0	2.44	5 219	5.5	22.3
Glasscock	S	S	S	S	S	S	S	S	S	.15	.08	28.83	400	-9.3	3.48	387	2.1	15.2
Goliad	S	S	S	S	S	S	S	S	S	.08	.08	35.61	1 900	8.5	2.91	1 777	6.2	20.4
Gonzales	S	S	S	S	S	S	S	S	S	.08	.07	28.80	6 600	10.9	2.78	5 949	9.1	24.7
Gray	9.8	13.3	14.2	15.1	11.7	10.5	10.3	8.7	6.3	.59	.33	4.41	10 500	3.1	2.53	10 224	5.8	22.7
Grayson	7.4	14.6	14.5	15.1	13.2	9.4	10.3	8.7	6.8	.70	.21	1.50	36 800	8.4	2.56	33 972	8.3	23.2
Gregg	8.5	15.2	16.6	17.3	13.1	9.4	8.8	6.4	4.7	.36	.39	2.02	41 200	14.7	2.67	35 884	9.0	21.8
Grimes	S	S	S	S	S	S	S	S	S	.03	.10	9.07	5 800	20.3	2.86	4 857	11.5	23.8
Guadalupe	7.6	15.7	16.0	15.9	14.1	10.1	9.2	6.7	4.6	.24	.45	25.42	19 000	21.1	2.83	15 733	8.3	18.4
Hale	9.8	17.2	17.0	14.3	11.5	10.0	8.2	7.0	5.0	.24	.26	33.74	12 400	.5	2.91	12 385	6.9	18.9
Hall	S	S	S	S	S	S	S	S	S	.13	.07	15.05	2 000	-7.2	2.36	2 175	4.9	27.6
Hamilton	S	S	S	S	S	S	S	S	S	.16	.19	2.13	3 300	-4.7	2.34	3 423	4.8	27.1
Hansford	S	S	S	S	S	S	S	S	S	.40	.24	11.95	2 400	6.0	2.71	2 269	4.8	20.9
Hardeman	S	S	S	S	S	S	S	S	S	.44	.08	8.01	2 400	-2.7	2.62	2 476	6.1	27.0
Hardin	8.7	17.5	14.4	17.2	13.2	9.6	8.9	6.4	4.1	.10	.09	1.40	14 700	7.2	2.89	13 727	7.4	16.6
Harris	8.8	14.9	18.4	22.9	14.0	8.6	6.5	3.6	2.2	.22	1.92	15.32	1 035 800	19.1	2.67	869 882	10.0	24.3
Harrison	9.1	16.9	14.7	15.3	13.5	9.1	8.6	7.3	5.5	.18	.12	1.53	19 900	10.5	2.83	18 049	10.7	21.6
Hartley	S	S	S	S	S	S	S	S	S	.20	.03	4.46	1 300	-6.4	2.73	1 361	3.9	14.6
Haskell	S	S	S	S	S	S	S	S	S	.22	.16	15.47	2 900	-3.6	2.48	2 981	5.0	24.1
Hays	6.4	13.3	32.6	15.1	10.8	7.0	7.1	4.7	2.9	.20	.30	30.51	18 700	48.4	2.78	12 583	6.9	20.1
Hemphill	S	S	S	S	S	S	S	S	S	.49	.11	10.28	1 800	-3.6	2.94	1 837	4.5	18.7
Henderson	6.8	13.8	13.4	12.0	11.6	11.2	14.8	10.8	5.6	.22	.14	1.45	20 000	24.1	2.57	16 087	6.8	20.3
Hidalgo	9.6	21.6	17.9	15.1	11.4	8.0	7.8	5.4	3.2	.10	.15	81.28	99 800	31.6	3.54	75 816	12.1	13.3
Hill	7.8	13.7	13.0	12.5	11.0	9.4	11.9	11.9	8.8	.18	.16	5.65	10 500	8.9	2.52	9 683	7.3	26.1
Hockley	11.2	19.2	17.4	16.0	12.1	7.5	6.7	6.2	3.6	.31	.05	27.03	7 800	4.4	3.11	7 522	5.7	17.5
Hood	7.3	13.8	13.0	16.1	12.2	10.8	12.9	9.4	4.5	.34	.20	2.68	9 700	43.6	2.60	6 759	5.0	17.2
Hopkins	8.1	14.3	15.2	14.8	13.2	8.6	9.6	9.4	6.8	.14	.11	1.57	10 900	14.2	2.60	9 528	7.5	22.3
Houston	7.7	13.6	12.7	15.6	11.4	10.9	10.1	10.1	7.8	.16	.11	3.63	7 500	4.7	2.62	7 204	10.6	24.9
Howard	7.6	15.4	16.3	13.3	12.2	11.2	12.5	6.9	4.6	.36	.49	21.05	13 300	11.4	2.62	11 965	7.8	21.9
Hudspeth	S	S	S	S	S	S	S	S	S	.44	.15	58.25	700	-9.9	3.41	822	7.9	15.0
Hunt	7.6	14.3	17.2	14.4	13.1	10.4	9.5	7.8	5.6	.31	.28	2.39	24 600	20.8	2.58	20 331	7.7	23.8
Hutchinson	9.8	15.4	13.1	18.4	11.1	9.3	10.3	8.2	4.3	.83	.33	4.80	10 200	3.4	2.72	9 837	4.8	20.0
Irion	S	S	S	S	S	S	S	S	S	.14	-	18.54	700	36.8	2.82	507	4.5	22.1
Jack	S	S	S	S	S	S	S	S	S	.45	.18	1.31	2 900	-.1	2.61	2 894	4.7	23.7
Jackson	S	S	S	S	S	S	S	S	S	.08	.04	18.68	4 600	-.8	2.88	4 685	8.0	20.7
Jasper	8.1	17.3	14.6	13.8	12.4	9.8	9.9	8.3	5.8	.10	.07	1.24	11 100	4.0	2.87	10 708	8.1	19.5
Jeff Davis	S	S	S	S	S	S	S	S	S	.18	.06	47.18	600	5.9	2.79	592	5.9	22.0
Jefferson	8.5	14.5	17.4	16.8	11.5	9.6	10.0	7.0	4.7	.18	1.06	4.10	91 700	1.6	2.71	90 245	10.6	22.2
Jim Hogg	S	S	S	S	S	S	S	S	S	-	.02	90.54	1 600	1.9	3.41	1 564	11.9	14.9
Jim Wells	10.6	19.0	16.3	15.7	11.6	8.5	8.3	6.4	3.6	.10	.11	67.18	12 300	10.2	3.25	11 165	9.4	16.1
Johnson	8.5	16.9	15.3	16.3	15.2	9.1	7.9	6.0	4.8	.19	.20	4.10	29 900	29.2	2.89	23 122	6.7	17.2
Jones	S	S	S	S	S	S	S	S	S	.24	.34	14.66	6 800	6.4	2.62	6 367	6.4	23.7
Karnes	S	S	S	S	S	S	S	S	S	.07	.12	42.99	4 400	-3.2	3.00	4 522	9.2	20.6
Kaufman	8.2	16.7	13.3	15.9	13.4	10.5	8.5	7.8	5.8	.17	.22	4.24	16 700	26.9	2.84	13 154	9.5	20.6
Kendall	S	S	S	S	S	S	S	S	S	.24	.19	13.22	5 000	32.7	2.67	3 801	6.4	20.1
Kenedy	S	S	S	S	S	S	S	S	S	.74	-	82.87	200	13.1	3.18	169	3.6	18.9
Kent	S	S	S	S	S	S	S	S	S	-	.09	7.77	400	1.9	2.60	431	3.0	20.4
Kerr	6.6	11.8	11.9	12.4	10.3	10.0	13.3	13.8	9.8	.22	.23	13.47	13 800	23.6	2.42	11 171	7.2	23.6
Kimble	S	S	S	S	S	S	S	S	S	.05	.02	17.40	1 700	10.9	2.39	1 564	7.0	24.1
King	S	S	S	S	S	S	S	S	S	.24	-	9.65	100	-5.6	2.75	154	2.6	20.8
Kinney	S	S	S	S	S	S	S	S	S	.53	.13	57.48	800	7.9	2.90	771	7.5	21.0
Kleberg	9.7	16.3	23.1	18.4	9.7	8.2	7.1	4.4	3.1	.22	1.41	52.19	11 000	7.3	2.95	10 280	9.3	19.3
Knox	S	S	S	S	S	S	S	S	S	.11	.08	17.70	2 100	4.5	2.52	2 042	6.5	24.2
Lamar	7.1	15.3	16.5	12.0	13.4	9.2	10.1	9.3	7.1	.51	.22	.90	16 800	6.7	2.62	15 710	9.6	24.5
Lamb	S	S	S	S	S	S	S	S	S	.29	.10	30.39	5 800	-9.0	2.88	6 408	6.2	19.8
Lampasas	S	S	S	S	S	S	S	S	S	.24	.84	10.70	5 400	22.9	2.50	4 414	7.0	23.1
La Salle	S	S	S	S	S	S	S	S	S	.07	.11	73.70	1 900	11.0	2.96	1 726	10.6	20.8
Lavaca	S	S	S	S	S	S	S	S	S	.17	.18	6.92	6 800	-5.0	2.66	7 150	6.9	25.1
Lee	S	S	S	S	S	S	S	S	S	.24	.18	6.02	4 700	21.4	2.77	3 856	6.3	22.8

[1]Hispanic persons may be of any race. [2]No spouse present. [3]Householder living alone.

REFERENCE 11

Record of Communication. From: Mark A. McDonnell, Fluor Daniel, Inc., To: Don Herriage, City of Athens Assistant City Manager, April 13, 1993.

FLUOR DANIEL, INC.

RECORD OF TELEPHONE COMMUNICATION

DATE: April 13, 1993

TIME: 10:00 a.m.

PERSON CONTACTED: Mr. Don Herriage

AGENCY: City of Athens
Assistant City Manager

PHONE NUMBER: (903) 675-9225

I spoke to Mr. Herriage today and he said he has a copy of the city water distribution system for drinking water. He also said the supply wells for the system were completed below 600 feet. Also, Velvin & Weeks are the engineer for the Malakoff Road site.

Mark McDonnell

REFERENCE 12

Record of Communication. From: Mark A. McDonnell, Fluor Daniel, Inc., To: David Terry, Texas Water Commission, May 7, 1993.

RECORD OF TELEPHONE CONVERSATION

JS on behalf of Mark A. McDonnell

From: Mark McDonnell **Date:** 05-07-93

Location: FDI, Dallas **Time:** 10:30

Subject: Athens Landfill #1, #2

To: Dave Terry **Number:** (512) 463-8266

Location: Texas Water Commission

Other Ref.:

Spoke to Mr. Dave Terry with the Texas Water Commission 512-463-8266. I asked him if there were any wellhead protection areas for the City of Athens. He checked the TWC Wellhead protection database and confirmed that there was no wellhead protection areas in the vicinity.

REFERENCE 13

United States Department of Agriculture, Soil Conservation Service, Soil Survey of Henderson County, Texas, 1979.

SOIL SURVEY OF

Henderson County, Texas

United States Department of Agriculture
Soil Conservation Service

in cooperation with
Texas Agricultural Experiment Station

13-01

TABLE 1.--TEMPERATURE AND PRECIPITATION DATA

[Data were recorded in the period 1954-75 at Athens, Texas]

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days[1]	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January----	58.6	36.8	47.7	82	12	63	2.53	1.23	3.59	5	.4
February---	62.9	39.6	51.3	84	17	124	3.01	1.68	4.09	5	.3
March------	69.5	45.8	57.7	88	23	277	2.65	1.27	3.77	5	.0
April------	78.5	55.8	67.2	90	33	516	4.49	1.98	6.53	6	.0
May--------	84.6	62.5	73.6	94	46	732	5.15	2.59	7.23	5	.0
June-------	91.0	68.5	79.8	99	53	894	3.18	1.04	4.89	5	.0
July-------	96.1	71.6	83.9	106	61	1,051	1.52	.59	2.28	3	.0
August-----	95.8	70.7	83.3	105	59	1,032	2.47	.70	3.90	3	.0
September--	88.8	66.0	77.4	101	48	822	4.54	2.36	6.41	5	.0
October----	80.4	55.9	68.2	93	36	564	4.42	1.17	7.02	4	.0
November---	69.5	45.9	57.7	86	24	263	3.38	1.47	4.93	4	.0
December---	61.7	39.3	50.5	81	16	117	3.17	1.31	4.67	5	.1
Yearly:											
Average--	78.1	54.9	66.5	---	---	---	---	---	---	---	---
Extreme--	---	---	---	106	10	---	---	---	---	---	---
Total----	---	---	---	---	---	6,455	40.51	33.27	47.50	55	.8

[1]A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50° F).

13-02

REFERENCE 14

GEMS Computer Printout of Census Data for Henderson County, Texas, April 20, 1993.

COVERAGE

STATE	COUNTY	STATE NAME	COUNTY NAME
48	213	Texas	Henderson Co

CENTER POINT AT STATE : 48 Texas

COUNTY : 213 Henderson Co

REGION OF THE COUNTRY

Zipcode found: 75751 at a distance of 4.3 Km

STATE	CITY NAME	FIPSCODE	LATITUDE	LONGITUDE
TX	ATHENS	48213	32:11:30	95:53:45

14-01

CENSUS DATA

==========

Athens City Landfill (Malakoff Road)

LATITUDE 32:11:30 LONGITUDE 95:53:45 1990 POPULATION

MI	0.00-0.25	0.25-0.50	0.50-1.00	1.00-2.00	2.00-3.00	3.00-4.00	SECTOR TOTALS
S 1	0	0	0	0	0	0	0
S 2	0	0	43	4,214	1,765	5,470	11,492
S 3	0	0	0	0	0	0	0
S 4	0	0	0	0	0	0	0
RING TOTALS	0	0	43	4,214	1,765	5,470	11,492

14-02

14-03

STAR STATION

WBAN NUMBER	STATION NAME	LATITUDE	LONGITUDE	PERIOD OF RECORD	DISTANCE (km)
13972	TYLER/POUNDS TX	32.3667	95.4000	1950-1954	50.5
13960	DALLAS/LOVE TX	32.8500	96.8500	1967-1971	115.5
03927	FT WORTH/REGIONAL TX	32.9000	97.0333	1957-1971	132.4
13959	WACO TX	31.6167	97.2167	1969-1973	140.0
93987	LUFKIN/ANGELINA CO TX	31.2333	94.7500	1967-1971	151.9
13923	SHERMAN/PERRIN TX	33.7167	96.6667	1966-1976	184.0
13957	SHREVEPORT LA	32.4667	93.8167	1970-1974	197.6

14-04

U.S. SOIL DATA

==========

STATE : TEXAS

LATITUDE : 32:11:30 LONGITUDE : 95:53:45

THE STATION IS INSIDE H.U. 12030107

GROUND WATER ZONE	:	10			
RUNOFF SOIL TYPE	:	2			
EROSION	:	1.1210E-03			CM/MONTH
DEPTH TO GROUND WATER BETWEEN	:	3.0480E+02	AND	1.5240E+03	
FIELD CAPACITY FOR TOP SOIL	:	7.2000E-02			
EFFECTIVE POROSITY BETWEEN	:	2.0000E-02	AND	3.0000E-01	
SEEPAGE TO GROUNDWATER BETWEEN	:	4.6330E+03	AND	1.3900E+04	CM/MONTH
DISTANCE TO DRINKING WELL	:	2.8000E+04			CM

14-05

U.S. CITY

STATE	PLACE NAME	FIPSCODE	LATITUDE	LONGITUDE
TX	ATHENS	48213	32:11:30	95:53:45

REFERENCE 15

McDonnell, Mark A., Fluor Daniel, Inc., City of Athens Landfill (Malakoff Road) Site Inspection Sampling Field Logbook, 1993..

Mead

COMPOSITION

CITY OF ATHENS LANDFILL

MALAKOFF ROAD SI SAMPLING

wide ruled
100 sheets • (200 pages)
9¾ x 7½ in/24.7 x 19.0 cm

09910 © The Mead Corporation, Dayton, Ohio 45463

0 43100 09910 9

Mark A. McDonnell Page 1
6/28/93 Mon
George Farmer Fluor Daniel

4:30 pm Arrived and met with Eldon Morris. Explained Activities for the afternoon & tomorrow. Told him we will sample his water wells week of July 12. Told him he did not need to be present to sample. He said do what you like on his property and thanked us.

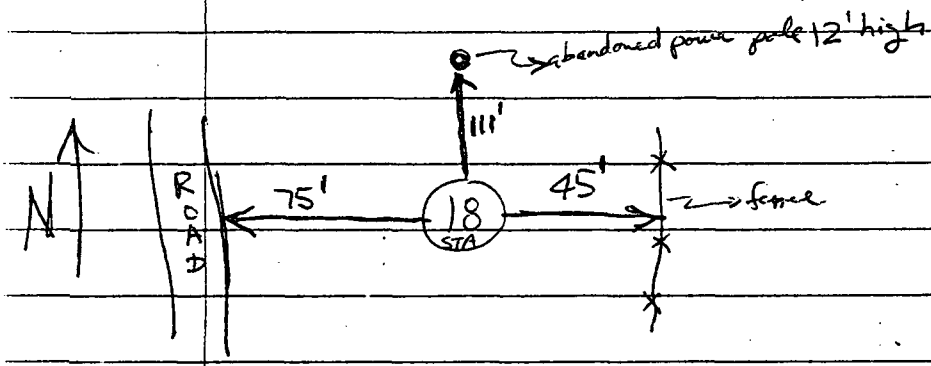
Measured distance from house to edge of fill at 0.1 mile.

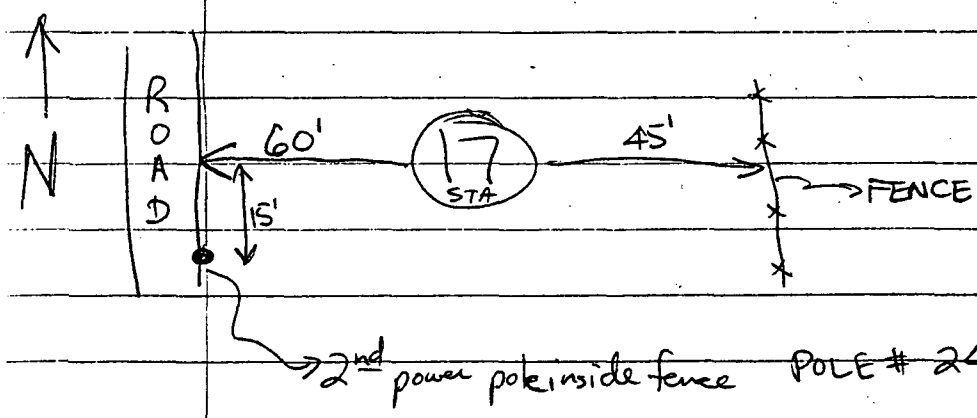
4:45 STAKed #19 STA19. ~10 uR/hour.

15 8-02

6/28/93 Mon Mark A. McDonnell Page 2

5:00 Flagged STA 17 and 18





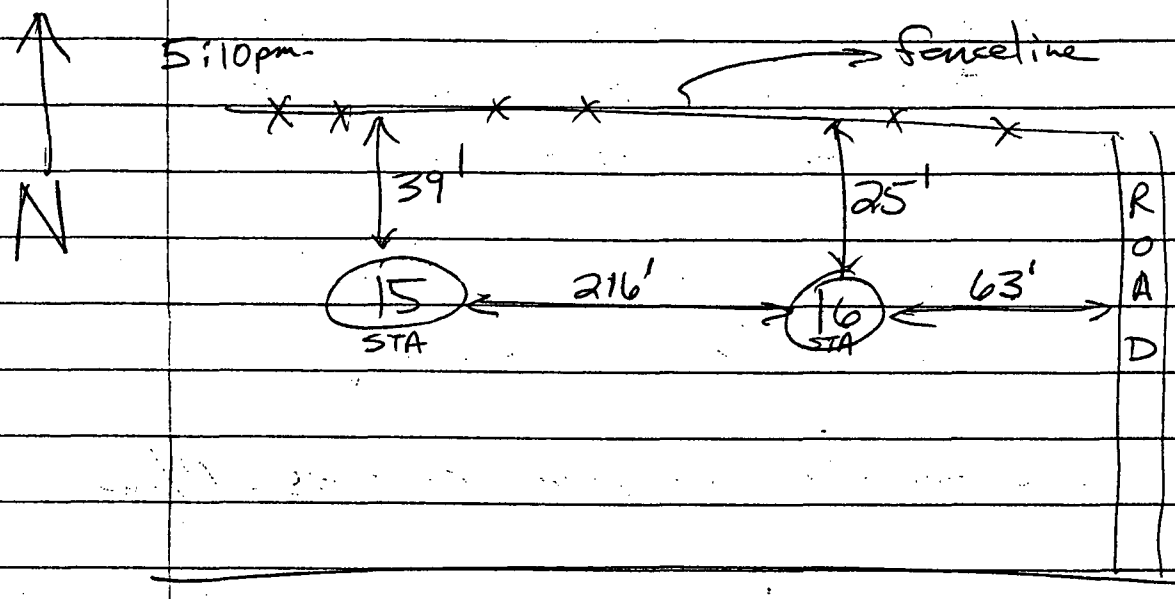
POLE # ~~2495 194 4054~~

Both locations moved into limits of fill inside depressed areas, former trenches.

158-03

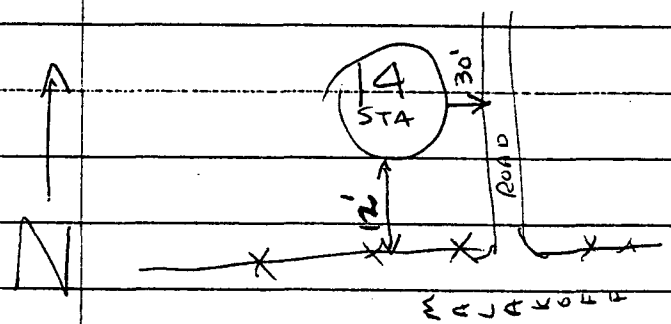
6/28/93 Mon Mark A. McConnell Page 3

5:10pm



5:20 Check Radiation levels near STA 15 & 16
& moved to North property ~10 uR/hour.

5:30 Marked STA 14 & checked for radiation.
~15 uR/hour



15 8-04

6/28/93 Mon. Mark McDonnel Page 4

5:45 Marked STA 5,6 Location is
33' South of Blacktop road and 9ft
west of westernmost tank.

6:00 Marked STA 07 changed to 45'.
west of drums. Site now overgrown.

Took mini rad to 5,6,7 STA ~ 10-15 μR/hour.

6:20 Marked STA 10,11,12,13 all located in
limits of ponds. Minirad gave similar
readings here as in the past.

15[illegible]-05

6/28/93 MON Mark McDonnell Page 5

Milikoff Punch list with sampling.

1. Cut and locate STA 8, 9.
2. Measure size of pond and stained areas estimate where overgrown.

6:30 pm left site

M.M.

15 06

6/29/93 Tue Mark McDonnell Page 6

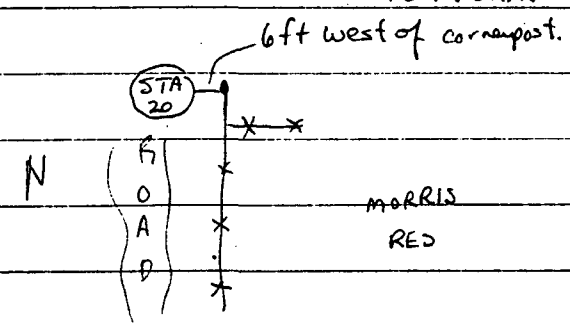
4:20 Arrived at ~~South~~ North m.m half and set up station w Jarrod Fugna, George Farmer. George cut brush at STA 8, 9 and set stakes.

4:35 Review plans and conducted H&S tailgate meeting

4:45 went to get keys from Gary Morris

5:28 TOOK SAMPLE STA 20. LOCATION BELOW:

SURFACE SOIL PER PLAN. SEE PHOTO 24 ON DEDICATED CAMERA.



5:38 TOOK SAMPLE STA 19. LOCATION IS HIGH POINT OF FENCED PARCEL DUE WEST (1:00) of MR. MORRIS RESIDENCE. DEPTH WAS SURFACE GRAB. (NOT PER PLAN) TO SATISFY Background Requirement for # 15, 16, 17, 18 which are also grab samples. SEE PHOTO 23

15
~~8~~-07

~~LOCATION DOCUMENT~~
DEPTH CHANGE

6/29/93 Tue Mark McDonnell page 7

5:50 pm STA 18 sample taken. surface grab inside subsided trench (not per plan). See photo 22.

5:56 pm. STA 17 sample taken. Surface grab inside trench not per plan. See photo 21.

6:07 pm STA 15 sample taken. Surface grab inside trench not per plan. See photo 20.

6:11 pm STA 16 sample taken. Surface grab inside trench not per plan. See photo 19.

6:30 Picked up and left site. MM & JF. George & Barry went to Tyler.

15
~~8~~-08

6/30/93 WED Mark A. McDonnel Page 8

8:08 am Station 12, photo 18 took sample of oily dirt.
Surface grab per plan.

8:10 am Station 13, photo 17 took sample of oily dirt
Surface grab per plan.

Note: this area is approx. 40 ft across and 75 feet long.

8:16 Station 11, photo 16 took sample of oily dirt
Surface grab per plan.

8:20 Station 10, photo 15 took sample of oily dirt
Surface grab per plan.

Note: Small pond size is 15' x 30'.

8:44 Station 14, photo 14 took background sample. Surface grab per plan.

15
~~8~~ 09

M.M.

~~5 9:15 PHOTO 12~~
~~6 9:15~~
~~7 9:04 PHOTO 13~~
8 9:41 PHOTO 11
9 9:46 PHOTO 10

6/30/93 WEO Mark A. McDonnell Page 9.

9:04 STATION 7 sample taken, oily mat area ~ 30'x40' estimated due to high grass. See photo 13. Soil underneath mat (thin mat.)

9:15 station 5, 6, 6 is duplicate, soil surface grab per plan. Soil is oily with odor. Tank area ~ 40'x50'. See photo 12

Note: 4 jars per sample today, 28oz, 24oz. all samples surface grab per plan.

Mark A. McDonnell

7/14/93 WED 10:35 am Page 10

10:35 am arrived at site with Jared Fagna and Keith Westberry.

Spoke to Mr Eldon Morris & told him we would pump out today & sample tomorrow. He said he would be here tomorrow during sampling.

12

39.8 Discussed procedures at tailgate meeting for health and safety briefing.

Prepping to ~~Sample~~ Pump out Sample #1 Well w/ pump. 39.8 ft is W/L to edge of casing 105' is TD. Inside diameter 2.5'

Recalibrated pH meter to 7.0 per book instructions, did not buffer.

15
8-11

7.50	7.03	6.92	6.85
7.36	7.03	6.93	6.93
7.07	6.97	6.94	
6.92	6.93	6.83	
6.90	6.88	6.88	

7/14/93 wed Mark A. McDonnell

Page 11

~~1.5~~ m.m.

Purging well at noon with decoved bucket.

12:00 noon

	1	1.5 gallons					manual pH #1
	2	1.5 gallons	Purges 3				
	3	1.5 gallons		22	1.0	23.5	
	4	2.5 gallons		23	1.5	25.0	
12:03	PH # 1			24	3.5	28.5	
	5	1.0 gallon		25	1.0	29.5	
	6	1.0 gallon		26	1.5	31.0	~~12:23~~ Took pH#
	7	1.0 gallon	10 gal	27.	1.0	32.0	
	8	1.5 gallon	11.5 cum	28.	2.0	34.0	
	9	1.0 "	12.5	29.	1.5	35.5	
	10	1.0 "	13.5	30	2.0	37.5	
	11	1.5 "	15.0	Took pH#2		12:10	
	12	1.0	16.0	31	1.5	39.0	
	17	1.5	17.5	32	1.0	40.0	
	18	1.0	18.5	33	1.0	41.0	
	19	1.5	20.0				
	20	1.0	21.0				
	21	1.5	22.5				

15

8-12

7/14/93 Wed Mark McDonnel

34	1.5	42.5	
35	1.0	43.5	
36	1.0	44.5	
37	1.5	46.0	12:34 Took pH #4

12:40 After temperatures equalized on all.
Samples 1-4 took pH's w 46 gallons purged

	pH	cond
#1	6.90	0.83
#2	6.88	0.84
#3	6.88	0.84
#4	6.95	0.83

7/15/93 Thur 7:15am Arrived at Site & Began prepping to take sample #1 and #2 duplicate from 80ft well. Station #3 will be matrix spiked duplicate (280 ft well).

DWØ1 80' well
DWØ2 80' well (dup)
DWØ3 280' well + MSD

Will use dedicated bailers on DWØ1 & DWØ2. DWØ3 will purge tap for 5 min prior to sampling.

7:20 is sample time for DWØ1 and DWØ2. See photo 19 for Documentation of both.

7:58 Sampled DWØ3 See photo 18.
8:15 Iced and Packed Samples. Left Morris residence to go to Meredith Res for remaining samples.

page 14

7/15/93 THUR 8:30 Mark A. McDonnell

420 TO 280 P 160. Arrived at Meredith residence at 8:25 am.
Prepping for sample 4 Background
4 Bg for Sand Flat and field Blank

STA 4 Bg Malakoff
STA 4 Bground Sand Flat
STA L21 Field Blank also for Malakoff Site.

L21 taken at 8:25 (Field Blank)
See Photo 17

STA4 taken at 8:26 (Sand Flat Bg)
See photo 16

STA ~~5~~ 4 mm taken at 8:35 (Malakoff Bground)
See photo ~~15~~ 16. mm.

Packed up and left Site 9:00 am
Back to Hotel to pack samples.

15
~~8~~-15

REFERENCE 16

Texas Parks and Wildlife Department, Texas Threatened and Endangered Species, 1992.

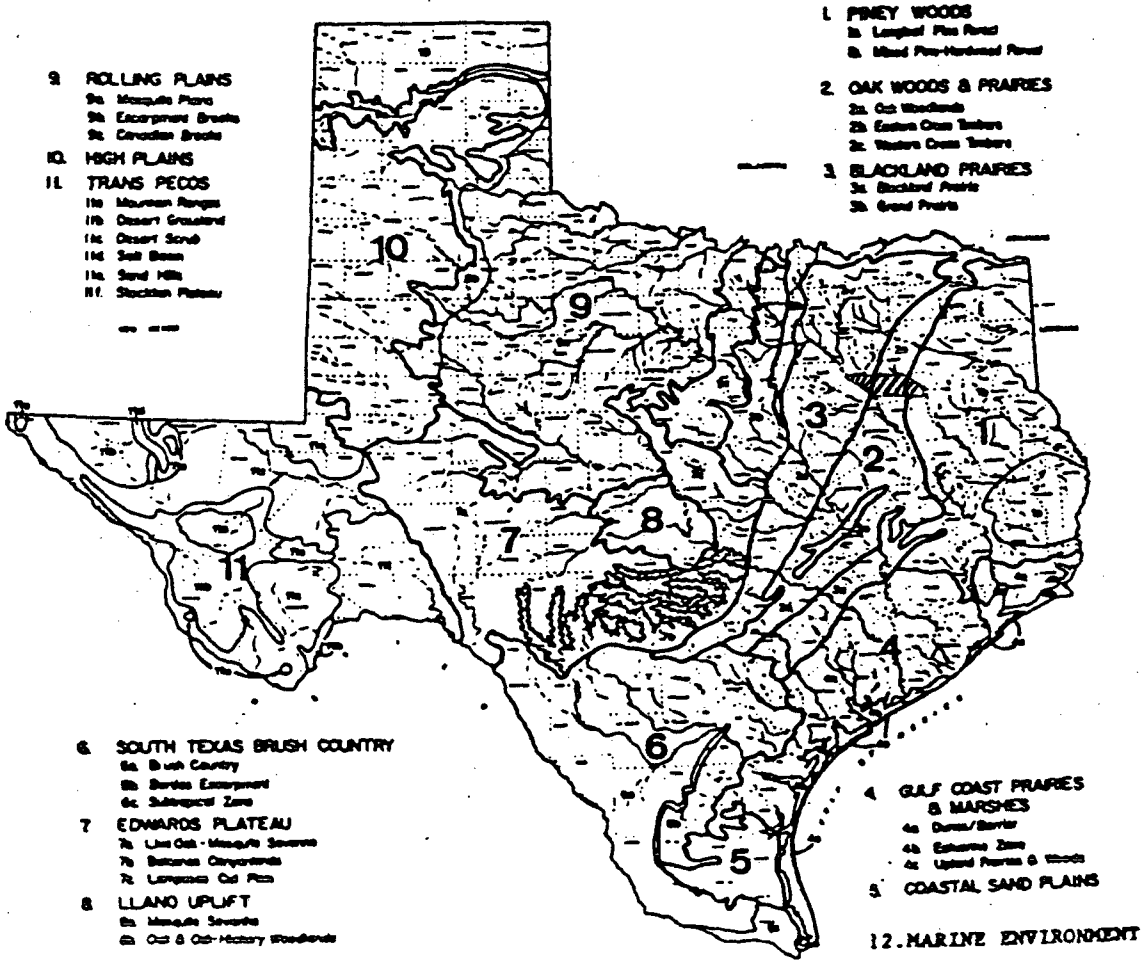
TEXAS THREATENED AND ENDANGERED SPECIES
January, 1992

ANIMALS
In 1973 the Texas legislature authorized the Texas Parks and Wildlife Department to establish a list of endangered animals in the state. Endangered species are those species which the Executive Director of the Texas Parks and Wildlife Department has named as being "threatened with statewide extinction". Threatened species are those species which the TPW Commission has determined are likely to become endangered in the future. Laws and regulations pertaining to endangered or threatened animal species are contained in Chapters 67 and 68 of the Texas Parks and Wildlife (TPW) Code and Sections 65.171 - 65.184 of Title 31 of the Texas Administrative Code (T.A.C.).

PLANTS
In 1988 the Texas legislature authorized the Department to establish a list of threatened and endangered plant species for the state. An endangered plant is one that is "in danger of extinction throughout all or a significant portion of its range". A threatened plant is one which is likely to become endangered within the foreseeable future. Laws and regulations pertaining to endangered or threatened plant species are contained in Chapter 88 of the TPW Code and Sections 69.01 - 69.14 of the T.A.C.

REGULATIONS
TPWD regulations prohibit the taking, possession, transportation, or sale of any of the animal species designated by state law as endangered or threated without the issuance of a permit. State laws and regulations prohibit commerce in threatened and endangered plants and the collection of listed plant species from public land without a permit issued by TPWD. In addition, some species listed as threatened or endangered under state law are also listed under federal regulations. These animals are provided additional protection by the U.S. Fish and Wildlife Service.

LISTING AND RECOVERY
Listing and recovery of endangered species in Texas is coordinated by the Resource Protection Division. The Department's Legal Division is responsible for the issuance of permits for the handling of listed species. The following pages list those species which have been designated as threatened or endangered in Texas. The range of the species within the state can be referenced by the map of Texas natural regions below:



1601

COMMON NAME	SCIENTIFIC NAME	STATE STATUS	FEDERAL STATUS	ECOREGIONS OF OCCURRENCE
***MAMMALS				
Bats				
MEXICAN LONG-NOSED BAT	LEPTONYCTERIS NIVALIS	E	LE	11
SOUTHERN YELLOW BAT	LASIURUS EGA	T		6
SPOTTED BAT	EUDERMA MACULATUM	T	C2	11
EASTERN BIG-EARED BAT	PLECOTUS RAFINESQUII	T	C2	1
Rodents				
TEXAS KANGAROO RAT	DIPODOMYS ELATOR	T	C2	9
COUE'S RICE RAT	ORYZOMYS COUESI	T	C2	6
PALO DURO MOUSE	PEROMYSCUS TRUEI COMANCHE	T	C2	10
Marine Mammals				
GERVAIS' BEAKED WHALE	MESOPLODON EUROPAEUS	T		12
GOOSE-BEAKED WHALE	ZIPHIUS CAVIROSTRIS	T		12
PYGMY SPERM WHALE	KOGIA BREVICEPS	T		12
DWARF SPERM WHALE	KOGIA SIMUS	T		12
SPERM WHALE	PHYSETER CATODON	E	LE	12
ATLANTIC SPOTTED DOLPHIN	STENELLA PLAGIODON	T		12
ROUGH-TOOTHED DOLPHIN	STENO BREDANENSIS	T		12
KILLER WHALE	ORCINUS ORCA	T		12
FALSE KILLER WHALE	PSEUDORCA CRASSIDENS	T		12
SHORT-FINNED PILOT WHALE	GLOBICEPHALA MACRORHYNCHUS	T		12
PYGMY KILLER WHALE	FERESA ATTENUATA	T		12
FINBACK WHALE	BALAENOPTERA PHYSALUS	E	LE	12
BLUE WHALE	BALAENOPTERA MUSCULUS	E	LE	12
BLACK RIGHT WHALE	EUBALAENA GLACIALIS	E	LE	12
MANATEE	TRICHECHUS MANATUS	E	LE	(4,12)
Carnivores				
RED WOLF	CANIS RUFUS	E	LE	(1-4,7)**
GRAY WOLF	CANIS LUPUS	E	LE	(6-11)
MEXICAN WOLF	CANIS LUPUS BAILEYI	E	LE	(11)
BLACK BEAR	URSUS AMERICANUS	E		(1,2,4,6-8),11
LOUISIANA BLACK BEAR	URSUS AMERICANUS LUTEOLUS	E	LT	(1)
COATI	NASUA NASUA	E		4,6,7,11
BLACK-FOOTED FERRET	MUSTELA NIGRIPES	E	LE	(9-11)**
OCELOT	FELIS PARDALIS	E	LE	(4),6
MARGAY	FELIS WIEDII	E	LE	(6)
JAGUARUNDI	FELIS YAGOUAROUNDI	E	LE	(4),6
JAGUAR	PANTHERA ONCA	E	LE	(6,11)
***BIRDS				
Waterbirds				
BROWN PELICAN	PELECANUS OCCIDENTALIS	E	LE	4
REDDISH EGRET	EGRETTA RUFESCENS	T	C2	4
WHITE-FACED IBIS	PLEGADIS CHIHI	T	C2	2-11
WOOD STORK	MYCTERIA AMERICANA	T		1,2,4,6
WHOOPING CRANE	GRUS AMERICANA	E	LE	4
Raptors				
AMERICAN SWALLOW-TAILED KITE	ELANOIDES FORFICATUS	T	3C	1,4
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	E	LE	1-4,7-11
COMMON BLACK-HAWK	BUTEOGALLUS ANTHRACINUS	T		6,11
NORTHERN GRAY HAWK	BUTEO NITIDUS MAXIMUS	T	C2	6
WHITE-TAILED HAWK	BUTEO ALBICAUDATUS	T		4-6
ZONE-TAILED HAWK	BUTEO ALBONOTATUS	T		6,7
NORTHERN APLOMADO FALCON	FALCO FEMORALIS SEPTENTRIONALIS	E	LE	6
AMERICAN PEREGRINE FALCON	FALCO PEREGRINUS ANATUM	E	LE	7-11
ARCTIC PEREGRINE FALCON	FALCO PEREGRINUS TUNDRIUS	T	LT	4
FERRUGINOUS PYGMY-OWL	GLAUCIDIUM BRASILIANUM	T	C2	6
Shorebirds				
PIPING PLOVER	CHARADRIUS MELODUS	T	LT	4
ESKIMO CURLEW	NUMENIUS BOREALIS	E	LE	4
ROSEATE TERN	STERNA DOUGALLII		LT	4
INTERIOR LEAST TERN	STERNA ANTILLARUM ATHALASSOS	E	LE	6,9
SOOTY TERN	STERNA FUSCATA	T		4
Upland Birds				
ATTWATER'S PRAIRIE-CHICKEN	TYMPANUCHUS CUPIDO ATTWATERI	E	LE	4
Woodpeckers				
RED-COCKADED WOODPECKER	PICOIDES BOREALIS	E	LE	1
IVORY-BILLED WOODPECKER	CAMPEPHILUS PRINCIPALIS	E	LE	(1)
Songbirds				
NORTHERN BEARDLESS-TYRANNULET	CAMPTOSTOMA IMBERBE	T		6
ROSE-THROATED BECARD	PACHYRAMPHUS AGLAIAE	T		6
BLACK-CAPPED VIREO	VIREO ATRICAPILLUS	E	LE	7,11
BACHMAN'S WARBLER	VERMIVORA BACHMANII		LE	(1)
TROPICAL PARULA	PARULA PITIAYUMI NIGRILORA	T	C2	6
GOLDEN-CHEEKED WARBLER	DENDROICA CHRYSOPARIA	E	LE	7
BACHMAN'S SPARROW	AIMOPHILA AESTIVALIS	T	C2	1
TEXAS BOTTERI'S SPARROW	AIMOPHILA BOTTERII TEXANA	T	C2	4

16-02

COMMON NAME	SCIENTIFIC NAME	STATE STATUS	FEDERAL STATUS	ECOREGIONS OF OCCURRENCE
***REPTILES				
Turtles				
LOGGERHEAD SEA TURTLE	CARETTA CARETTA	E	LT	12
GREEN TURTLE	CHELONIA MYDAS	T	LT	12
HAWKSBILL SEA TURTLE	ERETMOCHELYS IMBRICATA	E	LE	12
HAWKSBILL SEA TURTLE	ERETMOCHELYS IMBRICATA IMBRICATA	E	LE	12
KEMP'S RIDLEY SEA TURTLE	LEPIDOCHELYS KEMPII	E	LE	12
ALLIGATOR SNAPPING TURTLE	MACROCLEMYS TEMMINCKII	T	C2	1-4
LEATHERBACK SEA TURTLE	DERMOCHELYS CORIACEA	E	LE	12
CHIHUAHUAN MUD TURTLE	KINOSTERNON HIRTIPES MURRAYI	E	C2	11
TEXAS TORTOISE	GOPHERUS BERLANDIERI	T		4-6
Lizards				
RETICULATED GECKO	COLEONYX RETICULATUS	T	3C	11
RETICULATE COLLARED LIZARD	CROTAPHYTUS RETICULATUS	T	C2	6
TEXAS HORNED LIZARD	PHRYNOSOMA CORNUTUM	T	C2	2-11
MOUNTAIN SHORT-HORNED LIZARD	PHRYNOSOMA DOUGLASSII HERNANDESI	T		11
Snakes				
NORTHERN SCARLET SNAKE	CEMOPHORA COCCINEA COPEI	T		1,4
TEXAS SCARLET SNAKE	CEMOPHORA COCCINEA LINERI	T		4-6
BLACK-STRIPED SNAKE	CONIOPHANES IMPERIALIS	T		6
INDIGO SNAKE	DRYMARCHON CORAIS	T		4-7
SPECKLED RACER	DRYMOBIUS MARGARITIFERUS	E		6
NORTHERN CAT-EYED SNAKE	LEPTODEIRA SEPTENTRIONALIS SEPTENTRIONALIS	E		4
BRAZOS WATER SNAKE	NERODIA HARTERI HARTERI	T	C2	2,9
CONCHO WATER SNAKE	NERODIA HARTERI PAUCIMACULATA	E	LT	8,9
SMOOTH GREEN SNAKE	OPHEODRYS VERNALIS	E		4
LOUISIANA PINE SNAKE	PITUOPHIS MELANOLEUCUS RUTHVENI	E	C2	1
BIG BEND BLACKHEAD SNAKE	TANTILLA RUBRA	T		7,11
TEXAS LYRE SNAKE	TRIMORPHODON BISCUTATUS VILKINSONI	T		11
TIMBER RATTLESNAKE	CROTALUS HORRIDUS	T		1-4
***AMPHIBIANS				
Salamanders				
SAN MARCOS SALAMANDER	EURYCEA NANA	T	LT	7
COMAL BLIND SALAMANDER	EURYCEA TRIDENTIFERA	T	C2	7
TEXAS BLIND SALAMANDER	TYPHLOMOLGE RATHBUNI	E	LE	7
BLANCO BLIND SALAMANDER	TYPHLOMOLGE ROBUSTA	E	C2	7
BLACK-SPOTTED NEWT	NOTOPHTHALMUS MERIDIONALIS	E	C2	4,5,6
RIO GRANDE LESSER SIREN	SIREN INTERMEDIA TEXANA	E	C2	4,5,6
Frogs				
HOUSTON TOAD	BUFO HOUSTONENSIS	E	LE	2,4
MEXICAN TREEFROG	SMILISCA BAUDINII	T		6
WHITE-LIPPED FROG	LEPTODACTYLUS FRAGILIS	E		6
SHEEP FROG	HYPOPACHUS VARIOLOSUS	T		5,6
MEXICAN BURROWING TOAD	RHINOPHRYNUS DORSALIS	T		6
***FISHES				
Large River Fish				
SHOVELNOSE STURGEON	SCAPHIRHYNCHUS PLATORYNCHUS	E		1
PADDLEFISH	POLYODON SPATHULA	E	C2	1
Minnows				
MEXICAN STONEROLLER	CAMPOSTOMA ORNATUM	T	C2	11
DEVIL'S RIVER MINNOW	DIONDA DIABOLI	T	PT	7
RIO GRANDE CHUB	GILA PANDORA	T		11
CHIHUAHUA SHINER	NOTROPIS CHIHUAHUA	T	C2	11
BLUEHEAD SHINER	NOTROPIS HUBBSI	T		1
BLUNTNOSE SHINER	NOTROPIS SIMUS	E		(11)*
PHANTOM SHINER	NOTROPIS ORCA	E	3A	(6,7,11)
PROSERPINE SHINER	CYPRINELLA PROSERPINA	T	C2	7,11
Suckers				
BLUE SUCKER	CYCLEPTUS ELONGATUS	T	C2	1-4,6,7
CREEK CHUBSUCKER	ERIMYZON OBLONGUS	T		1
Catfish				
WIDEMOUTH BLINDCAT	SATAN EURYSTOMUS	T	C2	7
TOOTHLESS BLINDCAT	TROGLOGLANIS PATTERSONI	T	C2	7
Killifishes				
LEON SPRINGS PUPFISH	CYPRINODON BOVINUS	E	LE	11
COMANCHE SPRINGS PUPFISH	CYPRINODON ELEGANS	E	LE	11
CONCHOS PUPFISH	CYPRINODON EXIMIUS	T	C2	11
PECOS PUPFISH	CYPRINODON PECOSENSIS	T	C1	11

16-03

COMMON NAME	SCIENTIFIC NAME	STATE STATUS	FEDERAL STATUS	ECOREGIONS OF OCCURRENCE
(Fishes, cont.)				
Livebearers				
BIG BEND GAMBUSIA	GAMBUSIA GAIGEI	E	LE	11
SAN MARCOS GAMBUSIA	GAMBUSIA GEORGEI	E	LE	(7)*
CLEAR CREEK GAMBUSIA	GAMBUSIA HETEROCHIR	E	LE	8
PECOS GAMBUSIA	GAMBUSIA NOBILIS	E	LE	11
BLOTCHED GAMBUSIA	GAMBUSIA SENILIS	E	C2	(7,11)**
Perches				
FOUNTAIN DARTER	ETHEOSTOMA FONTICOLA	E	LE	7
RIO GRANDE DARTER	ETHEOSTOMA GRAHAMI	T	C2	7,11
BLACKSIDE DARTER	PERCINA MACULATA	T		1
Coastal Fishes				
OPPOSUM PIPEFISH	MICROPHIS BRACHYURUS	T		12
RIVER GOBY	AWAOUS TAJASICA	T		4,6,12
BLACKFIN GOBY	GOBIONELLUS ATRIPINNIS	E		6,12
***INVERTEBRATES				
Spiders				
TOOTH CAVE PSEUDOSCORPION	MICROCREAGRIS TEXANA		LE	7
TOOTH CAVE SPIDER	NEOLEPTONETA MYOPICA		LE	7
BEE CREEK CAVE HARVESTMAN	TEXELLA REDDELLI		LE	7
Insects				
TOOTH CAVE GROUND BEETLE	RHADINE PERSEPHONE		LE	7
KRETSCHMARR CAVE MOLD BEETLE	TEXAMAUROPS REDDELLI		LE	7
TOOTH CAVE BLIND ROVE BEETLE	CYLINDROPSIS SP 1		LE	7
***PLANTS				
Cacti				
TOBUSCH FISHHOOK CACTUS	ANCISTROCACTUS TOBUSCHII	E	LE	7
NELLIE CORY CACTUS	CORYPHANTHA MINIMA	E	LE	11
BUNCHED CORY CACTUS	CORYPHANTHA RAMILLOSA	T	LT	11
SNEED PINCUSHION CACTUS	CORYPHANTHA SNEEDII VAR SNEEDII	E	LE	11
LLOYD'S HEDGEHOG CACTUS	ECHINOCEREUS LLOYDII	E	LE	11
BLACK LACE CACTUS	ECHINOCEREUS REICHENBACHII VAR ALBERTII	E	LE	4-6
DAVIS' GREEN PITAYA	ECHINOCEREUS VIRIDIFLORUS VAR DAVISII	E	LE	11
CHISOS HEDGEHOG CACTUS	ECHINOCEREUS CHISOENSIS VAR CHISOENSIS	T	LT	11
LLOYD'S MARIPOSA CACTUS	NEOLLOYDIA MARIPOSENSIS	T	LT	11
Trees, Shrubs, and Sub-shrubs				
HINCKLEY'S OAK	QUERCUS HINCKLEYI	T	LT	11
JOHNSTON'S FRANKENIA	FRANKENIA JOHNSTONII	E	LE	6
TEXAS SNOWBELLS	STYRAX TEXANA	E	LE	7
Wildflowers				
ASHY DOGWEED	THYMOPHYLLA TEPHROLEUCA	E	LE	6
PRAIRIE DAWN	HYMENOXYS TEXANA	E	LE	4
TERLINGUA CREEK CAT'S-EYE	CRYPTANTHA CRASSIPES		LE	11
WHITE BLADDERPOD	LESQUERELLA PALLIDA	E	LE	1
WALKER'S MANIOC	MANIHOT WALKERAE		LE	6
SLENDER RUSH-PEA	HOFFMANNSEGGIA TENELLA	E	LE	4,6
MCKITTRICK PENNYROYAL	HEDEOMA APICULATUM	T	LT	11
TEXAS POPPY-MALLOW	CALLIRHOE SCABRIUSCULA	E	LE	9
LARGE-FRUITED SAND VERBENA	ABRONIA MACROCARPA	E	LE	2
TEXAS TRAILING PHLOX	PHLOX NIVALIS SSP TEXENSIS		LE	1
Grasses and Grass-like Plants				
TEXAS WILD-RICE	ZIZANIA TEXANA	E	LE	7
LITTLE AGUJA PONDWEED	POTAMOGETON CLYSTOCARPUS		LE	11
Orchids				
NAVASOTA LADIES'-TRESSES	SPIRANTHES PARKSII	E	LE	1-2

KEY:

State Status - E=Endangered, T=Threatened
Federal Status - LE=Listed Endangered, LT=Listed Threatened
PE=Proposed Endangered, PT=Proposed Threatened
C1=Candidate Species (category 1 - awaiting listing)
C2=Candidate Species (category 2 - awaiting more information)
3A=Removed from list due to extinction
3B=Removed from list due to taxonomic change
3C=Removed from list because of abundance
Ecoregion - ( )=Species extirpated from ecoregion
*=Species extinct
**=Species extinct in the wild (except some experimental populations)

In 1983, the Texas Legislature created the Special Nongame and Endangered Species Conservation Fund. This fund may be used for nongame wildlife and endangered species research and conservation, habitat acquisition and development, and dissemination of information pertaining to these species. Money for the fund is obtained through private donations and sale of nongame wildlife art prints, decals and stamps. For more information on the fund or endangered species call 1-800-792-1112 or 512-448-4311.

16-04

REFERENCE 17

United States Department of the Interior, Fish and Wildlife Service, National Wetlands Inventory Maps, 1980.

MALLARD HILL

SCALE 1:4000

Other information concerning the wetland resources depicted on this document may be available. For information, contact:

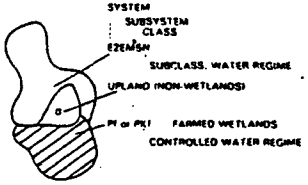
Regional Director (ARDE) Region II
U.S. Fish and Wildlife Service
P.O. Box 1306
Albuquerque, New Mexico 87103

SPECIAL NOTE

This document was prepared primarily by stereoscopic analysis of high altitude aerial photographs. Wetlands were identified on the photographs based on vegetation, visible hydrology, and geography in accordance with Classification of Wetlands and Deep Water Habitats of the United States (An Operational Draft), Cowardin, et al, 1977. The aerial photographs typically reflect conditions during the specific year and season when they were taken. In addition, there is a margin of error inherent in the use of the aerial photographs. Then, a variation on the ground and historical analysis of a single site may result in a revision of the wetland boundaries established through photographic interpretation. In addition, some small wetlands and those obscured by dense forest cover may not be included on this document.

Federal, State and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, State or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, State or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

SYMBOLOGY EXAMPLE



NOTES TO THE USER

- Wetlands which have been field examined are indicated on the map by an asterisk (*).
- Dominance type (either vegetative or sedimentary) cannot be added to the map by the interpretive user.
- Additions or corrections to the wetlands information displayed on the map are solicited. Please forward such information to the address indicated.
- Some areas designated R4SB, R4SBW, or R4SBJ (intermittent streams) may not meet the definition of wetlands.

AERIAL PHOTOGRAPHY

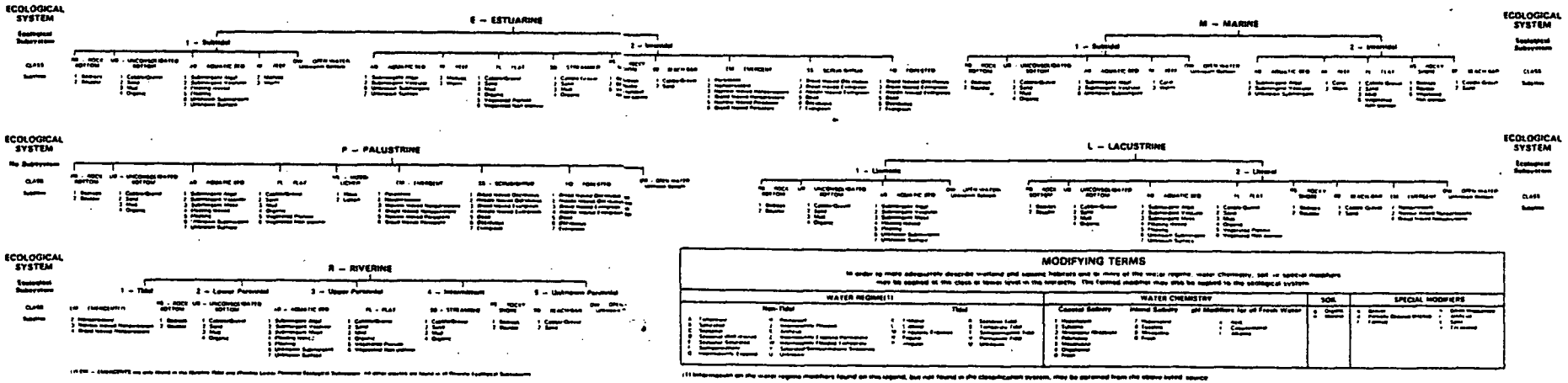
DATE:	21 /80
SCALE:	1:65000
TYPE:	CIR
DATE:	/ /
SCALE:	
TYPE:	
DATE:	/ /
SCALE:	
TYPE:	

U.S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

Prepared by Office of Biological Services for the National Wetlands Inventory

WETLAND LEGEND

U – Primarily represents upland areas, but may include unclassified wetlands such as in un-modified areas, non photo-identifiable areas and/or unintentional omissions.



MODIFYING TERMS

In order to more adequately describe wetland and aquatic habitats and to many of the water regime, water chemistry, soil or special modifiers may be applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system.

WATER REGIME(1)				WATER CHEMISTRY			SOIL	SPECIAL MODIFIERS	
Non-Tidal		Tidal		Coastal Salinity	Inland Salinity	pH Modifiers for all Fresh Water			
A Temporary	F Permanent	U Intertidal	S Subtidal	A Hypersaline	A Hypersaline	A Acid	A Organic	A Artificial	F Farmed
B Saturated	G Intermittent Flooded	V Irregularly Flooded	T Semidiurnal Tidal	B Euhaline	B Euhaline	B Circumneutral	B Mineral	B Diked/Impounded	G Partially Drained/Ditched
C Seasonal	H Permanently Flooded	W Regularly Flooded	U Diurnal Tidal	C Mixohaline	C Mixohaline	C Alkaline		C Spoil	H Farmed
D Seasonally Saturated	J Artificial	X Artificially Flooded	V Mixed Semidiurnal-Semidiurnal Tidal	D Polyhaline	D Mesohaline	D Fresh		D Excavated	
E Intermittently Flooded	K Artificially Flooded	Y Unknown	W Irregular Tidal	E Mesohaline	E Oligohaline	E Hypersaline		E Impounded	
			X Unknown	F Oligohaline	F Fresh			F Diked	
				G Fresh				G Farmed	

(1) Information on the water regime modifiers found on this legend, but not found in the classification system, may be obtained from the above listed source.