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EXTINGUISHMENT PLAN FOR SUBSURFACE FIRES AT COMPASS INDUSTRIES LANDFILL

Final Report

VOLUME II

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VOLUME II

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APPENDIX A

CHANDLER PARK DUMP FIRE EXTINGUISHMENT WORK PLAN

APPENDIX A

CHANDLER PARK DUMP
FIRE EXTINGUISHMENT WORK PLAN

INTRODUCTION

The Compass Industries Landfill is located south of the Arkansas River and adjacent to and west of Tulsa, Oklahoma. The site will be described in detail in the project report. Visual sighting, testing, and data acquired to date substantiate that the following problems exist:

- Intermittent fires have been observed and efforts to extinguish them may not have succeeded.
- The landfill may contain wastes which are classified as hazardous, some of which will be identified and be listed in the project report.
- Residents of a community directly east of the landfill are reported to have suffered effects from landfill emissions.

OBJECTIVE OF THE WORK PLAN

The objective of this work plan is to devise a means of extinguishing landfill fires which will have the least impact on public health. Persons potentially affected include the residents of the nearby community and technical and work personnel who will assist in developing the data and extinguishing the fire.

THE WORK PLAN

The Work Plan, as presently conceived, consists of two phases identified as follows:

Phase 1 - Prepare to sample wastes, gas, and temperatures at the landfill.

Phase 2 - Sample wastes, gas, and temperatures; perform an environmental assessment of the consequences of extinguishment; and recommend a method for extinguishing the fire.

The following paragraphs identify tasks which comprise Phases 1 and 2.

PHASE 1 PREPARE TO SAMPLE WASTES, GAS, AND TEMPERATURES

Task 1 - Data Acquisition and Review

The objective of Task 1 will be to acquire, validate, and collate data to be used in the evaluation of actual or potential hazards to all persons included during all phases of the project. A secondary objective will be to identify local resources which can support the technology employed during the project. These will include local laboratories, agencies which may have topographic data, and industries which can provide the technology, materials, and equipment which may be employed during the exploration and extinguishment phase. These resources will be contacted during the appropriate Tasks.

Performance of this Task will include contact with federal, state, county, and city governments and other persons who can provide written or parole evidence concerning the following:

- Materials deposited
- Source of materials deposited
- Dates of fires
- Testing and results to date

The depths of the landfill will be determined from data which is to be acquired. The extinguishment methods to be recommended will be partially dependent on those depths.

Task 2 - Prepare Safety Plan for Preliminary Air Sampling

The objective of Task 2 will be to provide for the safety of persons involved with air quality sampling to be performed at the landfill during Task 3. A scenario will be outlined which provides for an

initial degree of protection to those persons and which will identify response levels compatible with hazard levels identifiable with initial detection results.

Task 3 - Perform Air Sampling

The objective of Task 3 will be limited to identifying potential hazards to persons involved with performance of the work in Task 7. The information will be used on Task 4.

Initial air sampling will be performed at selected locations below and above the surface of the dump. Initial sampling will be performed with Drager tubes for selected chemicals which will include carbon monoxide, sulfur dioxide, and hydrogen sulfide. Samples will be encapsulated and later analyzed in a laboratory. Organic species, for example, condensable hydrocarbons, will be collected on adsorbent tubes and analyzed by gas chromatography or GC-mass spectrometry. It may be necessary to sample for heavy metals. If so, heavy metal detection will be performed on filter samples by X-ray fluorescence analysis. The degree of analysis may depend on the data collected and verified during either Task 1 or Task 7.

Task 4 - Prepare Health Safety Plan

The objective of Task 4 is to ensure the safety of persons who will be performing Tasks 7 and 8. The data from Task 4 will also be utilized in Task 11.

The safety plan will provide for both on and off-site air quality monitoring stations in critical locations which are to be monitored during any Task 7 operations requiring boring or other types of excavation of in situ cover or dump materials. Both pre-excavation and post-excavation levels will be measured for selected chemicals and particulate matter.

Phase 2 will consist of Tasks of 5, 6, 7, 8, 9, 10, and 11. The objective of Phase 2 will be to prepare an effective and safe extinguishment plan which will have the least possible negative impact on local biota and the least possible indirect effects on the food chain.

PHASE 2 - SAMPLE, EVALUATE AND PREPARE FIRE CONTROL PLAN

Task 5 - Locate Underground Burning

Burn zones will be plotted on scaled maps from infrared thermography (April 1983). Updating the thermography by aerial methods would be preferred but would create a problem with scheduling. It was decided to take a calculated risk and utilize the existing thermography and use infrared radiometers in the field to detect hot spots. (The problem with scheduling new air photos is that it would prevent completion of Task 2 field work prior to the anticipated annual start of the rainy season. If the gamble fails it will be necessary to perform the update later and it may also be necessary to drill additional borings.) These maps will also have the locations of known hazardous waste lagoons plotted on them during this task. These probable burn zones will then be verified in the field with infrared radiometers. Ground temperatures will be recorded and plotted on base maps for the final report. The verified perimeter limits of the burn zones will be flagged with markers no more than 100 feet apart.

Task 6 - Prepare Probe Plan, Fabricate and Set Probes

The objectives of Task 6 are to identify which hazardous chemicals are present in the wastes and gases and to measure temperatures in the vicinity of hot spots identified in Task 5. Unstable ground surfaces which could give way under heavy equipment will be plotted and mapped. Measurement of waste gases and temperatures will be accomplished by, first, boring and inserting probes in locations in association with the following:

- Sampling select wastes from the borings for chemical analyses.
- Sampling the gases within the dump for both chemical wastes, particulate matter, and off-gases of conflagrations by vacuum collection into glass flasks.
- Sampling the temperatures by telethermometers in the bore holes to identify and isolate areas to be recommended for extinguishment.

Steel probes, to avoid thermal destruction, will be located in six groups. Each group will consist of three probes each and will have one probe as close to the location of the center of each hot spot and the other two within two hundred feet to measure temperature trends or find a current location for the center of the fire or lack of fire in that spot.

The probe plan will be revised during probe placement if field conditions dictate that borings or probes should be relocated. Conditions may include the following:

- Inaccessibility due to temporary water ponding on wet ground or grade conditions.
- Perched water.
- Immovable obstructions to drilling.
- Uncontrollable emissions of gas, particulates, or smoke (these can be sealed off within borings with a bentonite mix).
- Absence of high ground temperatures from infrared radiometer.

A drilling contractor will be selected based on the best combination of technical ability and cost. Twenty steel probes will be designed for fabrication by a local contractor under direct supervision of the project engineer and the drilling contractor. The drilling contractor will install a maximum of 25 probes under direct continuous supervision of the project engineer with partial supervision by the project manager. The project engineer will be assisted by a field engineer, and will supervise all drilling and gas and temperature sampling as part of this task. Boring logs will be kept for inclusion in the final report.

Wastes will be obtained during boring for the probe placement for analysis during this task. Two waste samples will be taken at each boring in split tube casings where possible and in plastic bags where otherwise necessary. Each sample will be logged on a Sample Identification Log Form (Figure A.1). All samples will be tagged and a Sample Analysis Request Form will be completed (Figure A.2). A Sample Accountability Form (Figure A.3) will be completed for each shipment.

FIGURE A.1

ES ENGINEERING - SCIENCE

SAMPLE IDENTIFICATION LOG FORM

SAMPLE LOCATION	RUN	CONTENTS	COMMENTS

FIGURE A.2

ES ENGINEERING-SCIENCE

SAMPLE ANALYSES REQUEST FORM

SAMPLING DATE _____ JOB NO. _____

PLANT _____ TASK ORDER NO. _____

ADDRESS _____ RUN NO. _____

DATE OF REQUEST _____ DATE SAMPLES RECEIVED _____

DATE RESULTS REQUIRED _____ DATE RESULTS RECEIVED _____

REQUESTED BY _____ SAMPLE/RESIDUE DISPOSITION _____

CHECKED BY _____ _____

SAMPLE ID. NO.	SAMPLE DESCRIPTION	ANALYSES REQUESTED	NOTES

NOTE EXPLANATION:

ES ENGINEERING-SCIENCE

SAMPLE ACCOUNTABILITY FORM

SAMPLE IDENTIFICATION: _____ DATE OF COLLECTION _____

SAMPLE COLLECTION SITE: _____

SAMPLE DESCRIPTION: _____

PERSON/PERSONS COLLECTING SAMPLE: _____ DATE OF DELIVERY _____

WHERE RECEIVED FOR DELIVERY: _____

HOW TRANSPORTED: _____ (UPS, US MAIL, ETC.)

PERSON/PERSONS RECEIVING SAMPLE AT LAB: _____ DATE RECEIVED _____

CONDITIONS OF SAMPLE: _____

PERSON/PERSONS PERFORMING SAMPLE ANALYSIS: _____

TYPE/METHOD OF ANALYSIS: _____

DEVIATIONS FROM METHOD OF ANALYSIS: _____

_____

DISPOSITION OF SAMPLE/RESIDUE: _____

DATE SHIPPED/DISCARDED: _____ BY: _____

DATE SHIPPED: _____

Task 7 - Perform Air, Waste, Gas, and Temperature Sampling and Analyses

The objective of Task 7 is to identify and document the following:

- Temperatures and carbon monoxide for establishing extent of fires and extinguishment recommendations.
- Gases within the dump and off site to determine which gases to sample for, off site, during execution of the extinguishment safety plan.
- Waste materials collected during Task 6 will be analyzed for their chemical compatibility with materials to be used for extinguishment plan alternatives, and collated with data, gas analyses, and temperature analyses.

Waste samples will be grouped into six location categories and analyzed in a sequence as follows. The six groups will have a total of thirty-six to forty samples. Two samples from each group, for a total of twelve samples, will be analyzed. If adequate determination can be made referent to hazard, additional analysis of the samples will be unnecessary. If not, a second series of three previously collected samples will be analyzed from each group for a total of eighteen samples.

Air sampling will be performed once in the probes and once in the air above each probe. Landfill gas and temperature measurements will be performed at these and at three different times, approximately once a week.

All data will be logged on forms and summarized in report format. Key information will be mapped on a final copy of the Probe Locations Plan for review during Task 9.

Task 8 - Collect Additional Environmental Data and Assess

Baseline environmental data will be collected relative to the anticipated consequences of the extinguishment alternatives under consideration. The physical, biological, and social resources assessments will evaluate the direct impacts of extinguishment as well as possible long-term or indirect consequences. The environmental study will be closely connected with the development of the monitoring plan to

provide early warnings of unforeseen consequences. Key issues which may be investigated include:

- Air quality immediately prior to boring and during boring.
- Meteorology (wind rows data).
- Permeable geologic connection between site and local resident properties.
- Biological species of concern in the local area (terrestrial).
- Area description and residential patterns.
- Alternative extinguishment plans.

Hydrogeologic relationship of the site to the local river is being performed by others.

Task 9 - Assess Alternatives and Recommend Extinguishment Plan and Safety Scenario

The objective of this task is to analyze site conditions and prepare a graphic and written presentation of the alternative extinguishment scenarios. The objective is to recommend an extinguishment plan and safety scenario. An outline of an extinguishment plan has been prepared in order to determine a general course of action. The alternatives currently considered are based on both the deep and shallow sectors of the dump. In the deep sector, the alternatives include the following:

- Carbon dioxide and steam
- Carbon dioxide only (this will not extinguish a magnesium fire)
- Steam only
- Foam only

The type of foam would be determined after assessment of field sampling in the shallow sectors. The alternatives for the shallow sector include:

- Steam only
- Foam only
- Local excavation

During this task, a preliminary estimate of the amounts of carbon dioxide and/or steam, and other materials will be prepared.

The Recommended Extinguishment Plan will be based on the alternative which best meets the technical, public health, environmental, and economic criteria.

The results of Phase 2 will be submitted as recommendations for use during Phase 3, Extinguishment of the Compass Industries Landfill Fire(s). The outline of activities during Phase 3, extinguishing the landfill fires, is as follows:

- Select the option from probable alternatives.
- Establish a schedule for injection operations subject to revision and additions later.
- Obtain materials and labor quotes for a cost estimate.
- Award extinguishment contract.
- Monitor to determine if extinguishment has occurred.
- Perform again as necessary.

APPENDIX B
WORKER SAFETY DURING WASTE SAMPLING, PROBE PLACEMENT AND TEMPERATURE AND GAS SAMPLING

APPENDIX B

WORKER SAFETY DURING WASTE SAMPLING, PROBE PLACEMENT AND TEMPERATURE AND GAS SAMPLING

INTRODUCTION

At the Compass Industries Landfill, the hazards which may exist include actual and reported natural and manmade phenomena. The potential hazards have been thoroughly researched. Sources of information included conversations with representatives of local agencies, including the U.S. Environmental Protection Agency (EPA), the Oklahoma Department of Wildlife Conservation, local residents, and others.

The three principal activities during which safety precautions are to be observed are described as follows:

- Infrared ground scan, stake approximate center of hot spot, and stake boring locations. Perform boring, take samples of wastes from borings, and set perforated casings (probe placement). Place predrilled and tapped, threaded covers and plug inserts for future removal.
- Take air samples for background levels prior to and during boring operations and gas samples from the probes at a later date. The gas samples are to be analyzed in a laboratory, certified by the EPA, for dioxin, PCBs, pesticides and particulates. Additionally, normal landfill gas constituents will be monitored with portable detectors and selected adsorption tube samples will be taken.
- Take temperatures with a telethermometer and measure carbon monoxide at the same time.
- Take gas samples in probes at three different times after probe pipes have been placed and capped.

POLICY

Engineering-Science is committed to providing safe and healthful working conditions for its employees and subcontractors in the execution of all field investigation projects, and to protecting the health and safety of the public which may be affected by project activities.

A list of requirements for medical safety is included in the back of this section (Figure B.1). Each ES employee and subcontractors will be required to complete necessary emergency medical data prior to work on the site in accordance with the forms attached in this section.

RESPONSIBILITIES

Responsibilities involved in implementing the Health and Safety Program are detailed below. The application of the rules presented in this Health and Safety Program to a specific investigation must be based on the judgment of the Field Manager responsible for the investigation.

Field Managers

The Field Manager at Compass Industries Landfill will be responsible for:

- Administering the Health and Safety Program for the field investigation.
- Ensuring the allocation of adequate resources in the project budget to support and monitor the program.
- Identifying the resources as required in the execution of this program.
- Monitoring the implementation of the Health and Safety Plan to ensure compliance.
- Conducting site monitoring of personnel hazards to determine the degree of hazard present.
- Evaluating weather and chemical hazard information, and implementing any necessary modifications to work plans and personnel protection levels to maintain personnel safety.

- Planning and managing an accident reporting, recordkeeping, and medical surveillance program.
- Assuring the availability of personal protective equipment and selecting the level of personnel protection needed for use at field site investigations.
- Supervising the safety performance of the staff to ensure that the required work practices are employed.
- Arranging for immediate medical attention and reporting to the Principal-in-Charge any incident that results in injury or over exposure of personnel to hazardous materials.
- Assisting the Health/Safety Manager in investigating accidents.
- Recording in writing information pertaining to operation and implementation of work practices.
- Correcting work errors and conditions that may result in injury or exposure to hazardous materials.
- Assuring the health, welfare, and safety of all staff members at the hazardous waste site.

Employees and Subcontractors

Drilling will be performed by a local subcontractor. The subcontractor will be responsible for:

- Complying with the Health and Safety Program requirements and procedures.
- Reporting to driller's supervisors or Health/Safety Manager any unsafe conditions and all facts pertaining to incidents which resulted in employee injury or exposure to hazardous materials.
- Cooperating in the medical surveillance activities.

Accident Reporting

The Field Manager will coordinate the reporting of any incident involving injury or exposure to a hazardous material (dermal contact, inhalation, or ingestion) in accordance with specific procedures adhering to the EPA Occupational Health and Safety Manual. In addition, the

Field Manager must forward a copy of the accident report to the employee's medical record.

Training

The Field Manager will ensure that all employees, before conducting site investigations, receive general instruction on health and safety. Approval of this training course must be obtained from the Health/Safety Manager. A certificate is issued to employees upon completion of the course. In addition, safety training specific to the HWS to be inspected is given by the Field Team Leader to team members before leaving for the site.

Emergency Procedures

The Field Team Leader will develop procedures to protect personnel in case of emergencies at the site. The emergency procedures will include means of communication with affected personnel and the locations and emergency telephone number of the nearest emergency medical facility, ambulance service, fire department, police department, poison control center, and the Project Manager.

Pre-assignment Health Assessment

The Field Manager must ensure that all employees who work at a site receive a baseline health assessment. The purpose of this pre-assignment assessment is to establish a baseline health record and to ascertain existing health conditions which would predispose the employee to illness due to exposure to hazardous materials or due to the physical demands of using personal protective equipment. The pre-assignment assessment should include the following:

- Complete medical history
- Pulmonary function test
- Complete blood count, including platelet count and sedimentation rate
- Urinalysis

The examining physician should be informed of the type of work to be done by the employee and known hazards to which the employee may be exposed, and should be asked to identify any limitations imposed by the

current physical condition of the employee. Agent-specific studies may be performed when appropriate. The exact scope and extent of the medical examination will be determined by the examining physician.

OPERATIONAL PRACTICES

The practices specified in the following paragraphs must be followed by all field site investigators.

Protection Levels

Three protection levels have been selected, which are summarized as follows:

- LEVEL 1 - Basic work uniform
- LEVEL 2 - Medium protection (air filters) to respiratory system, medium protection to skin
- LEVEL 3 - Maximum protection to respiratory system, medium protection to skin

Zones

Contamination and decontamination zones must be established, clearly delineated, and posted, as detailed below.

Decontamination Zone

During operations at any hazardous waste site, a zone will be established for decontamination of equipment and personnel and access control just outside the area of suspected contamination. The Field Manager will monitor this zone to:

- Assist in emergency removal of personnel from the site in the event of accident or injury.
- Assist in moving equipment, samples, and supplies.
- Provide communication to emergency units and to the Safety Manager.
- Assist in decontamination or removal of contaminated clothing from the individuals emerging from the contaminated area.

- As appropriate, prevent entry of unauthorized persons to the field site while operations are underway.
- Provide other assistance as necessary, but with the primary objective of facilitating safe transfer of personnel and equipment to and from the affected area.

Contamination Zone(s)

Any area known to contain hazardous materials must be clearly delineated and posted. The Field Team Leader may establish more than one contamination zone for areas of different levels of potential personnel hazard. Only persons authorized by the Field Manager may enter a contamination zone.

Personnel Protection

Personnel protection practices are described below. A list of field safety equipment and supplies is presented in Table B.1. List A will be procured and used at the Compass Industries site. List B will be available at the site for use as directed by the Field Manager.

Protective Clothing and Equipment

Protective clothing must be worn by all personnel while on the site unless sufficient data have been acquired to enable the Field Team Leader to make an informed judgment that protective clothing is not needed. In the absence of clear indications that work can proceed safely without protective clothing, required items will include disposable coveralls, boots, gloves, and hard hat or head cover, and may include a fully encapsulating chemical protective suit.

The Field Team Leader will also consider the potential hazards of wearing protective clothing since protective clothing is cumbersome, hastens the onset of fatigue, increases heat stress, and increases the time the personnel must spend in the high-risk area. A 10-minute break per hour will be required of persons wearing protective clothing. A one-hour break each four hours will also be required.

TABLE B.1

FIELD SAFETY EQUIPMENT AND SUPPLIES

Item	Usage
LIST A (Required for all work dealing with hazardous contamination)	
Hard hat and full face shield	Wear at all times
Coveralls, long-sleeved (disposable)	Wear at all times
Impervious gloves (disposable)	Wear at all times
Impervious boots (clean and reuse)	Wear at all times
First aid kit	Available at job site
Portable eyewash (Visine)	Carry at all times
LIST B (Required where ignitable vapors are anticipated)	
Nomex coveralls	Wear at all times
Nomex socks	Wear at all times
Heat-resistant gloves	Wear at all times
Hard hat with wire screen face shield	Wear at all times
Fire extinguisher	Available in work area
Fire blanket (wool)	Available in work area
First aid kit	Available in work area

Eye Protection

Devices to provide appropriate eye protection must be worn on any hazardous waste site and should meet criteria established by the American National Standards Institute in Practice for Occupational and Educational Eye and Face Protection.

Use of Respirators

A respirator use program must be provided for personnel who enter areas where a potential for inhalation exposure to a hazardous material is present. These personnel must be clean-shaven except for mustaches. The respirator use program will meet the requirements of the OSHA General Industry Standards for respiratory protection as detailed in 29 CFR 1910.134. The respirators must be certified in accordance with the requirements of the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 30 CFR Part 11. The selection

and use of respirators must be approved by the Health/Safety Manager. Types of respirators include self-contained breathing apparatus (SCBA), cartridge respirators, and escape respirators. The respirator types are discussed below.

Self-Contained Breathing Apparatus (SCBA). SCBA must be worn on site when:

- Containers of unknown or known hazardous materials are being opened. (This will not be permitted).
- The Field Manager judges that the concentration of hazardous materials in the air is greater than 10 times the OSHA Permissible Exposure Level (PEL).

Cartridge Respirators. Cartridge respirators, which are easier to use but provide less protection than SCBA's, can be worn on site only when:

- Hazardous material concentrations in the air are not greater than 10 times the OSHA Permissible Exposure Level and have good warning properties.
- The Field Team Leader judges that respirators are needed as a precaution against generation of low levels of toxic substances in air due to sampling, handling, decontaminating, or other operations.
- Extended periods of use on site, which would cause the capacity of the cartridge to be exceeded, are not required.
- Measurements have verified that at least 19.5 percent oxygen is present.
- Emergency escape respirators are carried by cartridge respirator users.

Heat Stress

A heat stress prevention information program based on NIOSH criteria established in Occupational Exposure to Hot Environments will be implemented. The program will include the following:

- Medical supervision, including special attention to fitness for work involving heat exposure as part of the pre-assignment and periodic examinations.
- Supervisor and employee training and education, including information on recognition of symptoms of heat stress, use of water, salt and other liquids, and combined effects of heat, toxic agents, alcohol, etc., and information on use of protective clothing and on first aid.

Personal Hygiene

All personnel who have come into obvious contact with a hazardous substance must wash the affected area immediately. A portable water supply and eyewash facility will be made available.

SAMPLING PROCEDURES

Sampling procedures must minimize the risk of personnel exposure to hazardous materials during sampling, packaging, shipping, and analysis, and minimize the risk of exposure of others to spilled or residual waste materials.

Sample Handling

A two-layer plastic containment system shall be provided and the sample enclosed. All containers for shipment will bear appropriate labels to meet U.S. Department of Transportation (DOT) requirements.

Bulk Sampling Equipment

Bulk sampling equipment used on the site will be disposed of after the field assignment. Sampling instruments and other nondisposable equipment should be kept clean with disposable protective covers. Dippers, scoops, and similar devices for solid samples will be buried on site, or placed in plastic bags for disposal or later decontamination.

Drilling

For all drilling activities, standard drilling industry safety procedures shall be employed. The following minimum procedures shall be instituted:

- The minimum number of personnel necessary to achieve the drilling objectives shall be within 50 feet of the drill hole during well construction.
- Appropriate emergency and backup construction personnel shall remain outside the 50-foot radius.
- All other personnel shall remain a minimum of 300 feet from the drilling site.
- Prevailing wind patterns will be monitored so that evacuation routes are identified should immediate evacuation become necessary.
- Appropriate protective articles shall be worn by all personnel within the 300-foot zone; those within the 50-foot zone will require more protection.
- Sufficient SCBA for all personnel within the 50-foot zone shall be readily available. An equivalent number of personnel and SCBA will be present just outside the 50-foot zone for retrieval of anyone overcome in an emergency.
- As much as possible, sample preparation and handling shall be done outside the 50-foot zone.
- All personnel within the 50-foot zone shall wear protective clothing and breathing devices.
- Capped monitoring wells shall be installed or the drill hole shall be backfilled with a mixture of bentonite and drill cuttings.

FORBIDDEN PRACTICES

The following practices are expressly forbidden during operations on hazardous waste sites:

- Smoking, eating, drinking, chewing gum or tobacco; applying cosmetics; storing utensils, food, or food containers while on site.
- Ignition of flammable liquids within, on, or through improvised heating devices (barrels, etc.) or space heaters.

- Approach or entry into areas or spaces where toxic or explosive concentrations of gases or dust may exist without proper equipment available to enable safe entry.
- Conducting on-site operations without off-site backup personnel. (The Field Team Leader may exercise informed judgment regarding the need for off-site backup at active sites, or in cases where sites have been repeatedly entered or occupied without apparent harm. In any case where doubt exists, backup personnel shall be present.)

PACKAGING AND SHIPPING

Samples shall be presumed to be hazardous materials and shall be packed to withstand shocks, pressure changes, and any other conditions which might cause the leakage of contents incidental to ordinary handling during transportation. Shipments of hazardous materials shall be in accordance with DOT regulations.

LEAVING THE SITE

Procedures for leaving the suspected contaminated area shall be planned before entry. Sequences will depend on several variables (such as SCBA inside or outside of protective clothing), but must be worked out in advance. Provisions to be made include:

- Decontamination and safe packaging of protective clothing.
- Burial or safe packaging of dis. .l gear.
- Handling of samples and preparation of samples for shipment.
- Transfer of equipment, gear, and samples from the "contaminated" area to the "clean" area.

DECONTAMINATION

Equipment shall be decontaminated prior to leaving the field site. Equipment which cannot be decontaminated at the scene shall be double bagged and transported to another area for eventual decontamination. Where possible, completeness of decontamination will be verified with sniffers, swipe tests, or other appropriate tests.

Equipment and supplies for decontamination will be available on site. The equipment and supplies must allow employees to wash exposed areas of their bodies as well as equipment or other items which have been in the contamination zone, and enable them to collect the washwater and other contaminated materials for disposal. The equipment shall include at least a 20-gallon emergency eyewash, a portable personal shower, and an enclosed portable toilet at a location designated by the Field Manager.

THIRD-PARTY PRECAUTIONS AND PROTECTION

No person will be allowed on site unless that individual has reported to the Field Manager that he understands this document. Warning signs have been posted on all roads and trails leading to the site, precluding access to unauthorized parties.

FIGURE B.1

EMERGENCY MEDICAL INFORMATION

The following departments, persons, and telephone numbers have been identified:

- Emergency, (918) 599-5100, Eva Maddux, Head Nurse
- Information or Public Relations, (918) 587-2561, Barbara

The following admissions information is required:

- Personal Information

  Name _____

  Address _____

  Telephone _____

  Next of Kin _____

  Relationship _____

  Telephone _____

  Spouse Name (Patient's) _____

  Social Security Number _____

  Birthdate _____

- Employer Information

  Employer _____

  Address _____

  Telephone _____

  Responsible Party _____

- Insurance Company Information

  Name _____

  Address _____

  Telephone _____

  Policy Holder _____

  Policy Number _____

- Brief Medical History

  Family Physician _____

  Tetanus History _____

  General History _____

  Present Medications _____

  Allergies to any Medications _____

APPENDIX C

BIOLOGICAL INVESTIGATION OF COMPASS INDUSTRIES SITE

APPENDIX C

BIOLOGICAL INVESTIGATION
OF COMPASS INDUSTRIES SITE
NOVEMBER 16, 1983

A site investigation was conducted at a 100-acre hazardous waste landfill site located west of Tulsa, Oklahoma. Field activities included surveying the entire landfill site photographing all site aspects and plant communities, and collecting vegetation samples of the most common plant species. In conjunction with the field activities, local representatives of the U.S. Fish and Wildlife Service and Oklahoma Department of Wildlife Conservation were contacted for information regarding the potential wildlife issues that might be associated with the site.

The landfill site is an upland area overlooking the Arkansas River. It occupies an upland plateau on the southern bank of the river approximately six miles west of downtown Tulsa, Oklahoma. The site elevation is approximately 870 feet. The site does not contain any surface water resources, such as streams, ponds, or lakes.

One small wetland area of about 0.25 acres has developed in a shallow depression in the northern area of the site. Dominant vegetation consists of common cattail (Typha latifolia) and bulrushes (Scirpus spp.). The wetland is sustained by surface runoff that collects in the depression and by subsurface seepage. Sediments in the wetland are contaminated by seepage from the buried materials. Cattails and bulrushes are growing in sediments saturated with black petrochemical substances.

Except for the wetland area, the site is basically an upland system composed of two distinct phases. The former landfill, which occupies approximately 50 to 60 percent of the total area, has been abandoned and

reclaimed. Plant communities in this area are early successional shrub, grass, and forb stages, typical of disturbed sites. Surrounding the former landfill are undisturbed, more mature woodland communities of deciduous hardwoods. The distribution of the woodlands corresponded closely with the ridgelines and slopes found around the perimeter of the former landfill.

Vegetation of the former landfill included very common grass, forb, and shrub species. The most common grasses were Johnsongrass (Sorghum halepense) and smooth brommeter of the former landfill.

Vegetation of the former landfill included very common grass, forb, and shrub species. The most common grasses were Johnsongrass (Sorghum halepense) and smooth brome (Bromus inermis). Common forbs included goldenrod (Solidago spp.), common sunflower (Helianthus annus), asters (Aster spp.), and thistles (Cirsium spp.). Undoubtedly, many other common species of forbs would have been obvious during other seasons of the year. The most common shrub was flameleaf sumac (Rhus copillina). The general appearance of the plant communities on the former fill is that of an old field gradually changing to an immature woodland. Young trees and shrubs have invaded along the edges of the former disturbance area. The trees and shrubs are still relatively uncommon and consist principally of isolated individuals or small clusters of individuals. The most conspicuous woody invaders are eastern cottonwood (Populus deltoides) on moist soils and American elm (Ulmus americana) on dry soils. Ground cover was 90 to 100 percent because of the dense growths of grasses and forbs. Tree canopy coverage in the landfill area is very sparse, averaging between 1 and 5 percent. There are no known occurrences of Federal or State designated threatened or endangered plant species on the site.

The surrounding wooded hillsides are dominated by pin oak (Quercus palustris), ash (Fraxinus spp.), box elder (Acer negundo), and wild cherry (Prunus serotina). Many smaller individuals of these species including much flameleaf sumac give a dense shrublike appearance to the woodlands.

Wildlife resources on the site are limited to small mammal and songbird populations that are capable of exploiting early successional plant communities. Common small mammals include the cottontail rabbit, fox and gray squirrels in the woodlands, raccoon, striped skunk, deer mouse, and cottonrat. Common songbirds include the cardinal, mockingbird, meadowlark, white-throated sparrow, field sparrows, and rufous-sided towhee. Some bobwhite quail were noted on the site. The gray fox, coyote, and red-tailed hawk would be expected to be the common predators. No evidence of white-tailed deer was noted during the site inspection. All the species identified are typical associates of old field and immature woodland communities.

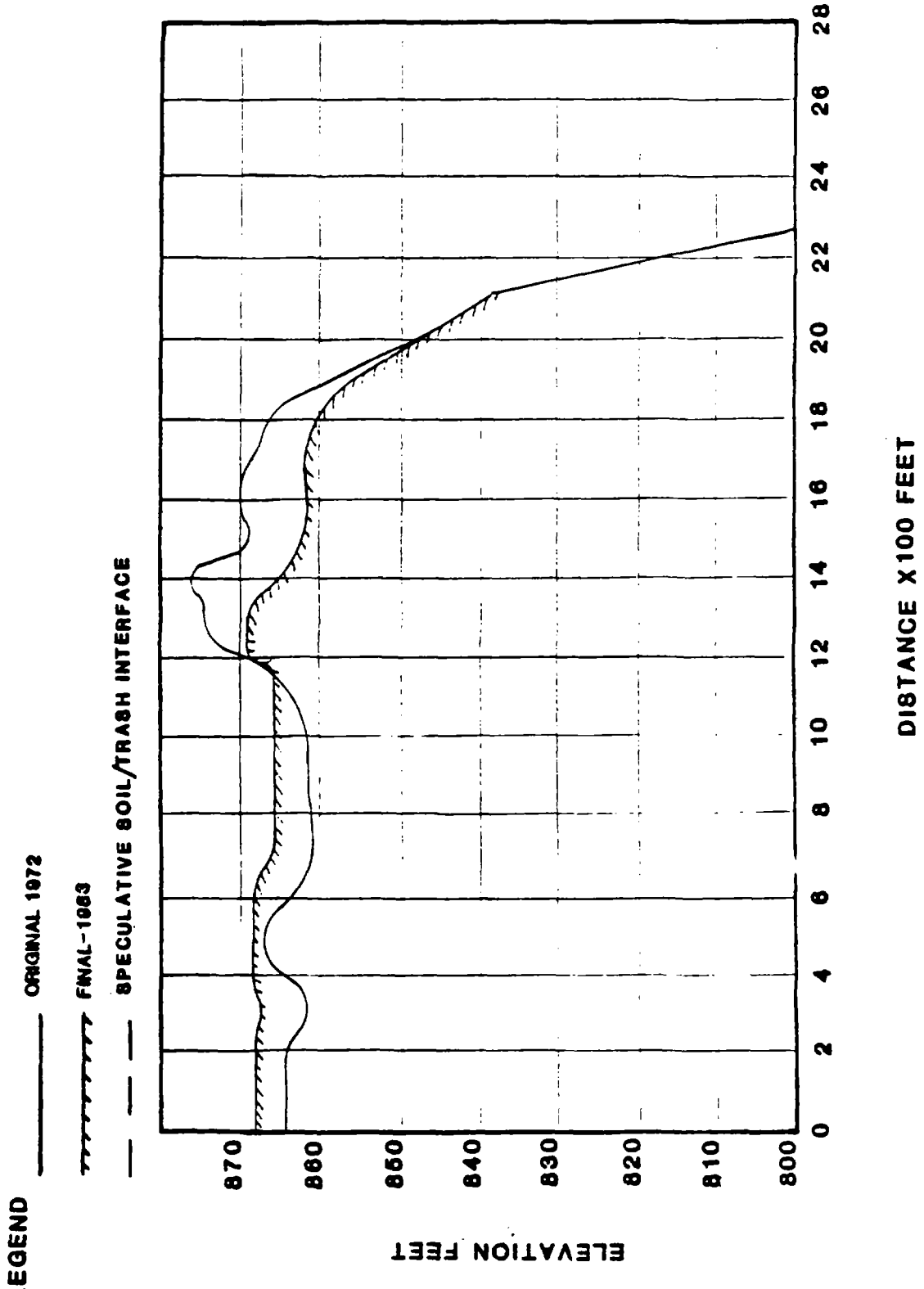
There are no occurrences of designated critical habitats on the site. The U.S. Fish and Wildlife Service noted that the endangered bald eagle uses the Arkansas River during the winter months for feeding purposes. Bald eagles have been observed in Chandler Park, approximately one mile northeast of the site. However, the landfill side does not provide any habitat features which would encourage bald eagle use of the area.

In summary, the ecological characteristics of the project area can be characterized as a late successional old field site. Plant communities in the project site are very common for the area and very typical of previously disturbed locations. Wildlife populations are limited in abundance and are composed of very common species. The site does not support any unusual or special-interest plant or wildlife resources.

APPENDIX D

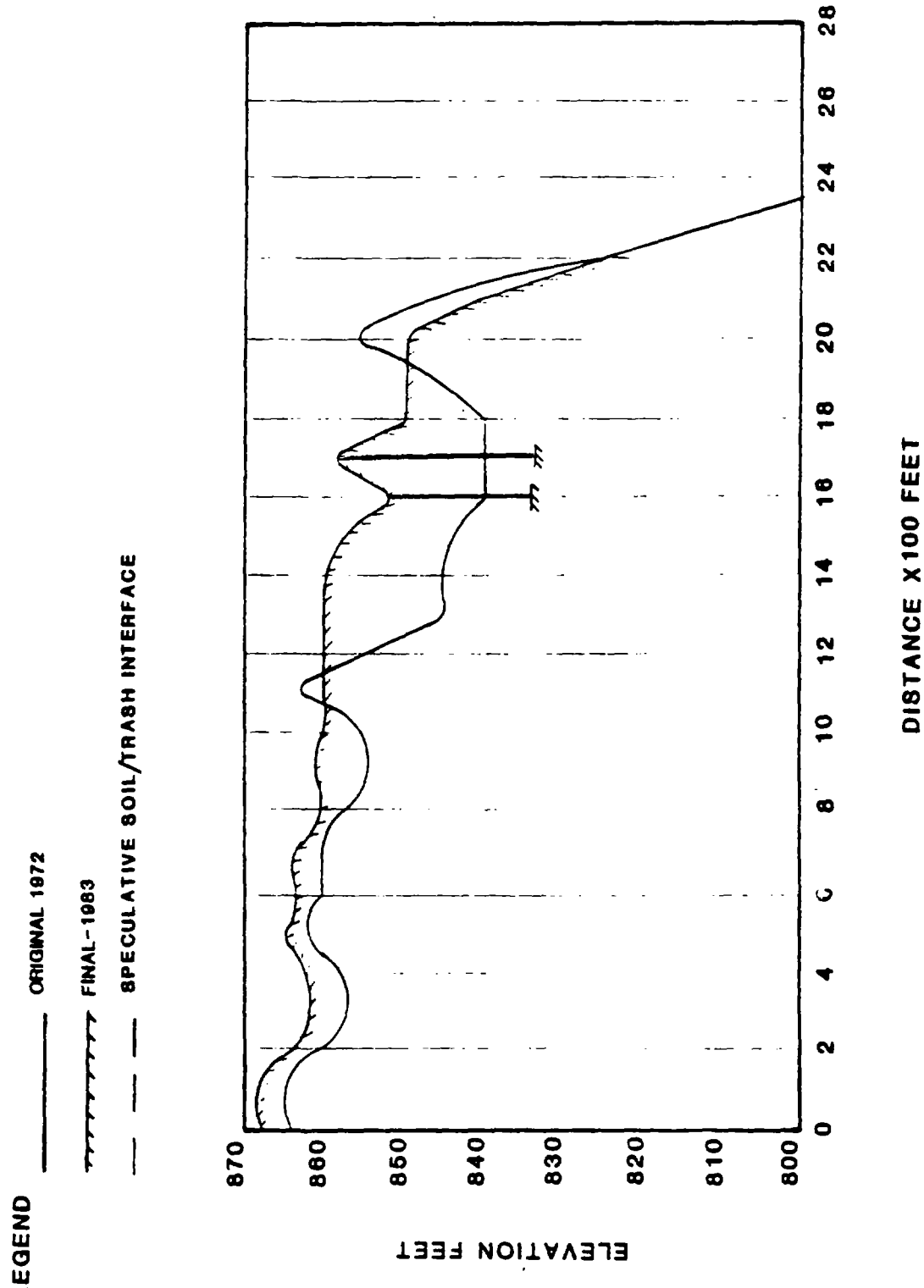
PROFILES OF SITE

FIGURE D 1

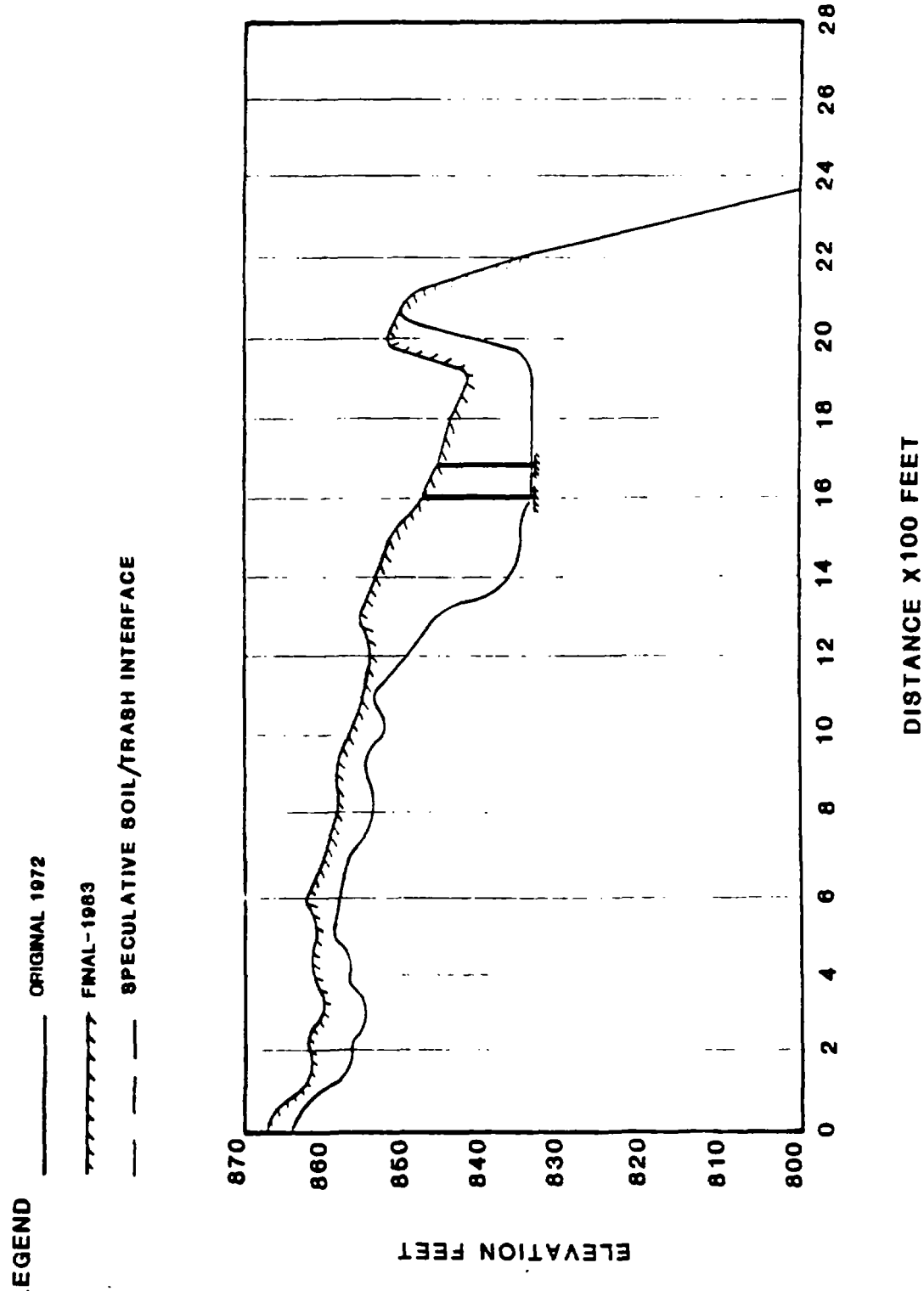


PROFILE NO. 1

FIGURE D 2

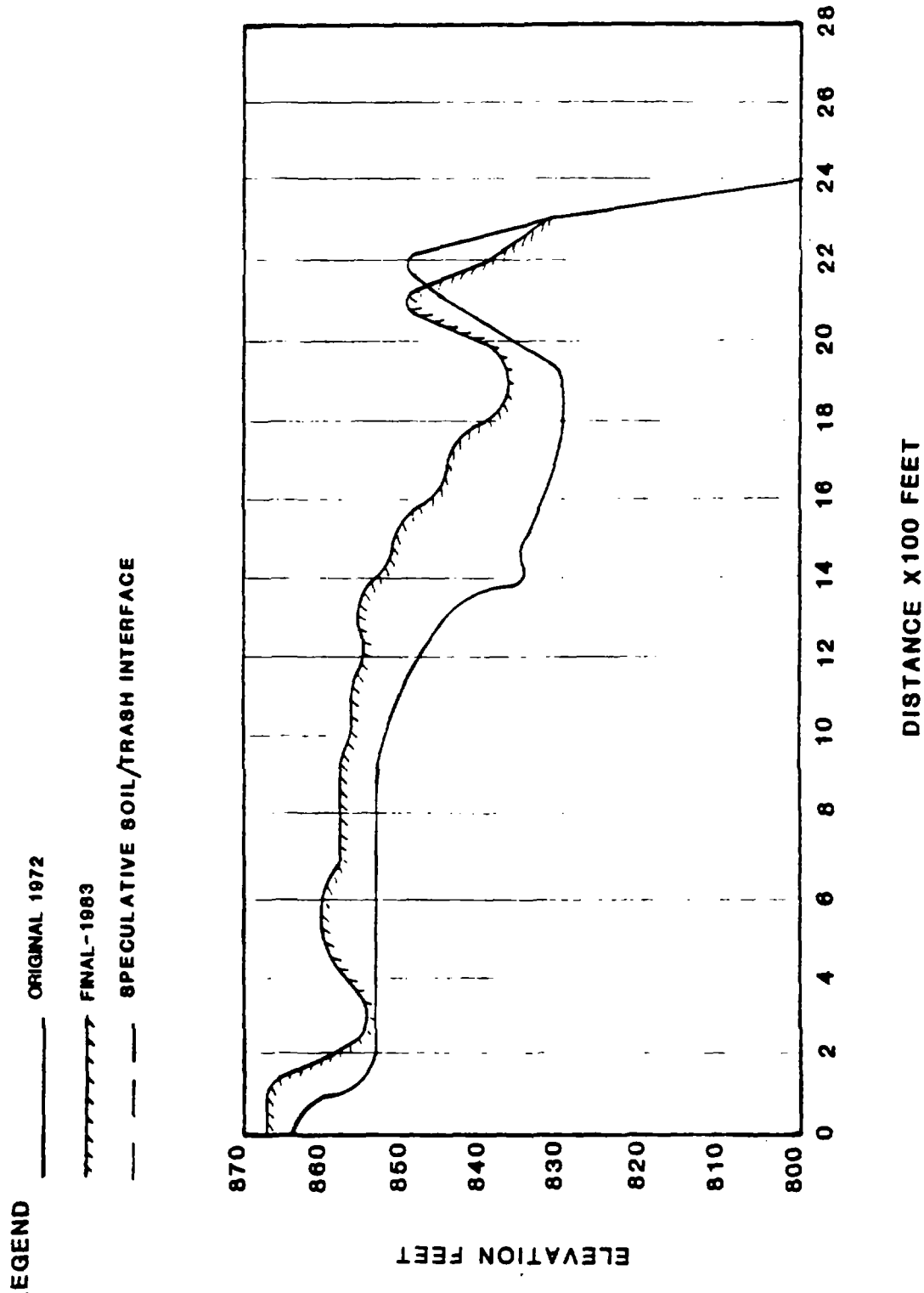


PROFILE NO. 2

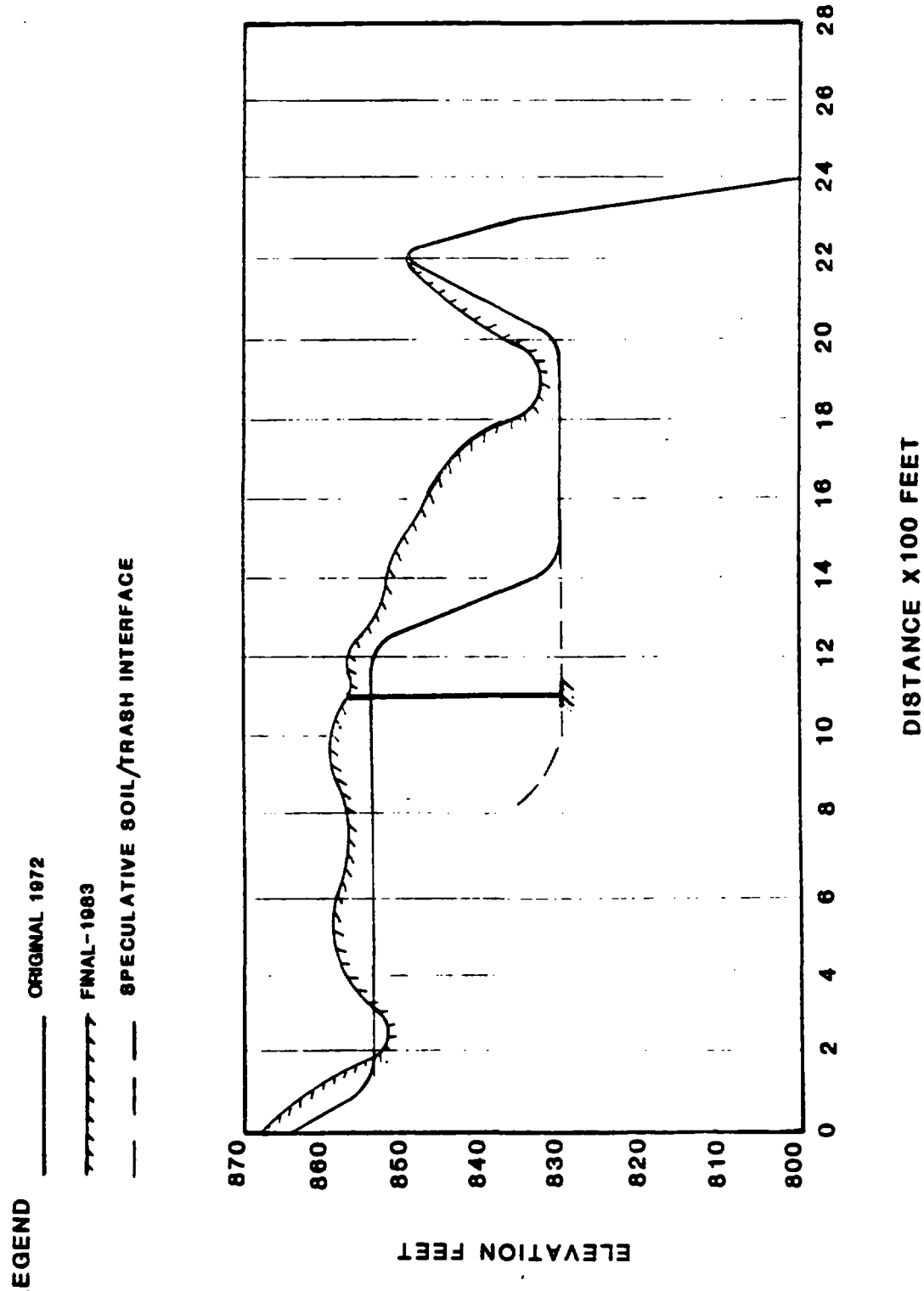

LEGEND
ORIGINAL 1972
FINAL-1983
SPECULATIVE SOIL/TRASH INTERFACE
ELEVATION FEET
870
860
850
840
830
820
810
800
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
DISTANCE X100 FEET

PROFILE NO. 3

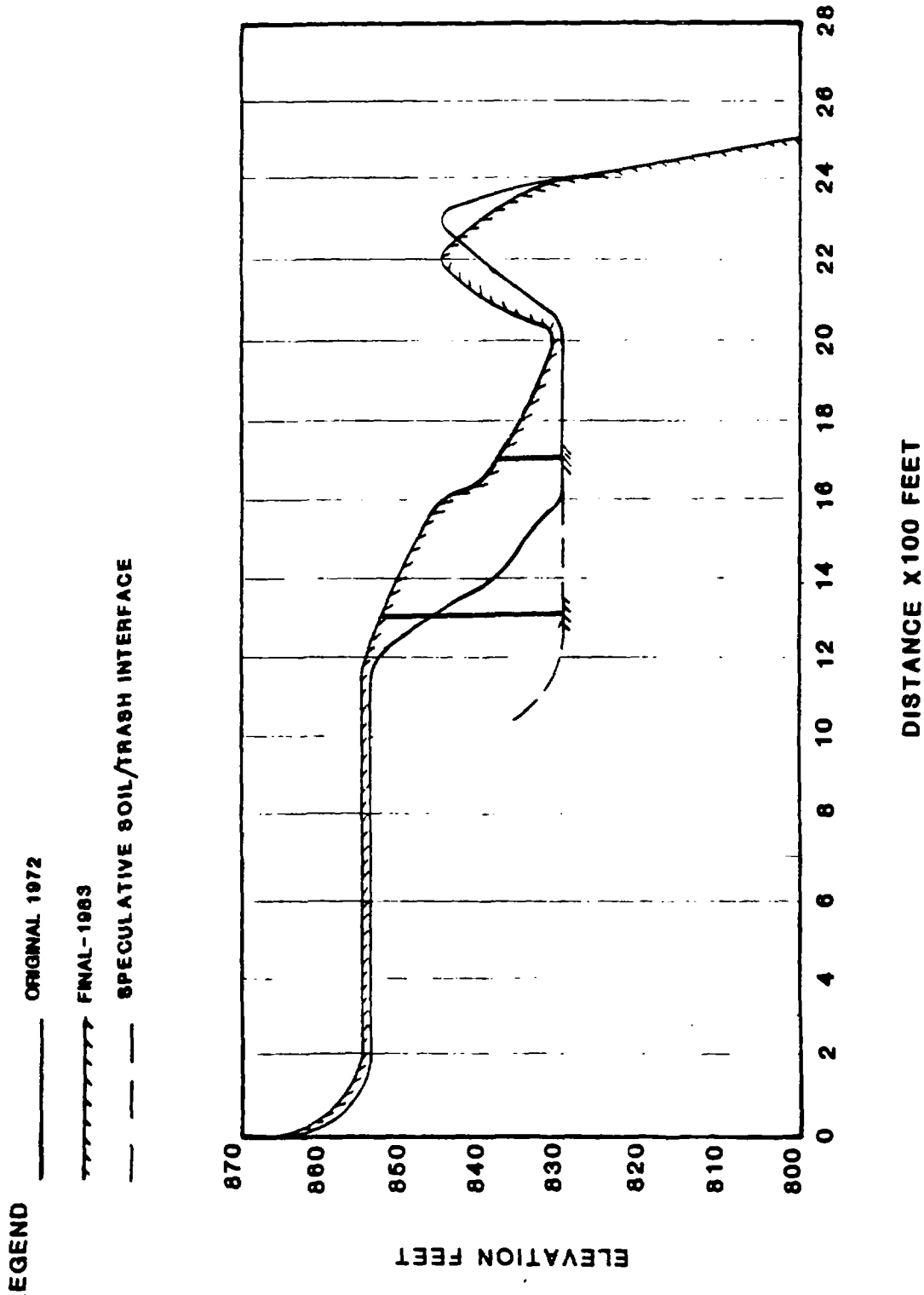
FIGURE D 4



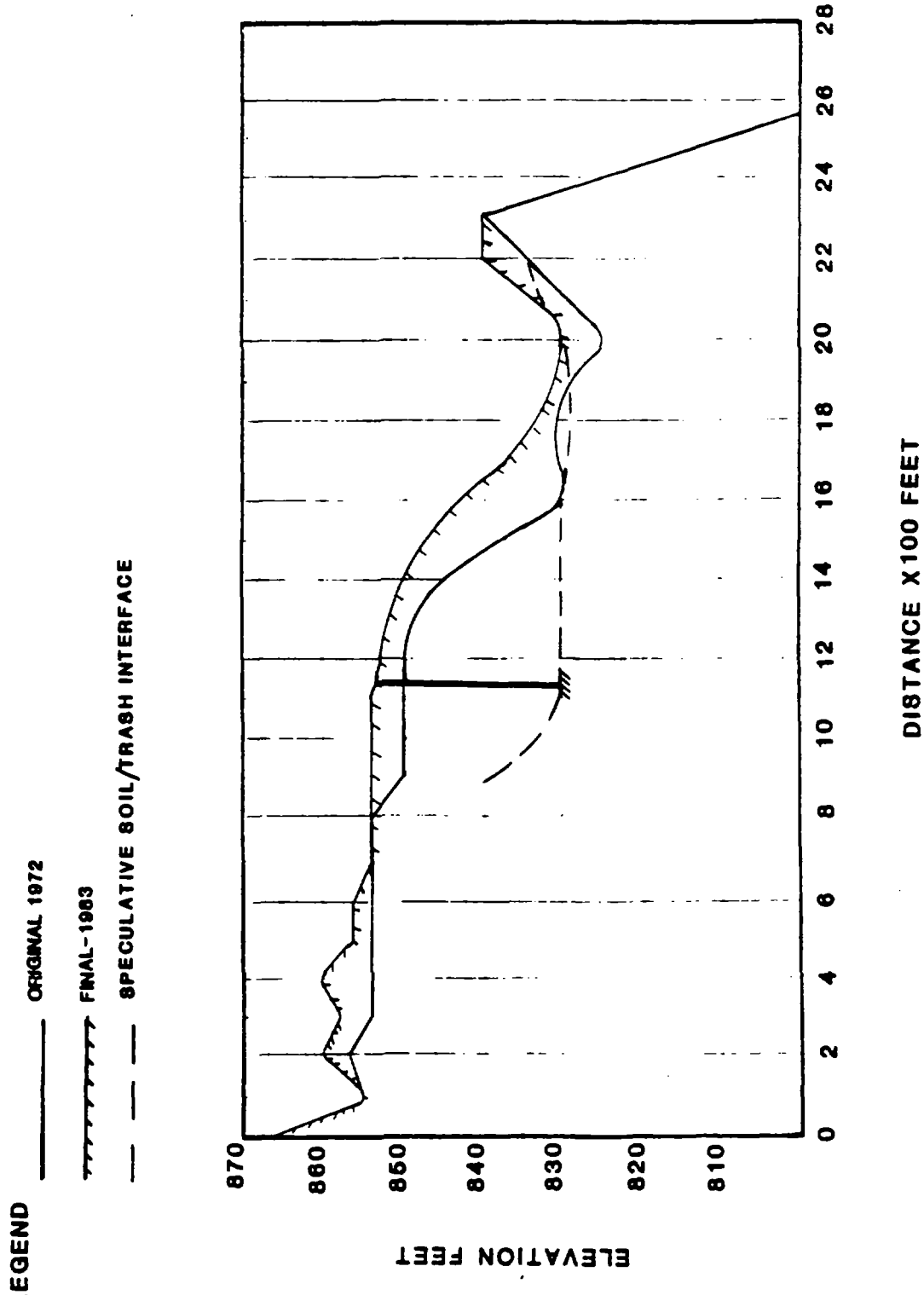
PROFILE NO. 4


LEGEND
ORIGINAL 1972
FINAL-1983
SPECULATIVE SOIL/TRASH INTERFACE
ELEVATION FEET
870
860
850
840
830
820
810
800
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
DISTANCE X100 FEET

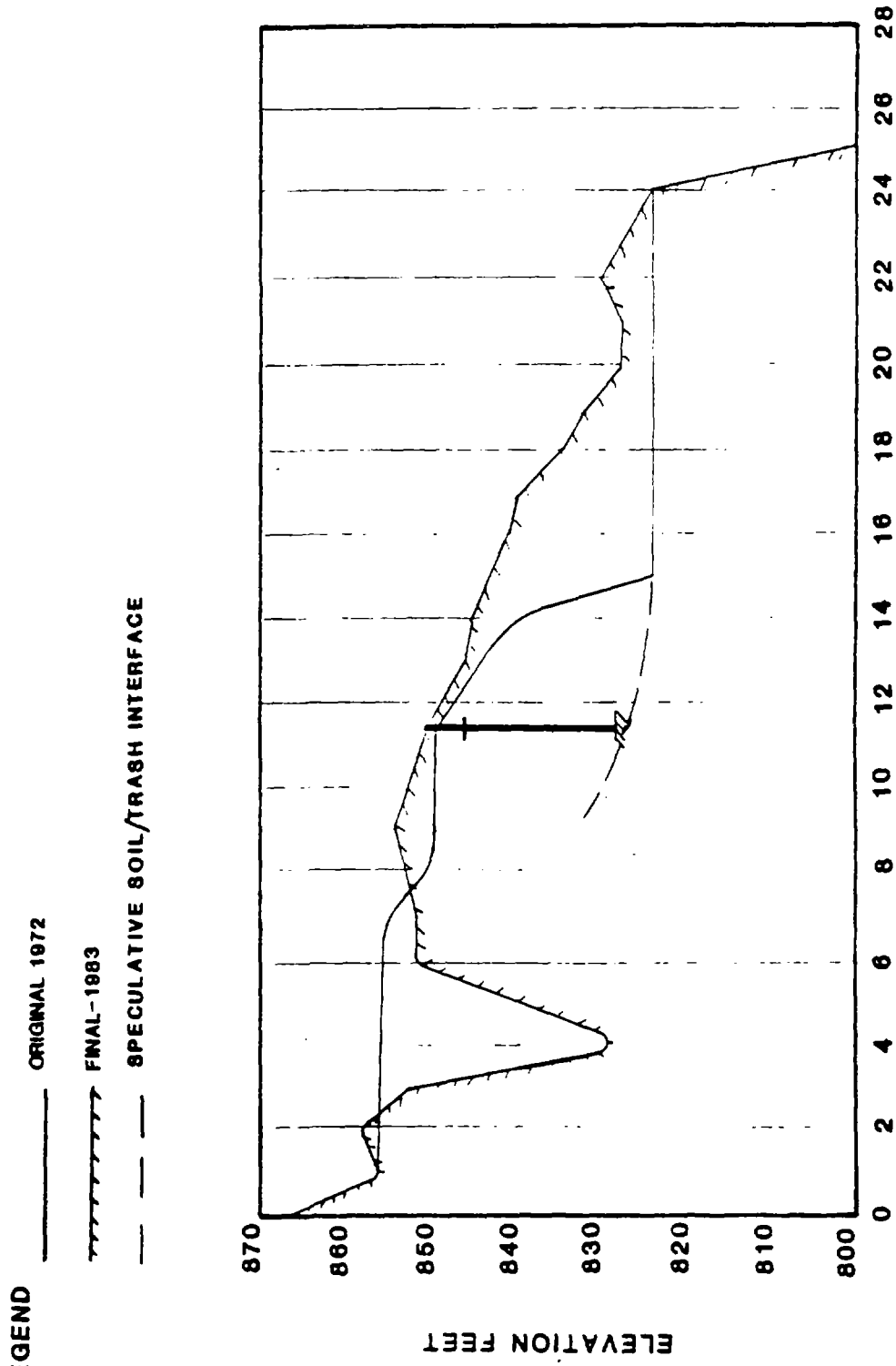
PROFILE NO. 5


LEGEND
ORIGINAL 1972
FINAL-1983
SPECULATIVE SOIL/TRASH INTERFACE
ELEVATION FEET
870
860
850
840
830
820
810
800
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
DISTANCE X100 FEET

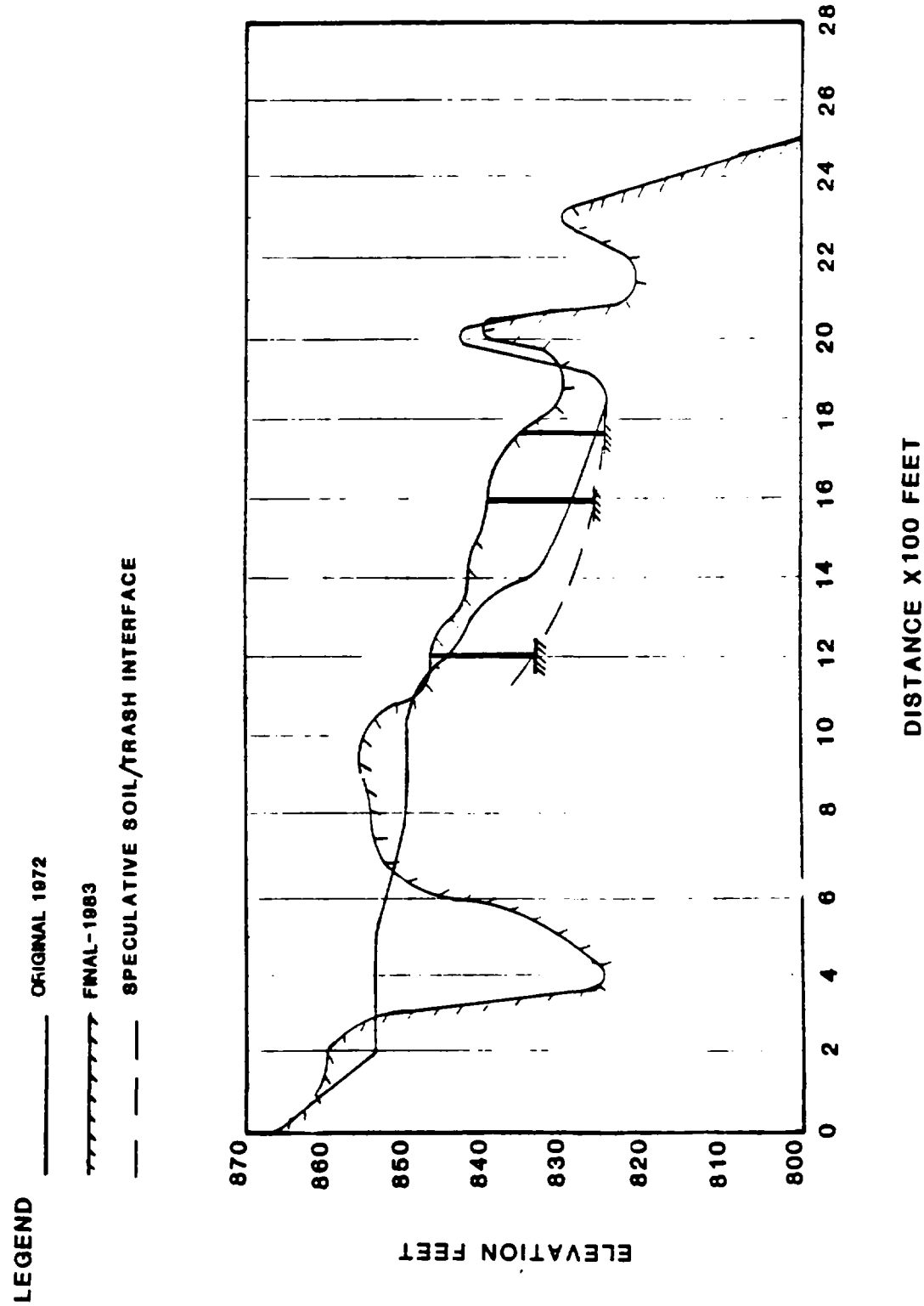
PROFILE NO. 6


LEGEND
ORIGINAL 1972
FINAL-1983
SPECULATIVE SOIL/TRASH INTERFACE
ELEVATION FEET
870
860
850
840
830
820
810
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
DISTANCE X100 FEET

PROFILE NO. 7

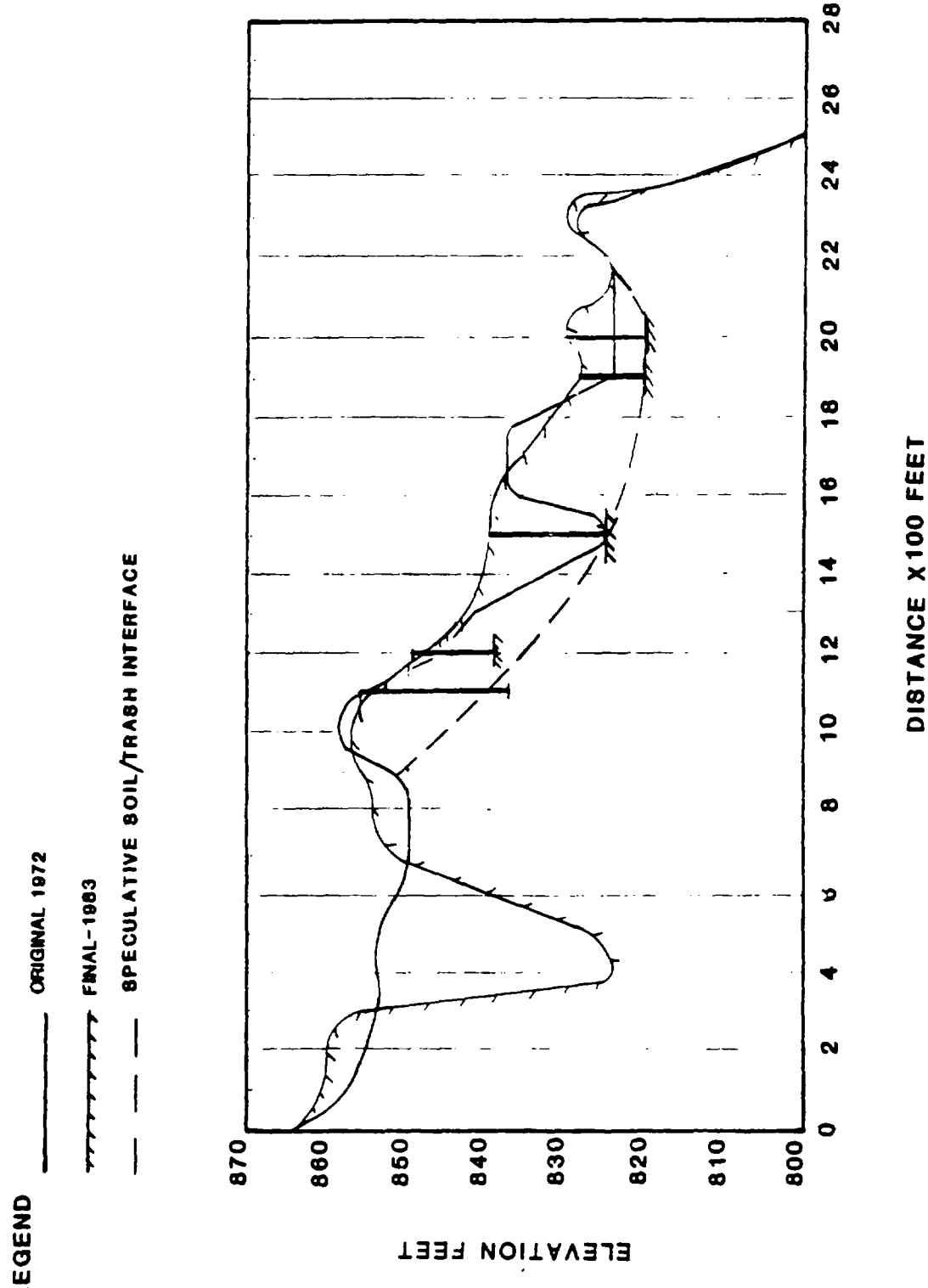

LEGEND
ORIGINAL 1972
FINAL-1983
SPECULATIVE SOIL/TRASH INTERFACE
ELEVATION FEET
870
860
850
840
830
820
810
800
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
DISTANCE X100 FEET

PROFILE NO. 8


LEGEND
ORIGINAL 1972
FINAL-1983
SPECULATIVE SOIL/TRASH INTERFACE
ELEVATION FEET
870
860
850
840
830
820
810
800
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
DISTANCE X100 FEET

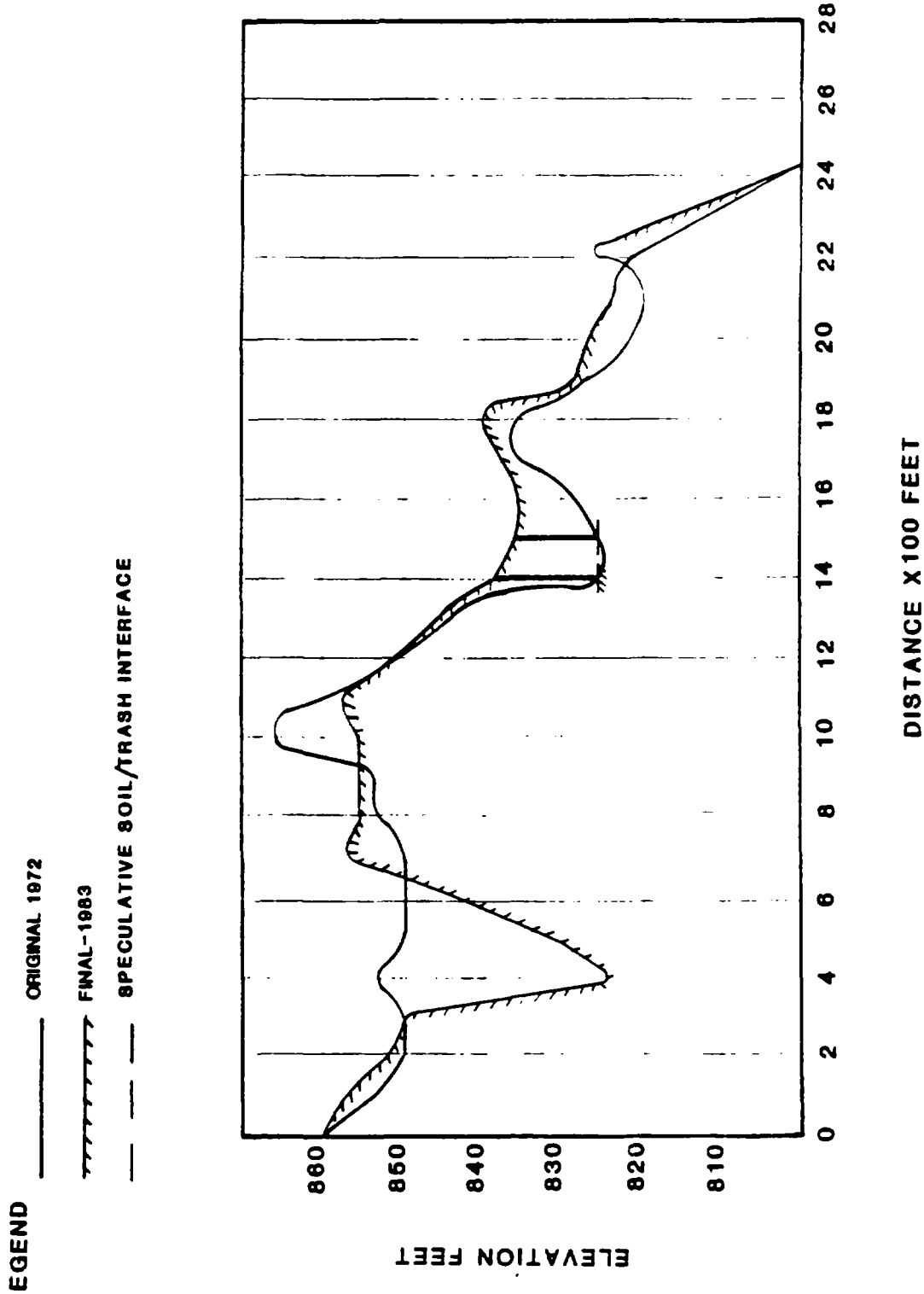
PROFILE NO. 9

FIGURE D 10

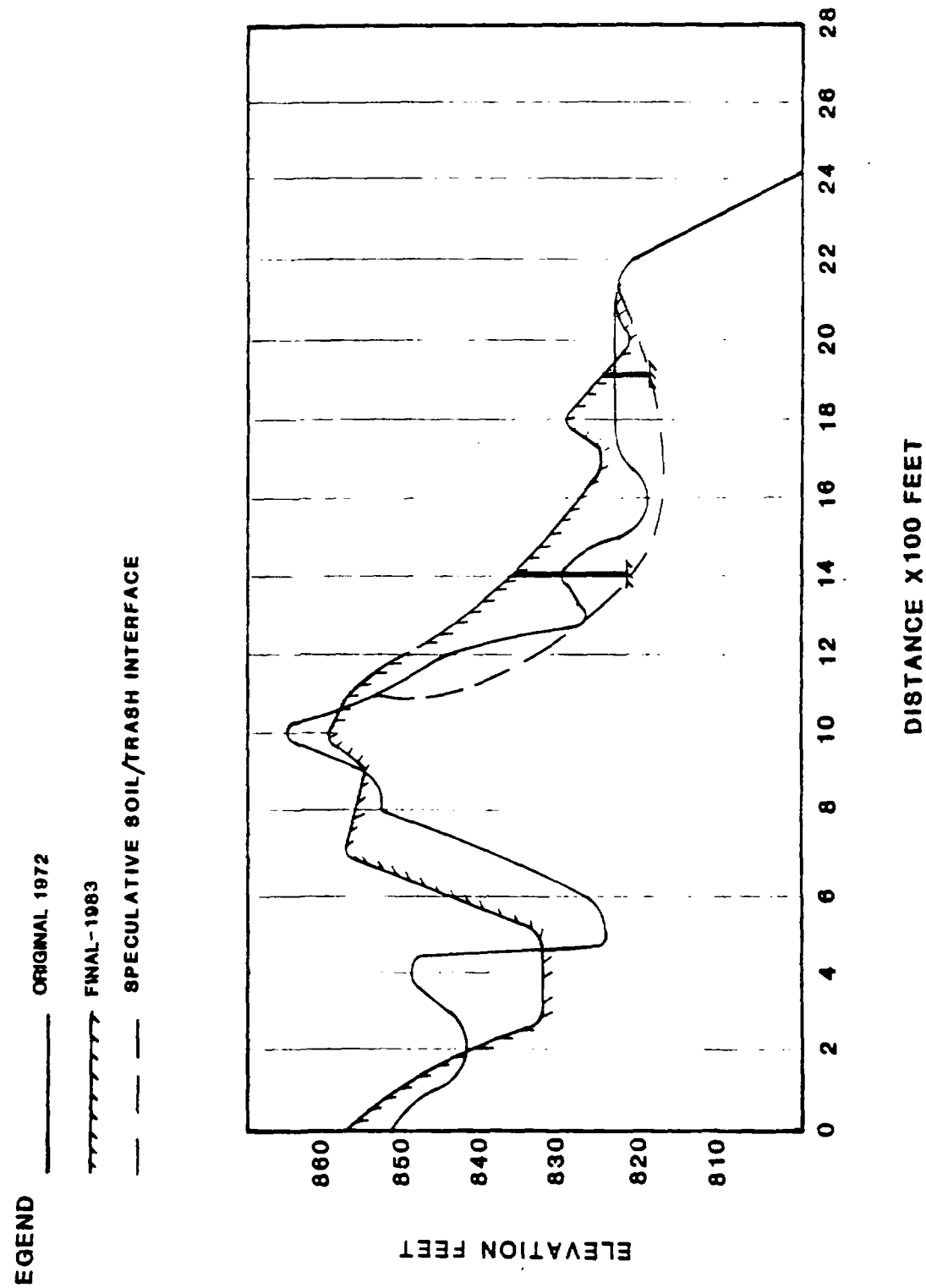


PROFILE NO. 10

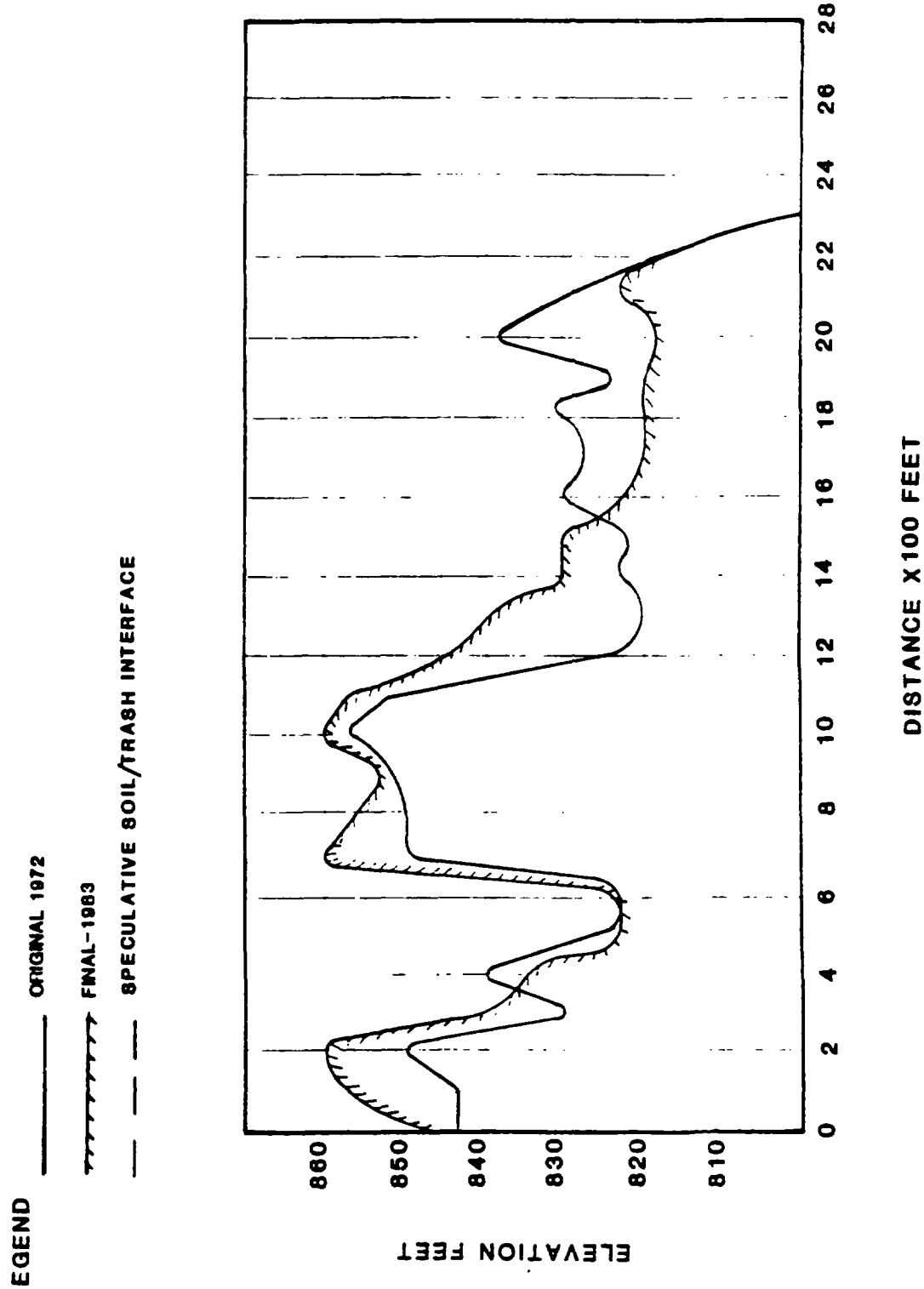
FIGURE D.11



PROFILE NO. 11

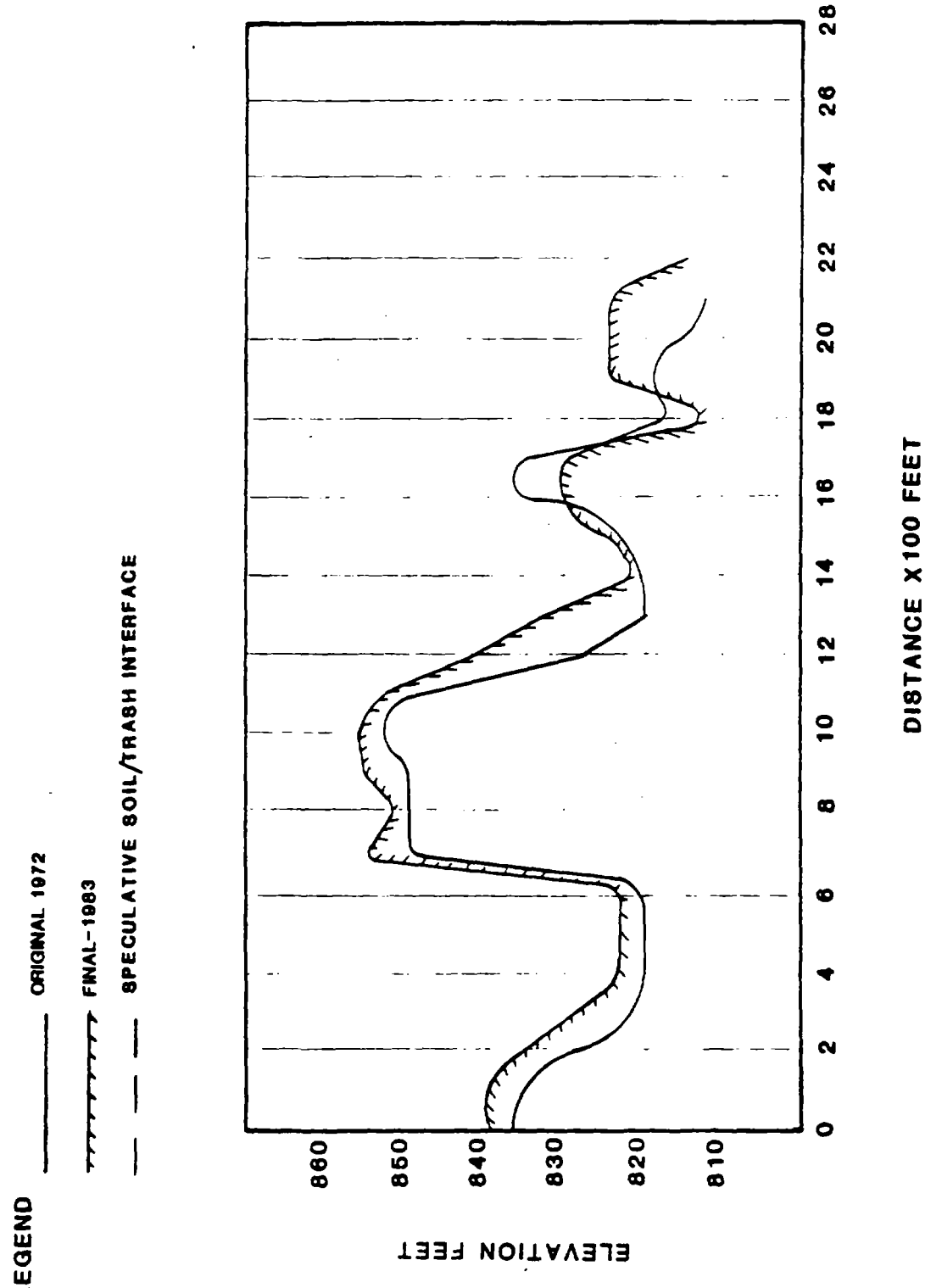


PROFILE NO. 12



PROFILE NO. 13

FIGURE D14



PROFILE NO. 14

APPENDIX E

SURFACE TEMPERATURE FIELD MEASUREMENTS

APPROX. LOCATION OF MEASUREMENTS	DATE (1983)	TIME	TEMPERATURE (°F) AIR	SURFACE	CAVITY	BORE HOLE
N. OF PROBE 5.1.6:	10-25	9:35 AM				
50'					56	
100'					57	
W. OF 5.1.6 50'		9:45			56	
100'					56	
E. OF 5.1.6: 30'		9:55			56	
30'					60 (INSTRUMENT FAIL)	
PROBE 5.1.6 TO REF. PT.						
PROBE 5.1.6 = 0		10:05	—	—	56	—
100'					57	
200'		10:15			61	
300'					64	
400'		10:23			60	
500'					60	
550'					—	
REF. PT. TO GROUP 5 PROBES - (BEFORE SUNRISE - SURFACE TEMP.)						
REF. PT. = 0	10-26	7:20 AM	42	38		
50'				41		
100'				40		
150'				39		
200'				43		
250'				42		
300'				40		
350'		7:36		39		
400'				40		
450'				39		
500'				40		
PROBE 5.1.1: 550				40		
600'				33		

ENGINEERING-SCIENCE
125 W. HUNTINGTON DRIVE
ARCADIA, CALIFORNIA 91006
(213) 445-7580

PROJECT RADIOMETER JOB NO 36422.00
DETAIL TEMPERATURE MEASUREMENTS
DATE
BY
SHT 1
OF

APPROX. LOCATION OF MEASUREMENTS	DATE (1983)	TIME	TEMPERATURE			
			AIR	SURFACE	CAVITY	BORE HOLE
PROBE 5.1.6: 650'						57
PROBE 5.1.4: 650'						67
PROBE 5.1.1: 660'						70
NI. CE DR. 5.1.6: 50'		7:45 AM		39		
REF PT. TO GROUP 5 PROBES (NEGLIGIBLE DIRECT SUN - CAVITY TEMP)						
REF. PT. = 0	10-27	8:10 AM	47		—	
50'					52	
100'					47	
150'					47	
200'		8:19 AM			50	
250'					47	
300'					50	
350'					53	
400'		8:25 AM			50	
450'					50	
500'					52	
550'					53	
600'					52	
REF. PT TO PROBE 7.1		(SURFACE TEMP. BEFORE SUNRISE)				
REF. PT. = 0'	—	7:55 AM	39			
50				40		
100				37		
150				38		
200				39		
250				40		
300				37		
350				37		
400				38		
450		8:00 AM		36		
500				37		

ENGINEERING-SCIENCE
125 W. HUNTINGTON DRIVE
ARCADIA CALIFORNIA 91006
(213) 445-7560

PROJECT RADIOMETER JOB NO. 36422.00
DETAIL TEMPERATURE MEASUREMENTS
DATE
BY
SHT. 2
OF

APPROX. LOCATION OF MEASUREMENTS	DATE (1983)	TIME	TEMPERATURE			
			AIR	SURFACE	CAVITY	BORE HOLE
550'				36		
600'				37		
PROBE 7.1: 650'		8:05 AM		55 (VAPOR)		
S. OF PR. 7.1: 50'				40		
100'				39		
150'		8:10 AM		36		
200'				37		
250'				37		
REF. PT. TO PROBE 7.1						
REF. PT. = 0'	10-25	—	—		—	
100'					57	
200'					59	
300'					61	
400'					58	
500'					58	
600'					65	
PROBE 7.1: 650'					60	
700'					61	
PROBE 7.1 TO 9.3						
PROBE 7.1 = 0	10-25	—	—	—	60	
50'					60	
100'					60	
150'					60	
200'					61	
PROBE 9.3 = 360'					62	
410'					63	
510'					62	

APPROX. LOCATION OF MEASUREMENTS	DATE (1983)	TIME	TEMPERATURE			
			AIR	SURFACE	CAVITY	BORE HOLE
PROBE 9.3 TO REF. PT.						
PROBE 9.3 = 0'	—	8:12AM	40	44	44	
50'				43	48	
100				39	38	
120				40	56	
150		8:20 AM		40		
200				39		
250				41		
300				35		
340				40		
380				37		
420				41		
460				40	50	
500		8:30 AM	45	41		
PROBE 9.3 TO REF. PT.						
W OF PR 9.3: 100'	10-25	SUN UP	—		63	
50'					63	
PROBE 9.3 = 0					62	
50					62	
PROBE 9.7: 100					64	
200					65	
300					62	
400					64	
REF. PT.					—	
ON A LINE FROM PROBE 8.1 TO 8.5 & BEYOND						
PROBE 8.1 = 0	10-31	1:20PM	—	—	82	
50'			SUNNY		81	
PROBE 8.5 100'		1:28PM			81	

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(213) 446-7580

PROJECT RADIONETER JOB NO. 36422.00
DETAIL TEMPERATURE MEASUREMENTS
DATE
BY
SHT 6
OF

APPROX. LOCATION OF MEASUREMENTS	DATE (1983)	TIME	TEMPERATURE			
			AIR	SURFACE	CAVITY	BORE HOLE
150'	10-31				77	
200'		1:33 PM			82	
250'					76	
300'		1:39 PM			72	
ON A LINE FROM PROBE 8.1 TO 8.3 & BEYOND						
PROBE 8.1 = 0	10-31		—			
50'		1:41 PM			76	
PROBE 8.3 100'					81	
150'		1:46 PM			76	
200'					[illegible]	
250'					74	
300'		1:54 PM			75	

NOTES:

(1) TEMPERATURE INSTRUMENT AGA TPT-80 S/N HANDHELD DIGITAL RADIOMETER, AGA CORP. 550 COUNTY ROAD, SECAUCUS, NEW JERSEY 07094. EMISSIVITY = 1.0.

(2) CAVITY TO SIMULATE A BLACK HOLE WERE APPROXIMATELY 1½ INCH DIAMETER X 4½ INCH DEEP HOLES.

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125 W. HUNTINGTON DRIVE
ARCADIA, CALIFORNIA 91006
(213) 445-7560

PROJECT RADIOMETER JOB NO 36422.00
DETAIL TEMPERATURE MEASUREMENTS
DATE
BY
SHT
OF

APPENDIX F

EXPLORATION WELL LOGS

DRILLING LOG

Well No.: [illegible]

Date: [illegible]

Location: COMPASS LANDFILL, TULSA, OK.

Altitude (Datum):

Method: 6½" [illegible]

Size of hole:

Size of casing: [illegible]

Driller: BOBBY [illegible], JIM WINNEC, INC.

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
[illegible]	1:50	*[illegible]		
[illegible]		[illegible]		[illegible]
		[illegible]		
19.5-[illegible]		DRY SHALE		
18.5	2:20	DRY SHALE		STORED [illegible]
		*HOUSEHOLD & INDUS-		INSTALLED [illegible]
		TRIAL WASTES		
				SOUTHERLY WIND 5-15M
				CLOUDY

DRILLING LOG

Well No.: 1.2

Date: 11-2-83

Location: COMPASS LANDFILL, TULSA, OK. Altitude (Datum):

Method: 6"ø HOLLOW AUGER Size of hole: Size of casing:

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-7	3:20	TRASH		[illegible]
7-9		OILY TRASH SOIL &		CLOUDY
		GRAVEL MIX.		
9-11.5		GREY SHALE		STOPPED DRILLING
				INSTALL [illegible]
				ON 11-5-8

DRILLING LOG

Well No.: 5.1

Date: 11-4-93

Location: COMPASS LANDFILL, TULSA, OK. Altitude (Datum):

Method: 6¼ HOLLOW AUGER Size of hole: Size of casing:

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-7	7:20	TRASH		
7-9		OILY TRASH, GREY SLUDGE		SAMPLED SPOILS @ 7 FT
9-13.5		SOFT WET SHALE		
13.5		SHALE		STOPPED DRILLING
				N. WINDS 5-15 M
				CLOUDY
				INSTALLED PIPE

DRILLING LOG

Well No.: 22

Date: 11-4-83

Location: COMPASS LANDFILL, TULSA, OK. ~~Altitude (Datum)~~: 25' W OF [illegible]

Method: 6 1/4" HOLLOW AUGER Size of hole: Size of casing

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-1	8:55	SOIL COVER		N WINDS AT 5 MPH
1-7		TRASH		CLOUDY
7-9		SILY GRAVEL & SHALE		
9	9:15	SHALE		STOPPED DRILLING

DRILLING LOG

Well No.: 2-3

Date: 11-4-93

Location: COMPASS LANDFILL, TULSA, OK. ~~Altitude (Datum):~~ 42' S. OF [illegible]

Method: 6 1/4 HOLLOW AUGER Size of hole: Size of casing:

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-1	9:20	SOIL COVER		N WINDS [illegible] MPH
1-9		OILY TRASH, SLUDGE, & SOIL MIX		CLOUDY-
9-10		GREY SHALE		SANDED [illegible]
10		SHALE		STOPPED DRILLING
				INSTALLED PIPE

DRILLING LOG

Well No.: 2.4

Date: 11-4-85

Location: COMPASS LANDFILL, TULSA, O.K. Altitude (Datum): 28' E. OF 2.1

Method: 6 1/4 HOLLOW AUGER Size of hole: Size of casing:

Driller: K K

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-2	9:55	COVER SOIL & TRASH		N. WIND 5 TO 15 MPH
2-5.5		SANDY CLAY & ROCK		CLOUDY
5.5-7		OILY CLAY		
7		WET SHALE		REFUSAL

DRILLING LOG

Well No.: 2,5

Date: 11-4-93

Location: COMPASS LANDFILL, TULSA, OK. ~~Altitude (Datum)~~: 43'W & 18'S of 2,

Method: 6 1/4 HOLLOW AUGER Size of hole: Size of casing:

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-7	10:20	TRASH, SOIL MIX		N WINDS [illegible]
7-10		WET SANDY SLUDGE		SANDED [illegible]
10	10:15	STALE		STOPPED [illegible]
				INSTALLED [illegible]

DRILLING LOG

Well No.:

Date:

Location: COMPASS LANDFILL, TULSA, OK.

Altitude (Datum):

Method: 6¼" HOLLOW AUGER

Size of hole:

Size of casing:

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-2		[illegible]		
[illegible]		[illegible] TRASH		
[illegible]		[illegible]		[illegible]

DRILLING LOG

Well No.: [illegible]

Date: 11-2-83

Location: COMPASS LANDFILL, TULSA, OK. Altitude (Datum):

Method: 6¼ HOLLOW AUGER Size of hole: Size of casing:

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-1	10:00	SOIL COVER		S WIND 5-15 M.P.H
1-2		TRASH		CLOUDY
2-7		WET GREY CLAY (SHALE)		SAMPLED SPOYS @
7-23.5		WET GREY SHALE		
23.5	11:15	SHALE		STOPPED DRILLING
				DRILLED WATER @ 3'

DRILLING LOG

Well No.: 3.3

Date: 11-4-8?

Location: COMPASS LANDFILL, TULSA, O.K. Altitude (Datum):

Method: 6 1/8 HOLLOW AUGER Size of hole: Size of casing

Driller: K K

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-1.5		SOIL COVER		
1.5-2		TRASH		
2		ROCK		REFUSAL
				MOVED 3' EAST

DRILLING LOG

Well No.: 3,-

Date: [illegible]-4-83

Location: COMPASS LANDFILL, TULSA, OK.

Altitude (Datum):

Method: 6 1/4" HOLLOW AUGER

Size of hole:

Size of casing

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-1.6	2:10	SOIL COVER		
1.6-4		TRASH & SOIL		
4-6		OILY WET TRASH & SOIL		[illegible]
6-5		OILY WET SLUDGE		
8	2:15	ROCK		REFUSAL

DRILLING LOG

Well No.: [illegible]

Date: 11-1-[illegible]

Location: COMPASS LANDFILL, TULSA, OK. Altitude (Datum):

Method: 4 1/4 [illegible] AUGER Size of hole: Size of casing:

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
WELL	4.1			[illegible]
				[illegible]
0-2	10:55	TRASH		
2-6		OIL & WATER SOAKED TRASH		
6-7		WATER SOAKED SOIL		[illegible]
7		ROCK		[illegible]
				[illegible]
WELL	4.2			
0-2		TRASH		
2-3		OIL SOAKED TRASH		
3		ROCK		REFUSAL [illegible]
				SOUTH
WELL	4.3			
0-2		TRASH		
2-3		OIL SOAKED TRASH		
3		ROCK		REFUSAL [illegible]
WELL	4.4			
0-2		TRASH		
2-3		OIL SOAKED TRASH		
3		ROCK		[illegible]
				[illegible]
WELL	4.5			
0-6		TRASH		
6-7		OIL & WATER SOAKED TRASH		
7		ROCK		REFUSAL [illegible]
				SOUTH

DRILLING LOG

Well No.: 4.6

Date: [illegible]-35

Location: COMPASS LANDFILL, TULSA, OK.

Altitude (Datum):

Method: 6 1/4" HOLLOW CORE AUGER

Size of hole:

Size of casing:

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-2.5	[illegible]	SOIL [illegible]		
2.5-6		OIL SOAKED TRASH		
6-13.5		OILY SLUDGE		SAMPLED [illegible]
13.5	2:45	SHALE		[illegible]
				SET PROBE
				[illegible]
				[illegible]

DRILLING LOG

Well No: [illegible]

Date: [illegible]

Location: COMPASS LANDFILL, TULSA, OK.

Altitude (Datum):

Method: 4" SOLID AUGER

Size of hole: 4"

Size of casing: —

Driller: [illegible]

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
5-6	[illegible] PM	SOIL COVER		[illegible]
[illegible]	[illegible]	RESIDENTAL TRASH		[illegible]
[illegible] 13		TRASH & SOIL		
13-14.5		[illegible] MUD [illegible]		
14.5		ROCK		REFUSAL - MOVED 12 [illegible]
				TO SW
				FILLED IN HOLE [illegible]
				[illegible]
				[illegible]

DRILLING LOG

Well No.: [illegible]

Date: 10-15-93

Location: COMPASS LANDFILL, TULSA, OK.

Altitude (Datum):

Method: 4" SOLID COLE AUGER

Size of hole:

Size of casing:

Driller: JIM WINNEC INC. BOBBY HOLLAND

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-4	2:55	SOIL COVER		
4-8	*	TRASH		
8-10		OILY GREY CLAY		SAMPLED [illegible]
10-22.5		NO SPOILS		
22.5	3:10	ROCK		REFUSAL
	*	INDUSTRIAL & [illegible]		[illegible]
		OLD WASTES		[illegible]
				[illegible]
				[illegible]

DRILLING LOG

Well No.: [illegible]

Date: [illegible]

Location: COMPASS LANDFILL, TULSA, O.K.

Altitude (Datum):

Method: [illegible] AUGER

Size of hole: [illegible]

Size of casing:

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
[illegible]	[illegible]	SOIL COVER		
1.5		ROCK		REFUSAL
				[illegible]
				NO LEACHATE

DRILLING LOG

Well No.: [illegible]

Date: 10-25-93

Location: COMPASS LANDFILL, TULSA, OK.

Altitude (Datum):

Method: 6¼" HOLLOW AUGER

Size of hole:

Size of casing:

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-4'		SOIL COVER - ROCK		
4		ROCK		REFUSAL
				MOVED 2' EAST
				OF [illegible]

DRILLING LOG

Well No.: 5.1.5

Date: [illegible]

Location: COMPASS LANDFILL, TULSA, OK. Altitude (Datum):

Method: 6¼ HOLLOW AUGER Size of hole: Size of casing:

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-2	8:50	SOIL COVER		[illegible]
2-6	9:20	TRASH		
6	9:20	ROCK		[illegible]
				MOVED TO 3'- EAST
				OF 5.1.2

DRILLING LOG

Well No.: 5.1.6

Date: 10-26-83

Location: COMPASS LANDFILL, TULSA, OK. Altitude (Datum):

Method: 6¼ HOLLOW AUGER Size of hole: Size of casing:

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0 - 2		SOIL COVER		2 FT E. OF S.1.2
2-11		TRASH		
12-18'		OIL SOAKED TRASH &	SOIL MIX	
18'	9:45	ROCK		[illegible]
9:45 -	11:30			INSTALLED [illegible]
				MOVED 100 [illegible]
				[illegible]

DRILLING LOG

Well No.:

Date:

Location: COMPASS LANDFILL, TULSA, O.K.

Altitude (Datum):

Method: 6¼" HOLLOW AUGER

Size of hole: 6¼

Size of casing:

Driller: [illegible]

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-2	1:00PM	SOIL COVER -		[illegible]
[illegible]		OILY TRASH		
6		ROCK		REFUSAL.
				MOVED 2' TO WEST
				SEE [illegible]

DRILLING LOG

Well No.:

Date: 5-26-92

Location: COMPASS LANDFILL, TULSA, OK.

Altitude (Datum):

Method:

Size of hole:

Size of casing:

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-2'		SOIL COVER		
2-5		OILY TRASH		
5-7		OILY SLUDGE		[illegible]

DRILLING LOG

Well No.: 5.1.9

Date: 10-26-33

Location: COMPASS LANDFILL, TULSA, OK. Altitude (Datum):

Method: 6 1/4" HOLLOW AUGER Size of hole: 6 1/4" Size of casing

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-2	1:55	SOIL COVER		
2-15		OILY TRASH		
15-18		OILY SLUDGE & TRASH		SAMPLED [illegible]
18		ROCK		REFUSAL
	3:00 TO	4:30		PROBE INSTALLED
				MOVE 100' WEST

DRILLING LOG

Well No.: 5.1.10

Date: 10-27-93

Location: COMPASS LANDFILL, TULSA, OK. Altitude (Datum):

Method: 6 1/4" HOLLOW AUGER Size of hole: Size of casing

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-1.5	8:00	SOIL COVER		
1.5-13		TRASH: WET COMPOSTED		
13-13.5	9:00	OILY SLUDGE & TRASH		
13.5		ROCK		REFUSAL-
				MOVED 5' TO SOUTH

DRILLING LOG

Well No.:

Date: 10-27-83

Location: COMPASS LANDFILL, TULSA, OK. Altitude (Datum):

Method: 6 1/4 HOLLOW AUGER Size of hole: Size of casing:

Driller: R HOLLAND

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-4	9:15	SOIL COVER		SE WIND 0-05 MP-
4-13	9:25	TRASH		
13-14	9:28	OIL SOILED TRASH		SAMPLED CUTTINGS D
14		ROCK		REFUSAL
				DRILL INSTALLED

DRILLING LOG

Well No.: 21

Date:

Location: COMPASS LANDFILL, TULSA, OK.

Altitude (Datum):

Method: 6 1/4" HOLLOW AUGER

Size of hole:

Size of casing:

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
[illegible].5	20	RED		S WINDS 5 TO 5 [illegible]
[illegible].5	11:30	LIMESTONE		25 FUSAL
				MOVED 3 FT SOUTH

DRILLING LOG

Well No.: [illegible]

Date: 11-3-83

Location: COMPASS LANDFILL, TULSA, OK.

Altitude (Datum):

Method: 6¼ HOLLOW AUGER

Size of hole:

Size of casing:

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-6	[illegible]	SO[illegible]		
[illegible].5	1[illegible]	WET GREY SLUDGE		
[illegible].5	12:00	HARD SHALE		REFUSAL
				MOVED 6' NORTH

DRILLING LOG

Well No.:

Date:

Location: COMPASS LANDFILL, TULSA, OK. ~~Altitude (Datum)~~: 72' S OF 1,2

Method: 6¼" HOLLOW AUGER Size of hole: Size of casing:

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-6	1:10	TRASH		S. WIND 5TO15 MPH
6-8.5		OILY WET SOIL		
8.5		SHALE		REFUSAL

DRILLING LOG

Well No.: 71

Date: 10-27-83

Location: COMPASS LANDFILL, TULSA, OK. Altitude (Datum):

Method: 6 1/4 HOLLOW STEM AUGER Size of hole: 6 1/4 Size of casing:

Driller: T. WINNEC

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-3	3:25	SOIL COVER		S. WIND 7-10 MPH
3-11		TRASH - OILY TRASH		
11-14		OILY SLUDGE		SAMPLE SPOON @ 11
14	4:00	LIMESTONE		REFUSAL
				INSTALLED PIPE

DRILLING LOG

Well No.: 7.2

Date: 10-28-83

Location: COMPASS LANDFILL, TULSA, OK.

Altitude (Datum):

Method: 6 1/4 HOLLOW AUGER

Size of hole:

Size of casing:

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-1	8:30	SOIL COVER		S WINDS 3 TO 10 K
1-14		COVERALLS, PLASTIC		
14		ROCK		REFUSAL
				INSTALLED PROBE

DRILLING LOG

Well No.: 7.3

Date: 10-23-92

Location: COMPASS LANDFILL, TULSA, OK.

Altitude (Datum):

Method: 6¼" HOLLOW AUGER

Size of hole:

Size of casing:

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
[illegible]2	10:45	SOIL COVER		SAND [illegible]
1.2.3		OIL TRASH, WIRE		
3	11:05	ROCK		REFUSAL
				INSTALLED PROBE
				ALMOST NO LOTINES.
				NO SAMPLE

DRILLING LOG

Well No.: 31

Date: 10-31-85

Location: COMPASS LANDFILL, TULSA, O.K.

Altitude (Datum):

Method: 6¼" HOLLOW AUGER

Size of hole:

Size of casing

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-1	7:55	SOIL COVER		S WIND 0-5 MPH
1-4		TRASH, OILY TRASH		[illegible]
4-14.5		OILY SLUDGE		
14.5	8:20	ROCK		REFUSAL
	8:20 -	10:00		INSTALLED [illegible]

DRILLING LOG

Well No.:

Date:

Location: COMPASS LANDFILL, TULSA, OK.

Altitude (Datum):

Method: HOLLOW AUGER

Size of hole: 6 1/4

Size of casing:

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-1	10:50	[illegible]		S WIND 1 TO 5 MPH
[illegible]		[illegible]		
3		OILY GREY CLAY & TRASH		
12		OILY SLUDGE		
12	11:05	ROCK		[illegible]
				MOVED 50' SOUTH

DRILLING LOG

Well No.: 1.3

Date: 10-31-83

Location: COMPASS LANDFILL, TULSA, OK. Altitude (Datum):

Method: 6½" HOLLOW AUGER Size of hole: Size of casing

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-1	12:15	COVER SOIL		
1-3		TRASH		
3-5		WHITE TO GREY CLAY		
5-11		GREY TO BLACK WET CLAY		SAMPLED SPOONS @ 11'
11-19		OIL SOAKED SANDY CLAY		
19-27		WET SOFT SHALE		
27	1:15	HARD SHALE ?		REFUSAL
	1:15 -	3:00		INSTALLED PROBE

DRILLING LOG

Well No.: [illegible]

Date: 11-[illegible]-85

Location: COMPASS LANDFILL, TULSA, OK.

Altitude (Datum): [illegible]

Method: 6 1/4" HOLLOW AUGER

Size of hole: 6 1/4"

Size of casing:

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-1	7:40	SOIL COVER		E. WIND [illegible] 3-5 MPH
1-2.5		TRASH		CLOUDY
2.5-11		GREY CLAY WITH [illegible]		
11-11.5		WET SOAKED CLAY		
11.5	9:[illegible]	ROCK		REFUSAL AT [illegible]

DRILLING LOG

Well No.: 35

Date: 11-1-93

Location: COMPASS LANDFILL, TULSA, O.K. ~~Altitude (Datum)~~ 96' N 3.= 3.

Method: 6 1/4 HOLLOW AUGER

Size of hole:

Size of casing

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-1	8:15	SOIL COVER		SE. AND [illegible]
1-2.5		TRASH		
2.5-13.5		GREY CLAY & TRASH		SAN [illegible]
13.5-13.7		OILY SLUDGE		
13.7	9:05	HARD SHALE & (ROCKS?)		NO PENETRATION [illegible]
				ROTATION POSSIB [illegible]
				w/ RIG.
				INSTALLED PIPE

DRILLING LOG

Well No.: 9,1

Date: 10-[illegible]

Location: COMPASS LANDFILL, TULSA, OK.

Altitude (Datum):

Method: [illegible] CORE AUGER

Size of hole:

Size of casing:

Driller: B HOLLAND

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-1	10:25	COVER SOIL		
1		[illegible]		BEF[illegible]

DRILLING LOG

Well No.: . .

Date: 10-27-83

Location: COMPASS LANDFILL, TULSA, OK. Altitude (Datum):

Method: 6¼ HOLLOW CORE AUGERS Size of hole: Size of casing:

Driller: B. HOLLAND

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-2	12:45	SOIL COVER		[illegible]
2-5.5		OIL SOAK [illegible] SAND		
5.5	1:00	ROCK		[illegible]

DRILLING LOG

Well No.: 9.3

Date: 10-27-93

Location: COMPASS LANDFILL, TULSA, OK. Altitude (Datum):

Method: 6¼ HOLLOW AUGER Size of hole: Size of casing

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-1	1:20	SOIL COVER		S WIND 2 D 10 N P=
1-2		TRASH		
2-10		OIL SOAKED SOIL		SAMPLE SPOILS
10		ROCK		REFUSAL
				INSTALLED PROBE

DRILLING LOG

Well No.: 9.4

Date: 10-27-83

Location: COMPASS LANDFILL, TULSA, OK. Altitude (Datum):

Method: 6¼ HOLLOW CORE AUGERS Size of hole: Size of casing:

Driller: B HOLLAND

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-2	2.00	SOIL COVER & TRASH		5 WIND 2 DIG MDH
2-5		DRY SAND		SANDED [illegible]
5	[illegible]	ROCK		REFUSAL

DRILLING LOG

Well No.: 95

Date: 10-27-83

Location: COMPASS LANDFILL, TULSA, OK. Altitude (Datum):

Method: 6¼ HOLLOW CORE AUGERS Size of hole: 6¼ Size of casing:

Driller: B. HOLLAND

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-1.5	3:05	SOIL COVER		S[illegible]
1.5		ROCK		[illegible]
				[illegible]
				[illegible]

DRILLING LOG

Well No.: 96

Date: 10-27-83

Location: COMPASS LANDFILL, TULSA, OK. Altitude (Datum):

Method: 6 1/4 HOLLOW CORE Size of hole: Size of casing:

Driller: B HOUND

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-1	3:20	SOIL COVER		[illegible]
1		SOLID ROCK		[illegible]

DRILLING LOG

Well No.: [illegible]

Date: [illegible]

Location: COMPASS LANDFILL, TULSA, OK.

~~Altitude~~ (Datum): [illegible]

Method: [illegible]

Size of hole: [illegible]

Size of casing: [illegible]

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-	[illegible]	[illegible] COVER		[illegible]
3.5-		OIL SOAKED TRASH		
14		OILY [illegible]		[illegible]
[illegible]		ROCK		[illegible]
	[illegible]	[illegible]		INSTALLED [illegible]

DRILLING LOG

Well No.:

Date:

Location: COMPASS LANDFILL, TULSA, OK.

Altitude (Datum):

Method:

Size of hole:

Size of casing:

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
				* SAMPLED SOIL
		ROCK		REFUSAL
				INSTALLED
				*

DRILLING LOG

Well No.:

Date: -93

Location: COMPASS LANDFILL, TULSA, OK. Altitude (Datum):

Method: 6 1/4 HOLLOW AUGER Size of hole: Size of casing

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
-3		TRACE		N. WOOD STOCK [illegible]
8-1.5		[illegible]		
12.5		[illegible]		STOPPED DRILLING
				INSTALLED PIPE

DRILLING LOG

Well No.: 11.1

Date: 1.-7

Location: COMPASS LANDFILL, TULSA, OK.

Altitude (Datum): [illegible]

Method: 6¼ HOLLOW AUGER

Size of hole:

Size of casing

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-1	7:30	TOP SOIL		SOUND 5-[illegible]
1-2		TRASH		
2	7:35	ROCK		REFUSAL
				MOVED 3' SOUTH

DRILLING LOG

Well No.: [illegible]

Date: 11-7

Location: COMPASS LANDFILL, TULSA, OK.

Altitude (Datum):

Method: [illegible]

Size of hole: [illegible]

Size of casing:

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
11-2				
0-1	7:37	[illegible]		[illegible]
1-2		TRACE		
2	[illegible]	ROCK		[illegible]
11-3				[illegible]
0-1	[illegible]	TOP SOIL		
1-2		TRACE		
2	7:[illegible]	ROCK		[illegible]
				[illegible] 17' [illegible]

DRILLING LOG

Well No.: 11. 4

Date: [illegible]-7-95

Location: COMPASS LANDFILL, TULSA, OK.

Altitude (Datum):

Method: 6¼ HOLLOW AUGER

Size of hole:

Size of casing

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-1	7:55	[illegible]		[illegible]
1-3		TRASH		
3-65		OIL SOAKED TRASH & CLAY		[illegible]
65	[illegible]	[illegible]		[illegible]

DRILLING LOG

Well No.: [illegible]

Date: [illegible]-7

Location: COMPASS LANDFILL, TULSA, OK.

~~Altitude (Datum)~~: [illegible]

Method: 6¼ HOLLOW AUGER

Size of hole:

Size of casing

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-1	8:25	TOP SOIL		S. WIND [illegible]
1-6		OIL SANDY CLAY		
6-14.5		OIL SOAKED TRASH		STOPPED SPOILS [illegible]
14.5	9:07	RUSER [illegible]		
	9:30	[illegible]		
	9:40	STARTED DRILLING		
14.5-[illegible]		NO CUTTINGS		
[illegible]	[illegible]	SAME		STOPPED DRILLING
				INSTALLED [illegible]

DRILLING LOG

Well No.: 13.1

Date: 11-7

Location: COMPASS LANDFILL, TULSA, OK. ~~Altitude (Datum):~~ 150' W OF REF PT

Method: 6 1/2" HOLLOW AUGER Size of hole: Size of casing:

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
0-1.5	[illegible]	TOP SOIL		SLIGHTLY SANDY CLAY
1.5-2.5		TRASH		
2.5-8		OIL SOAKED TRASH		[illegible]
8-23.4		OILY SLUDGE		
23.4	[illegible]	[illegible]		[illegible]
				INSTALLED PROBE

DRILLING LOG

Well No.: [illegible]

Date: [illegible]-8-88

Location: COMPASS LANDFILL, TULSA, OK.

~~Altitude~~ (Datum): [illegible]

Method: 4" SOLID AUGER

Size of hole:

Size of casing:

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
WELL NO. 14.1				S. WIND 5-15 MPH, CLDY
0-1	[illegible]	SOIL COVER	14.1	
1-2		TRASH		
2	[illegible]	[illegible]		[illegible] 1' SOUTH
WELL NO. 14.2				
0-1	[illegible]	SOIL COVER		
1-5.5		TRASH		
5.5-19		BURIED [illegible]		SAMPLED SOILS 5½' & 17'
19-26		OIL [illegible]	14.2	
26-27		[illegible]		
27	[illegible]	[illegible]		
		MAYBE BOTTOM OF L.F.		VOIDED 7' EAST
WELL NO. 14.3				
0-1	11:00	SOIL COVER	14.3	
1-21.5		TRASH		
21.5-[illegible]	[illegible]	ROCK		[illegible]
WELL NO. 14.4				
0-1	12:30	[illegible]	14.4	
1-5		TRASH		
5.5-19		BURIED [illegible]		
[illegible]		[illegible]		
		[illegible]		[illegible]
WELL [illegible]	[illegible]			
0-1	12:50	[illegible]	[illegible]	
[illegible]-5				
[illegible]		BURNED [illegible]		
	[illegible]			[illegible]
				[illegible]

DRILLING LOG

Well No.: .1

Date: 1 - 93

Location: COMPASS LANDFILL, TULSA, OK.

Altitude (Datum):

Method: SOLID AUGER

Size of hole:

Size of casing:

Driller:

DEPTH	TIME	DESCRIPTION	GRAPHIC LOG	COMMENTS
2-2				
				SAN

TULSA
918/835-8756
835-2482

Jim Winneck, Inc.

5018 E. ARCHER
P.O. BOX 15770
TULSA, OKLAHOMA 74112

REPORT NO.

DAILY DRILL REPORT AND LOG

Hole No. L-1 Date 11/3/83 Depth 0.0 To ___ Shift ___ Drill No. 5

Client ___ Address ___

Project Location Chandler Low Fill Hole Location ___

Client's Representative Frank Driller Bobby Hallard Hrs. ___

Helper Rex Kissee Hrs. ___ Helper Don Clements Hrs. ___

BITS USED					DIAMOND BITS USED			
No	Type	Size	From	To	Serial No.	Size	From	To
		6 1/4						

MUD AND LOSS CIRCULATION MATERIAL			CEMENT	CASING INFORMATION			
Manufacturer	No. Sacks	Weight	No. Sacks	Size	Ft. - Run	Ft. - Pulled	Ft. - Left

STAND BY TIME (HRS.) Rig Rig & Crew

DEPTH From	DEPTH To	FORMATIONS	TYPE DRLG.	DRILLING TIME Start	Stop	From	To	CORE LOSS
0.0	7.0	Trash						
7.0	10.5	Slug Oil gravel Trash						
10.5	18.5	Gray Shale Dry			INSTALLATION			
				200	330			
		1.2						
0.0	7.0	Trash						
7.0	9.0	Oil gravel Trash						
9.0	11.5	Gray Shale						

WATER DEPTH WHILE DRILLING (FT.) (24 HRS.)

TULSA
918/835-8756
835-2482

Jim Winneck, Inc.

5018 E. ARCHER
P.O. BOX 15770
TULSA, OKLAHOMA 74112

REPORT NO.

11/7/85 DAILY DRILL REPORT AND LOG

Hole No. 2.1 Date 0-0 Depth _____ To ___ Shift _____ Drill No. _____

Client _____ Address _____

Project Location Chandler Land Fill Hole Location _____

Client's Representative Frank Driller _____ Hrs. _____

Helper _____ Hrs. _____ Helper _____ Hrs. _____

BITS USED					DIAMOND BITS USED			
No	Type	Size	From	To	Serial No.	Size	From	To
		6 1/4						

MUD AND LOSS CIRCULATION MATERIAL			CEMENT	CASING INFORMATION			
Manufacturer	No. Sacks	Weight	No Sacks	Size	Ft. - Run	Ft. - Pulled	Ft. - Left
			STAND BY TIME (HRS.)	Rig	Rig & Crew		

DEPTH From	DEPTH To	FORMATIONS	TYPE DRLG.	DRILLING TIME Start	DRILLING TIME Stop	DRILLING TIME From	DRILLING TIME To	CORE LOSS
		Trash						
		Oil and Trash						
		Gray Runny Sludge with			FNS			
		Gravel						
9.0	13.5	Soft wet Shale		725	845			

WATER DEPTH WHILE DRILLING (FT.) (%) MRS.

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REPORT NO.

DAILY DRILL REPORT AND LOG

Hole No. 2.1 Date 11/4/83 Depth 0.0 To / Shift _____ Drill No. 5

Client _____ Address _____

Project Location Chandler Landfill Hole Location _____

Client's Representative _____ Driller Robby Hollands Hrs. _____

Helper Rex Kissee Hrs. _____ Helper _____ Hrs. _____

BITS USED					DIAMOND BITS USED			
No	Type	Size	From	To	Serial No.	Size	From	To
		6 1/4						

MUD AND LOSS CIRCULATION MATERIAL			CEMENT	CASING INFORMATION			
Manufacturer	No. Sacks	Weight	No. Sacks	Size	Ft. - Run	Ft. - Pulled	Ft. - Left

STAND BY TIME (HRS.) Rig Rig & Crew

DEPTH From	DEPTH To	FORMATIONS	TYPE DRLG.	DRILLING TIME Start	Stop	From	To	CORE LOSS
0.0		2.1						
				Installation				
				7:25	8:45			
		2.2						
0.0	1.0	Top soil						
1.0	7.0	Trash (fill)						
7.0	9.0	Grey oily gravel						
	9.0	Grey shell						
		2.3						
0.0	1.0	Top soil		Installation				
1.0	5.0	Grey oily trash						
5.0	9.0	Grey oily gravel + Rock		7:25	—	8:45		
9.0	10.0	Grey Shell						

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REPORT NO.

DAILY DRILL REPORT AND LOG

Hole No. 3.1 & 3.2 Date 11/2/83 Depth 0.0 To ___ Shift ___ Drill No. 5

Client ___ Address ___

Project Location Chandler Lake Fill Hole Location ___

Client's Representative Frank Driller Bobby Holland Hrs. ___

Helper ___ Hrs. ___ Helper Rex Kissee Hrs. ___

BITS USED					DIAMOND BITS USED			
No	Type	Size	From	To	Serial No.	Size	From	To
		6 1/4						

MUD AND LOSS CIRCULATION MATERIAL			CEMENT	CASING INFORMATION			
Manufacturer	No. Sacks	Weight	No. Sacks	Size	Ft. - Run	Ft. - Pulled	Ft. - Left

STAND BY TIME (HRS.) Rig ___ Rig & Crew ___

DEPTH From	DEPTH To	FORMATIONS	TYPE DRLG.	DRILLING TIME Start	Stop	From	To	CORE LOSS
0.0	2.0	Trash						
2.0	4.0	Gray Clay With Some Trash						
	4.0	Refusal						
3.2								
0.0	2.0	Trash		INSULATION				
2.0	7.0	Gray Clay With Trash						
7.0	13.5	Gray Shale		11:00	11:30			
				Lunch				
	13.5			12:00	1:00			

WATER DEPTH WHILE DRILLING (FT.) (24 HRS.)

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REPORT NO

DAILY DRILL REPORT AND LOG

Hole No. 3.3 Date 11/4/83 Depth 0.0 To / Shift _____ Drill No. 5

Client: Chandler's Landfill Address _____

Project Location _____ Hole Location _____

Client's Representative _____ Driller Bobby Holland Hrs. _____

Helper _____ Hrs. _____ Helper Rex Kissee Hrs. _____

BITS USED					DIAMOND BITS USED			
No	Type	Size	From	To	Serial No.	Size	From	To
		6 1/4						

MUD AND LOSS CIRCULATION MATERIAL			CEMENT	CASING INFORMATION			
Manufacturer	No. Sacks	Weight	No. Sacks	Size	Ft. - Run	Ft. - Pulled	Ft. - Left

STAND BY TIME (HRS.) Rig Rig & Crew

DEPTH From	DEPTH To	FORMATIONS	TYPE DRLG.	DRILLING TIME Start	Stop	From	To	CORE LOSS
		3.3						
0.0	1.5	Top soil						
1.5	2.0	Trash						
	2.0	Refusal						
		3.4						
0.0	1.5	Top soil						
1.5	4.0	Trash						
4.0	6.0	Grey oily sand + Gravel + Trash						
6.0	8.0	Runny oily sludge						
		10.1						
				Installation				
0.0	8.0	Trash (fill)						
8.0	12.5	oil soked trash		3:45	—	5:00		
12.5	13.0	Gray Shell						

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REPORT NO.

DAILY DRILL REPORT AND LOG

Hole No. 4.1 Date 11/1/83 Depth _____ To ___ Shift _____ Drill No. _____

Client _____ Address _____

Project Location Chandler Sani Fill Hole Location _____

Client's Representative Frank Driller _____ Hrs. _____

Helper _____ Hrs. _____ Helper _____ Hrs. _____

BITS USED					DIAMOND BITS USED			
No	Type	Size	From	To	Serial No.	Size	From	To
		6 1/4						

MUD AND LOSS CIRCULATION MATERIAL			CEMENT	CASING INFORMATION			
Manufacturer	No. Sacks	Weight	No. Sacks	Size	Ft. - Run	Ft. - Pulled	Ft. - Left
			STAND BY TIME (HRS.)	Rig	Rig & Crew		

DEPTH From	DEPTH To	FORMATIONS	TYPE DRLG.	DRILLING TIME Start	Stop	From	To	CORE LOSS
0.0	2.0	Trash						
2.0	6.0	Oil Soaked Trash						
6.0	7.0	Water Soaked Shale						
	7.0	Refusal						
		4.2						
0.0	2.0	Trash						
2.0	3.0	0.1 Soaked Trash						
		Refusal						
		4.3						
0.0	2.0	Trash						
2.0	3.0	0.1 Soak Trash						
		Refusal						
		4.4						
0.0	2.0	Trash						
2.0	3.0	0.1 Soaked Trash						
		Refusal						
		4.5						
0.0	6.0	Trash						
6.0	7.0	0.1 Soaked Trash						

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REPORT NO.

DAILY DRILL REPORT AND LOG

Hole No. 4.6 Date 1/1/83 Depth 0.0 To ___ Shift ___ Drill No. ___

Client ___ Address ___

Project Location Chandler's Land Fill Hole Location ___

Client's Representative Frank Driller ___ Hrs. ___

Helper ___ Hrs. ___ Helper ___ Hrs ___

BITS USED					DIAMOND BITS USED			
No	Type	Size	From	To	Serial No.	Size	From	To
		6 1/4						

MUD AND LOSS CIRCULATION MATERIAL			CEMENT	CASING INFORMATION			
Manufacturer	No. Sacks	Weight	No. Sacks	Size	Ft. - Run	Ft. - Pulled	Ft. - Left
			STAND BY TIME (HRS.)	Rig	Rig & Crew		

DEPTH From	DEPTH To	FORMATIONS	TYPE DRLG.	DRILLING TIME Start	Stop	From	To	CORE LOSS
0.0	2.5	Trash						
2.5	6.0	0.1 Soomed Trash						
6.0	13.5	0.1 Slugged.						
	13.5	Petsal Shale.						

WATER DEPTH WHILE DRILLING (FT.) (24 HRS.)

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REPORT NO.

DAILY DRILL REPORT AND LOG

Hole No. 511 Date 10/25/83 Depth 0.0 To ___ Shift ___ Drill No. 5

Client ___ Address ___

Project Location Chandler Land Fill Hole Location ___

Client's Representative Frank Driller [illegible] Hrs. —

Helper ___ Hrs. ___ Helper [illegible] Hrs. —

BITS USED					DIAMOND BITS USED			
No	Type	Size	From	To	Serial No.	Size	From	To
		4"						

MUD AND LOSS CIRCULATION MATERIAL			CEMENT	CASING INFORMATION			
Manufacturer	No. Sacks	Weight	No. Sacks	Size	Ft. - Run	Ft. - Pulled	Ft. - Left

STAND BY TIME (HRS.) Rig Rig & Crew

DEPTH From	DEPTH To	FORMATIONS 511	TYPE DRLG.	DRILLING TIME Start	Stop	From	To	CORE LOSS
0.0	14.5	Brown Silty Sand Fill	4"	No Change				
14.5		Refusal						
		Silt						
0.0	4.6	Natural Ground						
4.0	22.0	Brown Sand [illegible] Fill	4"					
		Fill						
0.0	4.0	Top Soil	4/4					
		Total Footage						
		NO TRSUMAN						
		ON 10/25/83						

WATER DEPTH WHILE DRILLING (FT.) (24 HRS.)

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REPORT NO.

DAILY DRILL REPORT AND LOG

Hole No. 5.1.5 Date 10/24/83 Depth 0.0 To ___ Shift - Drill No. 5

Client ___ Address ___

Project Location Chandler Land Fill Hole Location ___

Client's Representative Frank Driller Bobby Holland Hrs. -

Helper Rex Kisser Hrs. ___ Helper Don Clemmons Hrs. -

BITS USED					DIAMOND BITS USED			
No	Type	Size	From	To	Serial No.	Size	From	To
		6 1/4						

MUD AND LOSS CIRCULATION MATERIAL			CEMENT	CASING INFORMATION			
Manufacturer	No. Sacks	Weight	No. Sacks	Size	Ft. - Run	Ft. - Pulled	Ft. - Left

STAND BY TIME (HRS.) Rig Rig & Crew

DEPTH From	DEPTH To	FORMATIONS	TYPE DRLG.	DRILLING TIME Start	Stop	From	To	CORE LOSS
0.0	2.0	Top Soil	6 1/4					
2.0	6.0	Trash Fill		835	905			
6.0		Refusal						
				905	910	mouth	Sal	
		5.1.6	6 1/4					
0.0	2.0	Top Soil		910	945			
2.0	13.0	Trash Fill						
13.0	18.0	Oil Soak Sand and Trash Fill						
	18.0	Refusal		945	1130	Insulation		

Total Ft on 10/24/83

55 ft

Total Insulation Hrs

5 hr 15 min

WATER DEPTH WHILE DRILLING (FT.) (24 HRS.)

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~~5.1.7~~ REPORT NO.

5.1.7

DAILY DRILL REPORT AND LOG

Hole No. ~~1.5.7~~ Date 10/24/89 Depth 0.0 To ___ Shift ___ Drill No. ___

Client ___ Address ___

Project Location Chandler Land Fill Hole Location ___

Client's Representative Frank Driller Bobby Hudson Hrs. —

Helper Rex Kisser Hrs. — Helper Donald Clemmons Hrs. —

BITS USED					DIAMOND BITS USED			
No	Type	Size	From	To	Serial No.	Size	From	To
		6 1/4						

MUD AND LOSS CIRCULATION MATERIAL			CEMENT	CASING INFORMATION			
Manufacturer	No. Sacks	Weight	No. Sacks	Size	Ft. - Run	Ft. - Pulled	Ft. - Left

STAND BY TIME (HRS.) Rig Rig & Crew

DEPTH From	DEPTH To	FORMATIONS	TYPE DRLG.	DRILLING TIME Start	Stop	From	To	CORE LOSS
0.0	2.0	TOPSOIL	6 1/4	1				
2.0	6.0	Fill - trash some oil						
6.0	6.0	REFUSAL						
		~~1.5.8~~ 6.1.8						
0.0	2.0	Top Soil	6 1/4	1				
2.0	5.0	Fill Trash						
5.0	7.0	Oil Soaked Trash						
7.0	7.0	Refusal						
		~~1.5.9~~ 6.1.9						
0.0	2.0	Top Soil	6 1/4	1:45	3:00			
2.0	10.5	Oil Soaked trash Fill						
10.5		Oil Soaked trash and	TRSUAKIN	3:00	4:30			
	18.0	trash Fill						
	18.0	Refusal						

WATER DEPTH WHILE DRILLING (FT.) (24 HRS.)

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REPORT NO.

DAILY DRILL REPORT AND LOG

Hole No. 5.1.0 Date 9/27 Depth 0.0 To ___ Shift — Drill No. 5

Client ___ Address ___

Project Location Chandler Lan Fill Hole Location ___

Client's Representative Frank Driller Bobby Holland Hrs. ___

Helper Rex Kissee Hrs. ___ Helper Don and Clearmont Hrs. ___

BITS USED					DIAMOND BITS USED			
No	Type	Size	From	To	Serial No.	Size	From	To
		6 3/4						

MUD AND LOSS CIRCULATION MATERIAL			CEMENT	CASING INFORMATION			
Manufacturer	No. Sacks	Weight	No Sacks	Size	Ft. - Run	Ft. - Pulled	Ft. - Left
			STAND BY TIME (HRS.)	Rig	Rig & Crew		

DEPTH From	DEPTH To	FORMATIONS	TYPE DRLG.	DRILLING TIME Start	Stop	From	To	CORE LOSS
0.0	1.5	Top Soil			Insulation			?
1.5	13.0	Trash						
13.0	13.2	Oil Sand And Trash		910	950			
	13.5	Refusal						
		5.1.11			Insulation			
				9.35	11.15			
0.0	1.5	Top Soil						
1.5	13.0	Trash						
13.0	—	Oil Soaked Sand						
	14.0	and Trash						
	14.0	Refusal						

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REPORT NO.

DAILY DRILL REPORT AND LOG

Hole No. 6.1 Date 11/3/83 Depth 6.0 To ___ Shift ___ Drill No. 5

Client CV Address ___

Project Location Chandler Landfill Hole Location ___

Client's Representative ___ Driller Bobby Holland Hrs. ___

Helper ___ Hrs. ___ Helper Rex Kissee Hrs. ___

BITS USED					DIAMOND BITS USED			
No	Type	Size	From	To	Serial No.	Size	From	To
		6¼						

MUD AND LOSS CIRCULATION MATERIAL			CEMENT	CASING INFORMATION			
Manufacturer	No. Sacks	Weight	No. Sacks	Size	Ft. - Run	Ft. - Pulled	Ft. - Left

STAND BY TIME (HRS.) Rig Rig & Crew

DEPTH From	DEPTH To	FORMATIONS	TYPE DRLG.	DRILLING TIME Start	Stop	From	To	CORE LOSS
0.0	4.5	Trash		Ensulation				
				8.00	11.00			
		6.2						
0.0	6.0	Trash						
6.0	7.5	grey oily gravel						
		6.3						
0.0	6.0	Trash						
6.0	8.5	oily gravel						
	8.5	shell						

WATER DEPTH WHILE DRILLING (FT.) (24 HRS.)

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REPORT NO.

DAILY DRILL REPORT AND LOG

Hole No. 72 Date 10/29/ Depth 0-0 To — Shift — Drill No. 5

Client _____ Address _____

Project Location Chandler Land Fill Hole Location _____

Client's Representative Frank Driller Roney Holland Hrs. _____

Helper Don Kiesse Hrs. _____ Helper Don Crouch Hrs. _____

BITS USED					DIAMOND BITS USED			
No	Type	Size	From	To	Serial No.	Size	From	To
		6 1/4						

MUD AND LOSS CIRCULATION MATERIAL			CEMENT	CASING INFORMATION			
Manufacturer	No. Sacks	Weight	No. Sacks	Size	Ft. - Run	Ft. - Pulled	Ft. - Left

STAND BY TIME (HRS.) Rig Rig & Crew

DEPTH From	DEPTH To	FORMATIONS	TYPE DRLG.	DRILLING TIME Start	Stop	From	To	CORE LOSS
0.0	1.5	Top Soil						
1.5	14.0	Trash Fill						
		Refusal						
		7.3						
0.0	1.2	Top Soil						
1.2	13.0	Trash Fill		1100	1130			
	13.0	Refusal						
				1215	100			
		9.7						
0.0	3.5	Top Soil		Insulation				
3.5	14.0	Oily Sand and Trash Fill						
	14.0	Refusal		130	315			
		9.8						
					Insulation			
0.0	20	Top Soil		405	530			
		[illegible]						
0.0	21.0							

WATER DEPTH WHILE DRILLING (FT.) (24 HRS.)

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REPORT NO.

DAILY DRILL REPORT AND LOG

Hole No. 8.1 Date 10/21 Depth _____ To ___ Shift _____ Drill No. _____

Client _____ Address _____

Project Location Chandler Land Fill Hole Location _____

Client's Representative Frank Driller _____ Hrs. _____

Helper _____ Hrs. _____ Helper _____ Hrs. _____

BITS USED					DIAMOND BITS USED			
No	Type	Size	From	To	Serial No.	Size	From	To
		6 1/4						

MUD AND LOSS CIRCULATION MATERIAL			CEMENT	CASING INFORMATION			
Manufacturer	No. Sacks	Weight	No. Sacks	Size	Ft. - Run	Ft. - Pulled	Ft. - Left

STAND BY TIME (HRS.) Rig Rig & Crew

DEPTH From	DEPTH To	FORMATIONS	TYPE DRLG.	DRILLING TIME Start	Stop	From	To	CORE LOSS
0.0	1.0	Top Soil						
1.0	4.0	Trash						
4.0	11.0	Oil Soaked Trash			Insulation			
11.0	14.5	Runny Oil Soaked Trash						
	14.5	Refusal		9:50	10:45			
		8.2						
0.0	1.0	Top Soil						
1.0	3.0	Trash						
3.0	11.0	Gray Oil Soaked Trash						
11.0	12.0	Oil Soaked Clay						
	12.0	Refusal						

WATER DEPTH WHILE DRILLING (FT.) (24 HRS.)

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REPORT NO.

DAILY DRILL REPORT AND LOG

Hole No. 83 ? Date 10/3/83 Depth 0.0 To ___ Shift ___ Drill No. ___

Client ___ Address ___

Project Location Chandler Land Fill Hole Location ___

Client's Representative Frank Driller ___ Hrs. ___

Helper ___ Hrs. ___ Helper ___ Hrs. ___

BITS USED					DIAMOND BITS USED			
No	Type	Size	From	To	Serial No.	Size	From	To
		6 7/4						

MUD AND LOSS CIRCULATION MATERIAL			CEMENT	CASING INFORMATION			
Manufacturer	No. Sacks	Weight	No. Sacks	Size	Ft. - Run	Ft. - Pulled	Ft. - Left
			STAND BY TIME (HRS.)	Rig	Rig & Crew		

DEPTH From	DEPTH To	FORMATIONS	TYPE DRLG.	DRILLING TIME Start	Stop	From	To	CORE LOSS
0.0	1.0	Top Soil						
1.0	3.0	Trash						
3.0	5.0	White to gray clay fill						
5.0	11.0	Clay to black clay fill wet						
11.0	14.0	Oil Soaked Sand clay			INSULATION			
14.0	27.0	Soft loose Shale.						
	27.0	Refusal		1:10	3:00			

WATER DEPTH WHILE DRILLING (FT.) (24 HRS.)

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REPORT NO.

DAILY DRILL REPORT AND LOG

Hole No. 8.4 Date 11/1/83 Depth 0.0 To ___ Shift ___ Drill No. 5

Client ___ Address ___

Project Location Chandler Road Fill Hole Location ___

Client's Representative Frank Driller Bobby Holland Hrs. ___

Helper ___ Hrs. ___ Helper Rex Kessel Hrs. ___

BITS USED					DIAMOND BITS USED			
No	Type	Size	From	To	Serial No.	Size	From	To
		6 1/4						

MUD AND LOSS CIRCULATION MATERIAL			CEMENT	CASING INFORMATION			
Manufacturer	No. Sacks	Weight	No. Sacks	Size	Ft. - Run	Ft. - Pulled	Ft. - Left

STAND BY TIME (HRS.) Rig Rig & Crew

DEPTH From	DEPTH To	FORMATIONS	TYPE DRLG.	DRILLING TIME Start	Stop	From	To	CORE LOSS
0.0	1.0	Top Soil						
1.0	2.5	Trash						
2.5	11.0	Gray Clay Trash						
11.0	11.5	Oil Sludge						
		8.5						
0.0	1.0	Top Soil		Insulation				
1.0	2.5	Trash						
2.5	13.5	Gray Clay Trash						
13.5	13.7	Oil Sludge						
				13.7				

WATER DEPTH WHILE DRILLING (FT.) (24 HRS.)

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REPORT NO.

DAILY DRILL REPORT AND LOG

Hole No. 9.1 Date 10/27 Depth 20 To ___ Shift ___ Drill No. ___

Client ___ Address ___

Project Location Olmsler Land Fill Hole Location ___

Client's Representative Frank Driller Rory Holland Hrs. ___

Helper Rev Kiesen. Hrs. ___ Helper Lon Clemmons Hrs. ___

BITS USED					DIAMOND BITS USED			
No	Type	Size	From	To	Serial No.	Size	From	To
		6 1/4						

MUD AND LOSS CIRCULATION MATERIAL			CEMENT	CASING INFORMATION			
Manufacturer	No. Sacks	Weight	No. Sacks	Size	Ft. - Run	Ft. - Pulled	Ft. - Left

STAND BY TIME (HRS.) Rig Rig & Crew

DEPTH From	DEPTH To	FORMATIONS	TYPE DRLG.	DRILLING TIME Start	DRILLING TIME Stop	DRILLING TIME From	DRILLING TIME To	CORE LOSS
0.0	1.0	Top Soil						
1.0		ROCK						
		9.2						
0.0	1.0	Top Soil						
1.0	2.0	Trash						
1.0	5.5	Oil Soaked Trash						
	5.5	Refusal						
		9.3						
					Installation			
0.0	1.0	Top Soil						
1.0	2.0	Trash			430	5/3		
2.2	10.0	Oil Soaked Sand Trash						
	10.0	Refusal						

WATER DEPTH WHILE DRILLING (FT.) (24 HRS.)

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REPORT NO. —

DAILY DRILL REPORT AND LOG

Hole No. 9.4 Date [illegible] Depth 0.0 To ___ Shift ___ Drill No. 5

Client ___ Address ___

Project Location Chandler Land Fill Hole Location ___

Client's Representative Frank Driller [illegible] Hrs. ___

Helper [illegible] Hrs. ___ Helper [illegible] Hrs. ___

BITS USED					DIAMOND BITS USED			
No	Type	Size	From	To	Serial No.	Size	From	To
		6 1/4						

MUD AND LOSS CIRCULATION MATERIAL			CEMENT	CASING INFORMATION			
Manufacturer	No. Sacks	Weight	No. Sacks	Size	Ft. - Run	Ft. - Pulled	Ft. - Left

STAND BY TIME (HRS.) Rig Rig & Crew

DEPTH From	DEPTH To	FORMATIONS	TYPE DRLG.	DRILLING TIME Start	Stop	From	To	CORE LOSS
		9.4						
0.0	2.0	Top Soil	6 1/4					
2.0	5.0	Oil Soaked trash and Sand						
		9.5						
			6 1/4					
0.0	1.5	Top Soil						
		9.6						
0.0	1.0	Top Soil	6 1/4					
1.0		Refusal						
		7.1	6 1/4		Insulation			
0.0	3.0	trash						
3.0	11.5	Oil Soaked Trash and Sand		330	430			
11.5	14.0	Rusty oily sand						
	14.0	Refusal						

WATER DEPTH WHILE DRILLING (FT.) (24 HRS.)

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REPORT NO.

DAILY DRILL REPORT AND LOG

Hole No. 11,4 Date 11/7/87 Depth _____ To ___ Shift _____ Drill No. _____

Client _____ Address _____

Project Location ~~Shawnee~~ ~~Park~~ Lake Eli Hole Location _____

Client's Representative _____ Driller _____ Hrs. _____

Helper _____ Hrs. _____ Helper _____ Hrs. _____

BITS USED					DIAMOND BITS USED			
No	Type	Size	From	To	Serial No.	Size	From	To
		6 1/4						

MUD AND LOSS CIRCULATION MATERIAL			CEMENT	CASING INFORMATION			
Manufacturer	No. Sacks	Weight	No Sacks	Size	Ft. - Run	Ft. - Pulled	Ft. - Left
			STAND BY TIME (HRS.)	Rig	Rig & Crew		

DEPTH From	DEPTH To	FORMATIONS	TYPE DRLG.	DRILLING TIME Start	DRILLING TIME Stop	DRILLING TIME From	DRILLING TIME To	CORE LOSS
0.0	1.0	Top Soil						
1.0	3.0	Trash						
3.0	6.0	0.1 Soaked Trash						
		Refusal						
		12.1						
0.0	1.0	Top Soil						
1.0	6.0	0.1 Soak Sand			Ins			
6.0	14.5	0.1 Sludge with Trash						
14.5								
[illegible]	30.5	Shale.		1225	230			
		13.1						
0.0	1.5	Top Soil						
1.5	2.0	Trash						
2.5	8.0	0.1 Soaked Trash			Ins			
8.0	23.4	0.1 Sludge						
23.4		Refusal		325	500			

TULSA
918/835-8756
835-2482

Jim Winneck, Inc.

5018 E. ARCHER
P.O. BOX 15770
TULSA, OKLAHOMA 74112

REPORT NO.

DAILY DRILL REPORT AND LOG

Hole No. MW-1 Date 11/8/83 Depth 0.0 To — Shift — Drill No. 5

Client _____ Address _____

Project Location Chandler Park E. Hole Location _____

Client's Representative Frank Driller Bobby Holland Hrs. —

Helper _____ Hrs. _____ Helper Rex Kissee Hrs. —

BITS USED					DIAMOND BITS USED			
No	Type	Size	From	To	Serial No.	Size	From	To
		4"						

MUD AND LOSS CIRCULATION MATERIAL			CEMENT	CASING INFORMATION			
Manufacturer	No. Sacks	Weight	No. Sacks	Size	Ft. - Run	Ft. - Pulled	Ft. - Left

STAND BY TIME (HRS.) Rig Rig & Crew

DEPTH From	DEPTH To	FORMATIONS	TYPE DRLG.	DRILLING TIME Start	Stop	From	To	CORE LOSS
0.0	1.0	Top Soil						
1.0	2.0	Trash						
		14.2						
0.0	1.0	Top Soil						
1.0	5.5	Trash						
5.5	14.0	Burn~~ed~~ Trash (Burned not hauled)						
14.0	20.0	Oil Soaked Clay Trash						
20.0	28.0	Rocks and Clay						
28.0	27.0	Shale.						
		14.3						
0.0	1.0	Top Soil						
1.0	5.5	Trash						
5.5	14.0	Burn~~ed~~ Trash						
14.0	20.0	Oil Soaked Clay Trash						
20.0	23.5	Rocks and Clay						

WATER DEPTH WHILE DRILLING (FT.) (24 HRS.)

TULSA
918/835-8756
835-2482

Jim Winnek, Inc.

5018 E. ARCHER
P.O. BOX 15770
TULSA, OKLAHOMA 74112

REPORT NO.

DAILY DRILL REPORT AND LOG

Hole No. 14.4 Date 11/8/83 Depth 0.0 To ___ Shift — Drill No. 5

Client ___ Address ___

Project Location Chandler Land Fill Hole Location ___

Client's Representative Frank Driller Bobby Holland Hrs. —

Helper ___ Hrs. ___ Helper Rex Kissoe Hrs. —

BITS USED					DIAMOND BITS USED			
No	Type	Size	From	To	Serial No.	Size	From	To
		4 1/1						

MUD AND LOSS CIRCULATION MATERIAL			CEMENT	CASING INFORMATION			
Manufacturer	No. Sacks	Weight	No Sacks	Size	Ft. - Run	Ft. - Pulled	Ft. - Left

STAND BY TIME (HRS.) Rig Rig & Crew

DEPTH From	DEPTH To	FORMATIONS	TYPE DRLG.	DRILLING TIME Start	Stop	From	To	CORE LOSS
0.0	1.0	Top Soil						
1.0	5.5	Trash						
5.5	14.0	Burning Trash						
14.0	22.0	Oil Soaked Clay With Trash						
		14.5						
0.0	1.0	Top Soil						
1.0	5.5	Trash						
—	[illegible]	Burning Trash						
—	22.5	Refusal						
		15.1						
0.0	2.0	Top Soil						
2.0	—	Oil Soaked and						
—	21.5	Trash						
21.5	24.0	Oil Sludge						
24.0	27.0	Shale						

WATER DEPTH WHILE DRILLING (FT.) (24 HRS.)

APPENDIX G

ANALYSIS OF LANDFILL SAMPLES FOR PRIORITY POLLUTANTS

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

Engineering Science
P.O. Box 538
Arcadia, CA 91006
ATTN: Frank Teeple

Number 3406
December 7, 1983

SWLO Lab #7415
Date Submitted: 11/16/83
Sample Identification: Probe 1.1 Depth 9' Date 11/9/83

VOLATILE COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (µg/kg)
1-V	Acrolein	< 10
2-V	Acrylonitrile	< 10
3-V	Benzene	275
4-V	Bis (Chloromethyl) Ether	< 10
5-V	Bromoform	< 10
6-V	Carbon Tetrachloride	< 10
7-V	Chlorobenzene	< 10
8-V	Chlorodibromomethane	< 10
9-V	Chloroethane	< 10
10-V	2-Chloroethylvinyl Ether	< 10
11-V	Chloroform	< 10
12-V	Dichlorobromomethane	< 10
13-V	Dichlorodifluoromethane	< 10
14-V	1,1 Dichloroethane	< 10
15-V	1,2 Dichloroethane	< 10
16-V	1,1 Dichloroethylene	< 10
17-V	1,2 Dichloropropane	< 10
18-V	1,2 Dichloropropylene	< 10
19-V	Ethylbenzene	< 10
20-V	Methyl Bromide	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

VOLATILE COMPOUND - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (µg/kg)
21-V	Methyl Chloride	< 10
22-V	Methylene Chloride	< 10
23-V	1,1,2,2. Tetrachloroethane	< 10
24-V	Tetrachloroethylene	< 10
25-V	Toluene	< 10
26-V	1,2 Trans-Dichloroethylene	< 10
27-V	1,1,1 Trichloroethane	< 10
28-V	1,1,2 Trichloroethane	< 10
29-V	Trichloroethylene	< 10
30-V	Trichlorofluoromethane	< 10
31-V	Vinyl Chloride	< 10

ACID COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
1-A	2-Chlorophenol	< 10
2-A	2,4 Dichlorophenol	< 10
3-A	2.4 Dimethylphenol	< 10
4-A	4,6 Dinitro-O-Cresol	< 10
5-A	2,4 Dinitrophenol	< 10
6-A	2-Nitrophenol	< 10
7-A	4-Nitrophenol	< 10
8-A	P-Chloro-M-Cresol	< 10
9-A	Pentachlorophenol	< 10
10-A	Phenol	< 10
11-A	2,4,6 Trichlorophenol	< 10

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BASE/NEUTRAL COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
1-B	Acenaphthene	< 10
2-B	Acenaphtylene	< 10
3-B	Anthrancene	< 10
4-B	Benzidine	< 10
5-B	Benzo (a) Anthracene	< 10
6-B	Benzo (a) Pyrene	< 10
7-B	Benzofluoranthene	< 10
8-B	Benzo (ghi) Perylene	< 10
9-B	Benzo (k) Fluoranthene	< 10
10-B	Bis (2-Chloroethoxy) Methane	< 10
11-B	Bis (2-Chloroethyl) Ether	< 10
12-B	Bis (2-Chloroisopropyl) Ether	< 10
13-B	Bis (2-Ethylhexyl) Phthalate	< 10
14-B	4 Bromophenyl Ether	< 10
15-B	Butyl Benzyl Phthalate	< 10
16-B	2-Chloronaphthalene	< 10
17-B	4-Chlorophenyl Ether	< 10
18-B	Chrysene	< 10
19-B	Dibenzo (a,h) Anthrancene	< 10
20-B	1,2 Dichlorobenzene	< 10
21-B	1,3 Dichlorobenzene	< 10
22-B	1,4 Dichlorobenzene	< 10
23-B	3,3 Dichlorobenzidine	< 10
24-B	Diethyl Phthalate	< 10
25-B	Dimethyl Phthalate	< 10
26-B	Di-N-Butyl Phthalate	< 10
27-B	2,4 Dinitrotoluene	< 10
28-B	2,6 Dinitrotoluene	< 10

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BASE/NEUTRAL COMPOUNDS - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
29-B	Di-N-Octyl Phthalate	< 10
30-B	1,2 Diphenylhydrazine	< 10
31-B	Fluoranthene	< 10
32-B	Fluorene	< 10
33-B	Hexachlorobenzene	< 10
34-B	Hexachlorobutadiene	< 10
35-B	Hexachlorocyclopentadiene	< 10
36-B	Hexachloroethane	< 10
37-B	Indeno (1,2,3-cd) Pyrene	< 10
38-B	Isophorene	< 10
39-B	Naphthalene	< 10
40-B	Nitrobenzene	< 10
41-B	N-Nitrosodiethylamine	< 10
42-B	N-Nitrosodi-N-Propylamine	< 10
43-B	N-Nitrosodiphenylamine	< 10
44-B	Phenathrene	< 10
45-B	Pyrene	< 10
46-B	1,2,4 Trichlorobenzene	< 10

PESTICIDES

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
1-P	Aldrin	< 10
2-P	A-BHC	< 10
3-P	B-BHC	< 10
4-P	Y-BHC	< 10
5-P	S-BHC	< 10
6-P	Chlordane	< 10

Southwest Laboratory of Oklahoma
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PESTICIDES - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
7-P	4,4 DDT	< 10
8-P	4,4 DDE	< 10
9-P	4,4 DDD	< 10
10-P	Dildrin	< 10
11-P	A-Endosulfan	< 10
12-P	B-Endosulfan	< 10
13-P	Endosulfan Sulfate	< 10
14-P	Endrin	< 10
15-P	Endrin Aldehyde	< 10
16-P	Heptachlor	< 10
17-P	Heptachlor Epoxide	< 10
18-P	PCB 1242	< 10
19-P	PCB 1254	< 10
20-P	PCB 1221	< 10
21-P	PCB 1232	< 10
22-P	PCB 1248	< 10
23-P	PCB 1260	< 10
24-P	PCB 1016	< 10
25-P	Toxaphene	< 10

BY _____

SWLO

Southwest Laboratory of Oklahoma

10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

Engineering Science
P.O. Box 538
Arcardia, CA 91006
ATTN: Frank Teeple

Number 3405
December 7, 1983

SWLO Lab #7414
Date Submitted: 11/16/83

Sample Identification: Probe 2.3 Depth 7' Date 11/9/83

VOLATILE COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (µg/kg)
1-V	Acrolein	< 10
2-V	Acrylonitrile	< 10
3-V	Benzene	< 10
4-V	Bis (Chloromethyl) Ether	< 10
5-V	Bromoform	< 10
6-V	Carbon Tetrachloride	< 10
7-V	Chlorobenzene	< 10
8-V	Chlorodibromomethane	< 10
9-V	Chloroethane	< 10
10-V	2-Chloroethylvinyl Ether	< 10
11-V	Chloroform	< 10
12-V	Dichlorobromomethane	< 10
13-V	Dichlorodifluoromethane	< 10
14-V	1,1 Dichloroethane	< 10
15-V	1,2 Dichloroethane	< 10
16-V	1,1 Dichloroethylene	< 10
17-V	1,2 Dichloropropane	< 10
18-V	1,2 Dichloropropylene	< 10
19-V	Ethylbenzene	< 10
20-V	Methyl Bromide	< 10

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VOLATILE COMPOUND - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (µg/kg)
21-V	Methyl Chloride	< 10
22-V	Methylene Chloride	< 10
23-V	1,1,2,2. Tetrachloroethane	< 10
24-V	Tetrachloroethylene	< 10
25-V	Toluene	< 10
26-V	1,2 Trans-Dichloroethylene	< 10
27-V	1,1,1 Trichloroethane	< 10
28-V	1,1,2 Trichloroethane	< 10
29-V	Trichloroethylene	< 10
30-V	Trichlorofluoromethane	< 10
31-V	Vinyl Chloride	< 10

ACID COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
1-A	2-Chlorophenol	< 10
2-A	2,4 Dichlorophenol	< 10
3-A	2,4 Dimethylphenol	< 10
4-A	4,6 Dinitro-O-Cresol	< 10
5-A	2,4 Dinitrophenol	< 10
6-A	2-Nitrophenol	< 10
7-A	4-Nitrophenol	< 10
8-A	P-Chloro-M-Cresol	< 10
9-A	Pentachlorophenol	< 10
10-A	Phenol	< 10
11-A	2,4,6 Trichlorophenol	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

BASE/NEUTRAL COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
1-B	Acenaphthene	< 10
2-B	Acenaphtylene	< 10
3-B	Anthrancene	< 10
4-B	Benzidine	< 10
5-B	Benzo (a) Anthracene	< 10
6-B	Benzo (a) Pyrene	< 10
7-B	Benzofluoranthene	< 10
8-B	Benzo (ghi) Perylene	< 10
9-B	Benzo (k) Fluoranthene	< 10
10-B	Bis (2-Chloroethoxy) Methane	< 10
11-B	Bis (2-Chloroethyl) Ether	< 10
12-B	Bis (2-Chloroisopropyl) Ether	< 10
13-B	Bis (2-Ethylhexyl) Phthalate	< 10
14-B	4 Bromophenyl Ether	< 10
15-B	Butyl Benzyl Phthalate	< 10
16-B	2-Chloronaphthalene	< 10
17-B	4-Chlorophenyl Ether	< 10
18-B	Chrysene	< 10
19-B	Dibenzo (a,h) Anthrancene	< 10
20-B	1,2 Dichlorobenzene	< 10
21-B	1,3 Dichlorobenzene	< 10
22-B	1,4 Dichlorobenzene	< 10
23-B	3,3 Dichlorobenzidine	< 10
24-B	Diethyl Phthalate	< 10
25-B	Dimethyl Phthalate	< 10
26-B	Di-N-Butyl Phthalate	< 10
27-B	2,4 Dinitrotoluene	< 10
28-B	2,6 Dinitrotoluene	< 10

Southwest Laboratory of Oklahoma
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BASE/NEUTRAL COMPOUNDS - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
29-B	Di-N-Octyl Phthalate	< 10
30-B	1,2 Diphenylhydrazine	< 10
31-B	Fluoranthene	< 10
32-B	Fluorene	< 10
33-B	Hexachlorobenzene	< 10
34-B	Hexachlorobutadiene	< 10
35-B	Hexachlorocyclopentadiene	< 10
36-B	Hexachloroethane	< 10
37-B	Indeno (1,2,3-cd) Pyrene	< 10
38-B	Isophorene	< 10
39-B	Naphthalene	< 10
40-B	Nitrobenzene	< 10
41-B	N-Nitrosodiethylamine	< 10
42-B	N-Nitrosodi-N-Propylamine	< 10
43-B	N-Nitrosodiphenylamine	< 10
44-B	Phenathrene	< 10
45-B	Pyrene	< 10
46-B	1,2,4 Trichlorobenzene	< 10

PESTICIDES

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
1-P	Aldrin	< 10
2-P	A-BHC	< 10
3-P	B-BHC	< 10
4-P	Y-BHC	< 10
5-P	S-BHC	< 10
6-P	Chlordane	< 10

Southwest Laboratory of Oklahoma
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PESTICIDES - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
7-P	4,4 DDT	< 10
8-P	4,4 DDE	< 10
9-P	4,4 DDD	< 10
10-P	Dildrin	< 10
11-P	A-Endosulfan	< 10
12-P	B-Endosulfan	< 10
13-P	Endosulfan Sulfate	< 10
14-P	Endrin	< 10
15-P	Endrin Aldehyde	< 10
16-P	Heptachlor	< 10
17-P	Heptachlor Epoxide	< 10
18-P	PCB 1242	< 10
19-P	PCB 1254	< 10
20-P	PCB 1221	< 10
21-P	PCB 1232	< 10
22-P	PCB 1248	< 10
23-P	PCB 1260	< 10
24-P	PCB 1016	< 10
25-P	Toxaphene	< 10

BY _____

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

Engineering Science
P.O. Box 538
Arcadia, CA 91006
ATTN: Frank Teeple

Number 3404
December 7, 1983

SWLO Lab #7413
Date Submitted: 11/16/83
Sample Identification: Probe 3.4 Depth 6' Date 11/9/83

VOLATILE COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (µg/kg)
1-V	Acrolein	< 10
2-V	Acrylonitrile	< 10
3-V	Benzene	< 10
4-V	Bis (Chloromethyl) Ether	< 10
5-V	Bromoform	< 10
6-V	Carbon Tetrachloride	< 10
7-V	Chlorobenzene	< 10
8-V	Chlorodibromomethane	< 10
9-V	Chloroethane	< 10
10-V	2-Chloroethyl Vinyl Ether	< 10
11-V	Chloroform	< 10
12-V	Dichlorobromomethane	< 10
13-V	Dichlorodifluoromethane	< 10
14-V	1,1 Dichloroethane	< 10
15-V	1,2 Dichloroethane	< 10
16-V	1,1 Dichloroethylene	< 10
17-V	1,2 Dichloropropane	< 10
18-V	1,2 Dichloropropylene	< 10
19-V	Ethylbenzene	< 10
20-V	Methyl Bromide	< 10

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VOLATILE COMPOUND - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (µg/kg)
21-V	Methyl Chloride	< 10
22-V	Methylene Chloride	< 10
23-V	1,1,2,2, Tetrachloroethane	< 10
24-V	Tetrachloroethylene	< 10
25-V	Toluene	< 10
26-V	1,2 Trans-Dichloroethylene	< 10
27-V	1,1,1 Trichloroethane	< 10
28-V	1,1,2 Trichloroethane	< 10
29-V	Trichloroethylene	< 10
30-V	Trichlorofluoromethane	< 10
31-V	Vinyl Chloride	< 10

ACID COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
1-A	2-Chlorophenol	< 10
2-A	2,4 Dichlorophenol	< 10
3-A	2.4 Dimethylphenol	< 10
4-A	4,6 Dinitro-O-Cresol	< 10
5-A	2,4 Dinitrophenol	< 10
6-A	2-Nitrophenol	< 10
7-A	4-Nitrophenol	< 10
8-A	P-Chloro-M-Cresol	< 10
9-A	Pentachlorophenol	< 10
10-A	Phenol	< 10
11-A	2,4,6 Trichlorophenol	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

BASE/NEUTRAL COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
1-B	Acenaphthene	< 10
2-B	Acenaphtylene	< 10
3-B	Anthrancene	< 10
4-B	Benzidine	< 10
5-B	Benzo (a) Anthracene	< 10
6-B	Benzo (a) Pyrene	< 10
7-B	Benzofluoranthene	< 10
8-B	Benzo (ghi) Perylene	< 10
9-B	Benzo (k) Fluoranthene	< 10
10-B	Bis (2-Chloroethoxy) Methane	< 10
11-B	Bis (2-Chloroethyl) Ether	< 10
12-B	Bis (2-Chloroisopropyl) Ether	< 10
13-B	Bis (2-Ethylhexyl) Phthalate	< 10
14-B	4 Bromophenyl Ether	< 10
15-B	Butyl Benzyl Phthalate	<10
16-B	2-Chloronaphthalene	< 10
17-B	4-Chlorophenyl Ether	< 10
18-B	Chrysene	< 10
19-B	Dibenzo (a,h) Anthrancene	< 10
20-B	1,2 Dichlorobenzene	< 10
21-B	1,3 Dichlorobenzene	< 10
22-B	1,4 Dichlorobenzene	< 10
23-B	3,3 Dichlorobenzidine	< 10
24-B	Diethyl Phthalate	< 10
25-B	Dimethyl Phthalate	< 10
26-B	Di-N-Butyl Phthalate	< 10
27-B	2,4 Dinitrotoluene	< 10
28-B	2,6 Dinitrotoluene	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

BASE/NEUTRAL COMPOUNDS - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
29-B	Di-N-Octyl Phthalate	< 10
30-B	1,2 Diphenylhydrazine	< 10
31-B	Fluoranthene	< 10
32-B	Fluorene	< 10
33-B	Hexachlorobenzene	< 10
34-B	Hexachlorobutadiene	< 10
35-B	Hexachlorocyclopentadiene	< 10
36-B	Hexachloroethane	< 10
37-B	Indeno (1,2,3-cd) Pyrene	< 10
38-B	Isophorene	< 10
39-B	Naphthalene	< 10
40-B	Nitrobenzene	< 10
41-B	N-Nitrosodiethylamine	< 10
42-B	N-Nitrosodi-N-Propylamine	< 10
43-B	N-Nitrosodiphenylamine	< 10
44-B	Phenathrene	< 10
45-B	Pyrene	< 10
46-B	1,2,4 Trichlorobenzene	< 10

PESTICIDES

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
1-P	Aldrin	< 10
2-P	A-BHC	< 10
3-P	B-BHC	< 10
4-P	Y-BHC	< 10
5-P	S-BHC	< 10
6-P	Chlordane	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

PESTICIDES - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
7-P	4,4 DDT	< 10
8-P	4,4 DDE	< 10
9-P	4,4 DDD	< 10
10-P	Dildrin	< 10
11-P	A-Endosulfan	< 10
12-P	B-Endosulfan	< 10
13-P	Endosulfan Sulfate	< 10
14-P	Endrin	< 10
15-P	Endrin Aldehyde	< 10
16-P	Heptachlor	< 10
17-P	Heptachlor Epoxide	< 10
18-P	PCB 1242	< 10
19-P	PCB 1254	< 10
20-P	PCB 1221	< 10
21-P	PCB 1232	< 10
22-P	PCB 1248	< 10
23-P	PCB 1260	< 10
24-P	PCB 1016	< 10
25-P	Toxaphene	< 10

BY _____

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

Engineering Science
P.O. Box 538
Arcadia, CA 91006
ATTN: Frank Teeple

Report #3329
November 14, 1983

SWLO Lab #7318
Date Submitted: 11/2/83

Sample Identification: Probe 4.6 11/1/83 Depth 11'

VOLATILE COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (µg/l)
1-V	Acrolein	< 10
2-V	Acrylonitrile	< 10
3-V	Benzene	7160
4-V	Bis (Chloromethyl) Ether	< 10
5-V	Bromoform	< 10
6-V	Carbon Tetrachloride	< 10
7-V	Chlorobenzene	< 10
8-V	Chlorodibromomethane	< 10
9-V	Chloroethane	< 10
10-V	2-Chloroethylvinyl Ether	< 10
11-V	Chloroform	< 10
12-V	Dichlorobromomethane	< 10
13-V	Dichlorodifluoromethane	< 10
14-V	1,1 Dichloroethane	< 10
15-V	1,2 Dichloroethane	< 10
16-V	1,1 Dichloroethylene	< 10
17-V	1,2 Dichloropropane	< 10
18-V	1,2 Dichloropropylene	< 10
19-V	Ethylbenzene	10950
20-V	Methyl Bromide	< 10

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10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

VOLATILE COMPOUND - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (µg/l)
21-V	Methyl Chloride	< 10
22-V	Methylene Chloride	< 10
23-V	1,1,2,2, Tetrachloroethane	< 10
24-V	Tetrachloroethylene	< 10
25-V	Toluene	< 10
26-V	1,2 Trans-Dichloroethylene	< 10
27-V	1,1,1 Trichloroethane	< 10
28-V	1,1,2 Trichloroethane	< 10
29-V	Trichloroethylene	< 10
30-V	Trichlorofluoromethane	< 10
31-V	Vinyl Chloride	< 10

ACID COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/l)
1-A	2-Chlorophenol	< 10
2-A	2,4 Dichlorophenol	< 10
3-A	2,4 Dimethylphenol	< 10
4-A	4,6 Dinitro-O-Cresol	< 10
5-A	2,4 Dinitrophenol	< 10
6-A	2-Nitrophenol	< 10
7-A	4-Nitrophenol	< 10
8-A	P-Chloro-M-Cresol	< 10
9-A	Pentachlorophenol	< 10
10-A	Phenol	< 10
11-A	2,4,6 Trichlorophenol	< 10

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BASE/NEUTRAL COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/l)
1-B	Acenaphthene	< 10
2-B	Acenaphtylene	< 10
3-B	Anthrancene	< 10
4-B	Benzidine	< 10
5-B	Benzo (a) Anthracene	< 10
6-B	Benzo (a) Pyrene	< 10
7-B	Benzofluoranthene	< 10
8-B	Benzo (ghi) Perylene	< 10
9-B	Benzo (k) Fluoranthene	< 10
10-B	Bis (2-Chloroethoxy) Methane	< 10
11-B	Bis (2-Chloroethyl) Ether	< 10
12-B	Bis (2-Chloroisopropyl) Ether	< 10
13-B	Bis (2-Ethylhexyl) Phthalate	< 10
14-B	4 Bromophenyl Ether	< 10
15-B	Butyl Benzyl Phthalate	< 10
16-B	2-Chloronaphthalene	< 10
17-B	4-Chlorophenyl Ether	< 10
18-B	Chrysene	< 10
19-B	Dibenzo (a,h) Anthrancene	< 10
20-B	1,2 Dichlorobenzene	< 10
21-B	1,3 Dichlorobenzene	< 10
22-B	1,4 Dichlorobenzene	< 10
23-B	3,3 Dichlorobenzidine	< 10
24-B	Diethyl Phthalate	< 10
25-B	Dimethyl Phthalate	< 10
26-B	Di-N-Butyl Phthalate	< 10
27-B	2,4 Dinitrotoluene	< 10
28-B	2,6 Dinitrotoluene	< 10

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10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

BASE/NEUTRAL COMPOUNDS - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/l)
29-B	Di-N-Octyl Phthalate	< 10
30-B	1,2 Diphenylhydrazine	< 10
31-B	Fluoranthene	< 10
32-B	Fluorene	< 10
33-B	Hexachlorobenzene	< 10
34-B	Hexachlorobutadiene	< 10
35-B	Hexachlorocyclopentadiene	< 10
36-B	Hexachloroethane	< 10
37-B	Indeno (1,2,3-cd) Pyrene	< 10
38-B	Isophorene	< 10
39-B	Naphthalene	< 10
40-B	Nitrobenzene	< 10
41-B	N-Nitrosodiethylamine	< 10
42-B	N-Nitrosodi-N-Propylamine	< 10
43-B	N-Nitrosodiphenylamine	< 10
44-B	Phenathrene	< 10
45-B	Pyrene	< 10
46-B	1,2,4 Trichlorobenzene	< 10

PESTICIDES

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/l)
1-P	Aldrin	< 10
2-P	A-BHC	< 10
3-P	B-BHC	< 10
4-P	Y-BHC	< 10
5-P	S-BHC	< 10
6-P	Chlordane	< 10

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PESTICIDES - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/l)
7-P	4,4 DDT	< 10
8-P	4,4 DDE	< 10
9-P	4,4 DDD	< 10
10-P	Dildrin	< 10
11-P	A-Endosulfan	< 10
12-P	B-Endosulfan	< 10
13-P	Endosulfan Sulfate	< 10
14-P	Endrin	< 10
15-P	Endrin Aldehyde	< 10
16-P	Heptachlor	< 10
17-P	Heptachlor Epoxide	< 10
18-P	PCB 1242	< 10
19-P	PCB 1254	< 10
20-P	PCB 1221	< 10
21-P	PCB 1232	< 10
22-P	PCB 1248	< 10
23-P	PCB 1260	< 10
24-P	PCB 1016	< 10
25-P	Toxaphene	< 10

BY _____

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

Engineering Science
P.O. Box 538
Arcadia, CA 91006
ATTN: Frank Teeple

Report #3325
November 14, 1983

SWLO Lab #7314
Date Submitted: 11/2/83

Sample Identification: Probe 5.1.2 10/25/83 Depth 22.5'

VOLATILE COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (µg/l)
1-V	Acrolein	<10
2-V	Acrylonitrile	<10
3-V	Benzene	59400
4-V	Bis (Chloromethyl) Ether	<10
5-V	Bromoform	<10
6-V	Carbon Tetrachloride	<10
7-V	Chlorobenzene	<10
8-V	Chlorodibromomethane	<10
9-V	Chloroethane	<10
10-V	2-Chloroethylvinyl Ether	<10
11-V	Chloroform	<10
12-V	Dichlorobromomethane	<10
13-V	Dichlorodifluoromethane	<10
14-V	1,1 Dichloroethane	<10
15-V	1,2 Dichloroethane	<10
16-V	1,1 Dichloroethylene	<10
17-V	1,2 Dichloropropane	<10
18-V	1,2 Dichloropropylene	<10
19-V	Ethylbenzene	92120
20-V	Methyl Bromide	<10

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VOLATILE COMPOUND - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (µg/l)
21-V	Methyl Chloride	< 10
22-V	Methylene Chloride	< 10
23-V	1,1,2,2, Tetrachloroethane	< 10
24-V	Tetrachloroethylene	< 10
25-V	Toluene	< 10
26-V	1,2 Trans-Dichloroethylene	< 10
27-V	1,1,1 Trichloroethane	< 10
28-V	1,1,2 Trichloroethane	< 10
29-V	Trichloroethylene	< 10
30-V	Trichlorofluoromethane	< 10
31-V	Vinyl Chloride	< 10

ACID COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/l)
1-A	2-Chlorophenol	< 10
2-A	2,4 Dichlorophenol	< 10
3-A	2.4 Dimethylphenol	< 10
4-A	4,6 Dinitro-O-Cresol	< 10
5-A	2,4 Dinitrophenol	< 10
6-A	2-Nitrophenol	< 10
7-A	4-Nitrophenol	< 10
8-A	P-Chloro-M-Cresol	< 10
9-A	Pentachlorophenol	< 10
10-A	Phenol	< 10
11-A	2,4,6 Trichlorophenol	< 10

SWLO

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10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

BASE/NEUTRAL COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/l)
1-B	Acenaphthene	< 10
2-B	Acenaphtylene	< 10
3-B	Anthrancene	< 10
4-B	Benzidine	< 10
5-B	Benzo (a) Anthracene	< 10
6-B	Benzo (a) Pyrene	< 10
7-B	Benzofluoranthene	< 10
8-B	Benzo (ghi) Perylene	< 10
9-B	Benzo (k) Fluoranthene	< 10
10-B	Bis (2-Chloroethoxy) Methane	< 10
11-B	Bis (2-Chloroethyl) Ether	< 10
12-B	Bis (2-Chloroisopropyl) Ether	< 10
13-B	Bis (2-Ethylhexyl) Phthalate	< 10
14-B	4 Bromophenyl Ether	< 10
15-B	Butyl Benzyl Phthalate	< 10
16-B	2-Chloronaphthalene	< 10
17-B	4-Chlorophenyl Ether	< 10
18-B	Chrysene	< 10
19-B	Dibenzo (a,h) Anthrancene	< 10
20-B	1,2 Dichlorobenzene	< 10
21-B	1,3 Dichlorobenzene	< 10
22-B	1,4 Dichlorobenzene	< 10
23-B	3,3 Dichlorobenzidine	< 10
24-B	Diethyl Phthalate	< 10
25-B	Dimethyl Phthalate	< 10
26-B	Di-N-Butyl Phthalate	< 10
27-B	2,4 Dinitrotoluene	< 10
28-B	2,6 Dinitrotoluene	< 10

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10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

BASE/NEUTRAL COMPOUNDS - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/l)
29-B	Di-N-Octyl Phthalate	< 10
30-B	1,2 Diphenylhydrazine	< 10
31-B	Fluoranthene	< 10
32-B	Fluorene	< 10
33-B	Hexachlorobenzene	< 10
34-B	Hexachlorobutadiene	< 10
35-B	Hexachlorocyclopentadiene	< 10
36-B	Hexachloroethane	< 10
37-B	Indeno (1,2,3-cd) Pyrene	< 10
38-B	Isophorene	< 10
39-B	Naphthalene	< 10
40-B	Nitrobenzene	< 10
41-B	N-Nitrosodiethylamine	< 10
42-B	N-Nitrosodi-N-Propylamine	< 10
43-B	N-Nitrosodiphenylamine	< 10
44-B	Phenathrene	< 10
45-B	Pyrene	< 10
46-B	1,2,4 Trichlorobenzene	< 10

PESTICIDES

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/l)
1-P	Aldrin	< 10
2-P	A-BHC	< 10
3-P	B-BHC	< 10
4-P	Y-BHC	< 10
5-P	S-BHC	< 10
6-P	Chlordane	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

PESTICIDES - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/l)
7-P	4,4 DDT	< 10
8-P	4,4 DDE	< 10
9-P	4,4 DDD	< 10
10-P	Dildrin	< 10
11-P	A-Endosulfan	< 10
12-P	B-Endosulfan	< 10
13-P	Endosulfan Sulfate	< 10
14-P	Endrin	< 10
15-P	Endrin Aldehyde	< 10
16-P	Heptachlor	< 10
17-P	Heptachlor Epoxide	< 10
18-P	PCB 1242	< 10
19-P	PCB 1254	< 10
20-P	PCB 1221	< 10
21-P	PCB 1232	< 10
22-P	PCB 1248	< 10
23-P	PCB 1260	< 10
24-P	PCB 1016	< 10
25-P	Toxaphene	< 10

BY

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

Engineering Science
P.O. Box 538
Arcadia, CA 91006
ATTN: Frank Teeple

Number 3401
December 7, 1983

SWLO Lab #7410
Date Submitted: 11/16/83

Sample Identification: Probe 5.1.11 Depth 14' Date 10/27/83

VOLATILE COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (µg/kg)
1-V	Acrolein	< 10
2-V	Acrylonitrile	< 10
3-V	Benzene	24.45
4-V	Bis (Chloromethyl) Ether	< 10
5-V	Bromoform	< 10
6-V	Carbon Tetrachloride	< 10
7-V	Chlorobenzene	< 10
8-V	Chlorodibromomethane	< 10
9-V	Chloroethane	< 10
10-V	2-Chloroethylvinyl Ether	< 10
11-V	Chloroform	< 10
12-V	Dichlorobromomethane	< 10
13-V	Dichlorodifluoromethane	< 10
14-V	1,1 Dichloroethane	< 10
15-V	1,2 Dichloroethane	< 10
16-V	1,1 Dichloroethylene	< 10
17-V	1,2 Dichloropropane	< 10
18-V	1,2 Dichloropropylene	< 10
19-V	Ethylbenzene	< 10
20-V	Methyl Bromide	< 10

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10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

VOLATILE COMPOUND - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (µg/kg)
21-V	Methyl Chloride	< 10
22-V	Methylene Chloride	< 10
23-V	1,1,2,2, Tetrachloroethane	< 10
24-V	Tetrachloroethylene	< 10
25-V	Toluene	< 10
26-V	1,2 Trans-Dichloroethylene	10
27-V	1,1,1 Trichloroethane	< 10
28-V	1,1,2 Trichloroethane	< 10
29-V	Trichloroethylene	10
30-V	Trichlorofluoromethane	10
31-V	Vinyl Chloride	10

ACID COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
1-A	2-Chlorophenol	10
2-A	2,4 Dichlorophenol	10
3-A	2,4 Dimethylphenol	10
4-A	4,6 Dinitro-O-Cresol	10
5-A	2,4 Dinitrophenol	< 10
6-A	2-Nitrophenol	< 10
7-A	4-Nitrophenol	< 10
8-A	P-Chloro-M-Cresol	< 10
9-A	Pentachlorophenol	< 10
10-A	Phenol	< 10
11-A	2,4,6 Trichlorophenol	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

BASE/NEUTRAL COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
1-B	Acenaphthene	< 10
2-B	Acenaphtylene	< 10
3-B	Anthrancene	< 10
4-B	Benzidine	< 10
5-B	Benzo (a) Anthracene	< 10
6-B	Benzo (a) Pyrene	< 10
7-B	Benzofluoranthene	< 10
8-B	Benzo (ghi) Perylene	< 10
9-B	Benzo (k) Fluoranthene	< 10
10-B	Bis (2-Chloroethoxy) Methane	< 10
11-B	Bis (2-Chloroethyl) Ether	< 10
12-B	Bis (2-Chloroisopropyl) Ether	< 10
13-B	Bis (2-Ethylhexyl) Phthalate	< 10
14-B	4 Bromophenyl Ether	< 10
15-B	Butyl Benzyl Phthalate	< 10
16-B	2-Chloronaphthalene	< 10
17-B	4-Chlorophenyl Ether	< 10
18-B	Chrysene	< 10
19-B	Dibenzo (a,h) Anthrancene	< 10
20-B	1,2 Dichlorobenzene	< 10
21-B	1,3 Dichlorobenzene	< 10
22-B	1,4 Dichlorobenzene	< 10
23-B	3,3 Dichlorobenzidine	< 10
24-B	Diethyl Phthalate	< 10
25-B	Dimethyl Phthalate	< 10
26-B	Di-N-Butyl Phthalate	< 10
27-B	2,4 Dinitrotoluene	< 10
28-B	2,6 Dinitrotoluene	< 10

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10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

BASE/NEUTRAL COMPOUNDS - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
29-B	Di-N-Octyl Phthalate	< 10
30-B	1,2 Diphenylhydrazine	< 10
31-B	Fluoranthene	< 10
32-B	Fluorene	< 10
33-B	Hexachlorobenzene	< 10
34-B	Hexachlorobutadiene	< 10
35-B	Hexachlorocyclopentadiene	< 10
36-B	Hexachloroethane	< 10
37-B	Indeno (1,2,3-cd) Pyrene	< 10
38-B	Isophorene	< 10
39-B	Naphthalene	< 10
40-B	Nitrobenzene	< 10
41-B	N-Nitrosodiethylamine	< 10
42-B	N-Nitrosodi-N-Propylamine	< 10
43-B	N-Nitrosodiphenylamine	< 10
44-B	Phenathrene	< 10
45-B	Pyrene	< 10
46-B	1,2,4 Trichlorobenzene	< 10

PESTICIDES

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
1-P	Aldrin	< 10
2-P	A-BHC	< 10
3-P	B-BHC	< 10
4-P	Y-BHC	< 10
5-P	S-BHC	< 10
6-P	Chlordane	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

PESTICIDES - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
7-P	4,4 DDT	< 10
8-P	4,4 DDE	< 10
9-P	4,4 DDD	< 10
10-P	Dildrin	< 10
11-P	A-Endosulfan	< 10
12-P	B-Endosulfan	< 10
13-P	Endosulfan Sulfate	< 10
14-P	Endrin	< 10
15-P	Endrin Aldehyde	< 10
16-P	Heptachlor	< 10
17-P	Heptachlor Epoxide	< 10
18-P	PCB 1242	< 10
19-P	PCB 1254	< 10
20-P	PCB 1221	< 10
21-P	PCB 1232	< 10
22-P	PCB 1248	< 10
23-P	PCB 1260	< 10
24-P	PCB 1016	< 10
25-P	Toxaphene	< 10

BY _____

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

Engineering Science
P.O. Box 538
Arcadia, CA 91006
ATTN: Frank Teeple

Report #3326
November 14, 1983

SWLO Lab #7315
Date Submitted: 11/2/83

Sample Identification: Probe 7.1 10/27/83 Depth 14'

VOLATILE COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (µg/l)
1-V	Acrolein	< 10
2-V	Acrylonitrile	< 10
3-V	Benzene	< 10
4-V	Bis (Chloromethyl) Ether	< 10
5-V	Bromoform	< 10
6-V	Carbon Tetrachloride	< 10
7-V	Chlorobenzene	< 10
8-V	Chlorodibromomethane	< 10
9-V	Chloroethane	< 10
10-V	2-Chloroethylvinyl Ether	< 10
11-V	Chloroform	< 10
12-V	Dichlorobromomethane	< 10
13-V	Dichlorodifluoromethane	< 10
14-V	1,1 Dichloroethane	< 10
15-V	1,2 Dichloroethane	< 10
16-V	1,1 Dichloroethylene	< 10
17-V	1,2 Dichloropropane	< 10
18-V	1,2 Dichloropropylene	< 10
19-V	Ethylbenzene	< 10
20-V	Methyl Bromide	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

VOLATILE COMPOUND - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (µg/l)
21-V	Methyl Chloride	< 10
22-V	Methylene Chloride	< 10
23-V	1,1,2,2, Tetrachloroethane	< 10
24-V	Tetrachloroethylene	< 10
25-V	Toluene	1860
26-V	1,2 Trans-Dichloroethylene	< 10
27-V	1,1,1 Trichloroethane	12010
28-V	1,1,2 Trichloroethane	< 10
29-V	Trichloroethylene	< 10
30-V	Trichlorofluoromethane	< 10
31-V	Vinyl Chloride	< 10

ACID COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/l)
1-A	2-Chlorophenol	< 10
2-A	2,4 Dichlorophenol	< 10
3-A	2,4 Dimethylphenol	< 10
4-A	4,6 Dinitro-O-Cresol	< 10
5-A	2,4 Dinitrophenol	< 10
6-A	2-Nitrophenol	< 10
7-A	4-Nitrophenol	< 10
8-A	P-Chloro-M-Cresol	< 10
9-A	Pentachlorophenol	< 10
10-A	Phenol	< 10
11-A	2,4,6 Trichlorophenol	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

BASE/NEUTRAL COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/l)
1-B	Acenaphthene	< 10
2-B	Acenaphtylene	< 10
3-B	Anthrancene	< 10
4-B	Benzidine	< 10
5-B	Benzo (a) Anthracene	< 10
6-B	Benzo (a) Pyrene	< 10
7-B	Benzofluoranthene	< 10
8-B	Benzo (ghi) Perylene	< 10
9-B	Benzo (k) Fluoranthene	< 10
10-B	Bis (2-Chloroethoxy) Methane	< 10
11-B	Bis (2-Chloroethyl) Ether	< 10
12-B	Bis (2-Chloroisopropyl) Ether	< 10
13-B	Bis (2-Ethylhexyl) Phthalate	< 10
14-B	4 Bromophenyl Ether	< 10
15-B	Butyl Benzyl Phthalate	< 10
16-B	2-Chloronaphthalene	< 10
17-B	4-Chlorophenyl Ether	< 10
18-B	Chrysene	< 10
19-B	Dibenzo (a,h) Anthrancene	< 10
20-B	1,2 Dichlorobenzene	< 10
21-B	1,3 Dichlorobenzene	< 10
22-B	1,4 Dichlorobenzene	< 10
23-B	3,3 Dichlorobenzidine	< 10
24-B	Diethyl Phthalate	< 10
25-B	Dimethyl Phthalate	< 10
26-B	Di-N-Butyl Phthalate	< 10
27-B	2,4 Dinitrotoluene	< 10
28-B	2,6 Dinitrotoluene	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

BASE/NEUTRAL COMPOUNDS - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/l)
29-B	Di-N-Octyl Phthalate	< 10
30-B	1,2 Diphenylhydrazine	< 10
31-B	Fluoranthene	< 10
32-B	Fluorene	< 10
33-B	Hexachlorobenzene	< 10
34-B	Hexachlorobutadiene	< 10
35-B	Hexachlorocyclopentadiene	< 10
36-B	Hexachloroethane	< 10
37-B	Indeno (1,2,3-cd) Pyrene	< 10
38-B	Isophorene	< 10
39-B	Naphthalene	< 10
40-B	Nitrobenzene	< 10
41-B	N-Nitrosodiethylamine	< 10
42-B	N-Nitrosodi-N-Propylamine	< 10
43-B	N-Nitrosodiphenylamine	< 10
44-B	Phenathrene	< 10
45-B	Pyrene	< 10
46-B	1,2,4 Trichlorobenzene	< 10

PESTICIDES

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/l)
1-P	Aldrin	< 10
2-P	A-BHC	< 10
3-P	B-BHC	< 10
4-P	Y-BHC	< 10
5-P	S-BHC	< 10
6-P	Chlordane	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

PESTICIDES - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/l)
7-P	4,4 DDT	< 10
8-P	4,4 DDE	< 10
9-P	4,4 DDD	< 10
10-P	Dildrin	< 10
11-P	A-Endosulfan	< 10
12-P	B-Endosulfan	< 10
13-P	Endosulfan Sulfate	< 10
14-P	Endrin	< 10
15-P	Endrin Aldehyde	< 10
16-P	Heptachlor	< 10
17-P	Heptachlor Epoxide	< 10
18-P	PCB 1242	< 10
19-P	PCB 1254	< 10
20-P	PCB 1221	< 10
21-P	PCB 1232	< 10
22-P	PCB 1248	< 10
23-P	PCB 1260	< 10
24-P	PCB 1016	< 10
25-P	Toxaphene	< 10

BY _____

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

Engineering Science
P.O. Box 538
Arcadia, CA 91006
ATTN: Frank Teeple

Number 3402
December 7, 1983

SWLO Lab #7411
Date Submitted: 11/16/83

Sample Identification: Probe 8.1 Depth 4' Date 10/31/83

VOLATILE COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (µg/kg)
1-V	Acrolein	< 10
2-V	Acrylonitrile	< 10
3-V	Benzene	< 10
4-V	Bis (Chloromethyl) Ether	< 10
5-V	Bromoform	< 10
6-V	Carbon Tetrachloride	< 10
7-V	Chlorobenzene	< 10
8-V	Chlorodibromomethane	< 10
9-V	Chloroethane	< 10
10-V	2-Chloroethylvinyl Ether	< 10
11-V	Chloroform	< 10
12-V	Dichlorobromomethane	< 10
13-V	Dichlorodifluoromethane	< 10
14-V	1,1 Dichloroethane	< 10
15-V	1,2 Dichloroethane	< 10
16-V	1,1 Dichloroethylene	< 10
17-V	1,2 Dichloropropane	< 10
18-V	1,2 Dichloropropylene	< 10
19-V	Ethylbenzene	< 10
20-V	Methyl Bromide	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

VOLATILE COMPOUND - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (µg/kg)
21-V	Methyl Chloride	< 10
22-V	Methylene Chloride	< 10
23-V	1,1,2,2. Tetrachloroethane	< 10
24-V	Tetrachloroethylene	< 10
25-V	Toluene	< 10
26-V	1,2 Trans-Dichloroethylene	< 10
27-V	1,1,1 Trichloroethane	< 10
28-V	1,1,2 Trichloroethane	< 10
29-V	Trichloroethylene	< 10
30-V	Trichlorofluoromethane	< 10
31-V	Vinyl Chloride	< 10

ACID COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
1-A	2-Chlorophenol	< 10
2-A	2,4 Dichlorophenol	< 10
3-A	2.4 Dimethylphenol	< 10
4-A	4,6 Dinitro-O-Cresol	< 10
5-A	2,4 Dinitrophenol	< 10
6-A	2-Nitrophenol	< 10
7-A	4-Nitrophenol	< 10
8-A	P-Chloro-M-Cresol	< 10
9-A	Pentachlorophenol	< 10
10-A	Phenol	< 10
11-A	2,4,6 Trichlorophenol	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

BASE/NEUTRAL COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
1-B	Acenaphthene	< 10
2-B	Acenaphtylene	< 10
3-B	Anthrancene	< 10
4-B	Benzidine	< 10
5-B	Benzo (a) Anthracene	< 10
6-B	Benzo (a) Pyrene	< 10
7-B	Benzofluoranthene	< 10
8-B	Benzo (ghi) Perylene	< 10
9-B	Benzo (k) Fluoranthene	< 10
10-B	Bis (2-Chloroethoxy) Methane	< 10
11-B	Bis (2-Chloroethyl) Ether	< 10
12-B	Bis (2-Chloroisopropyl) Ether	< 10
13-B	Bis (2-Ethylhexyl) Phthalate	< 10
14-B	4 Bromophenyl Ether	< 10
15-B	Butyl Benzyl Phthalate	< 10
16-B	2-Chloronaphthalene	< 10
17-B	4-Chlorophenyl Ether	< 10
18-B	Chrysene	< 10
19-B	Dibenzo (a,h) Anthrancene	< 10
20-B	1,2 Dichlorobenzene	< 10
21-B	1,3 Dichlorobenzene	< 10
22-B	1,4 Dichlorobenzene	< 10
23-B	3,3 Dichlorobenzidine	< 10
24-B	Diethyl Phthalate	< 10
25-B	Dimethyl Phthalate	< 10
26-B	Di-N-Butyl Phthalate	< 10
27-B	2,4 Dinitrotoluene	< 10
28-B	2,6 Dinitrotoluene	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

BASE/NEUTRAL COMPOUNDS - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
29-B	Di-N-Octyl Phthalate	< 10
30-B	1,2 Diphenylhydrazine	< 10
31-B	Fluoranthene	< 10
32-B	Fluorene	< 10
33-B	Hexachlorobenzene	< 10
34-B	Hexachlorobutadiene	< 10
35-B	Hexachlorocyclopentadiene	< 10
36-B	Hexachloroethane	< 10
37-B	Indeno (1,2,3-cd) Pyrene	< 10
38-B	Isophorene	< 10
39-B	Naphthalene	< 10
40-B	Nitrobenzene	< 10
41-B	N-Nitrosodiethylamine	< 10
42-B	N-Nitrosodi-N-Propylamine	< 10
43-B	N-Nitrosodiphenylamine	< 10
44-B	Phenathrene	< 10
45-B	Pyrene	< 10
46-B	1,2,4 Trichlorobenzene	< 10

PESTICIDES

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
1-P	Aldrin	< 10
2-P	A-BHC	< 10
3-P	B-BHC	< 10
4-P	Y-BHC	< 10
5-P	S-BHC	< 10
6-P	Chlordane	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

PESTICIDES - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
7-P	4,4 DDT	< 10
8-P	4,4 DDE	< 10
9-P	4,4 DDD	< 10
10-P	Dildrin	< 10
11-P	A-Endosulfan	< 10
12-P	B-Endosulfan	< 10
13-P	Endosulfan Sulfate	< 10
14-P	Endrin	< 10
15-P	Endrin Aldehyde	< 10
16-P	Heptachlor	< 10
17-P	Heptachlor Epoxide	< 10
18-P	PCB 1242	< 10
19-P	PCB 1254	< 10
20-P	PCB 1221	< 10
21-P	PCB 1232	< 10
22-P	PCB 1248	< 10
23-P	PCB 1260	< 10
24-P	PCB 1016	< 10
25-P	Toxaphene	< 10

BY _____

SWLO

Southwest Laboratory of Oklahoma

10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

Engineering Science
P.O. Box 538
Arcadia, CA 91006
ATTN: Frank Teeple

Report #3327
November 14, 1983

SWLO Lab #7316
Date Submitted: 11/2/83

Sample Identification: Probe 8.3 10/31/83 Depth 11'

VOLATILE COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (µg/l)
1-V	Acrolein	< 10
2-V	Acrylonitrile	< 10
3-V	Benzene	< 10
4-V	Bis (Chloromethyl) Ether	< 10
5-V	Bromoform	< 10
6-V	Carbon Tetrachloride	< 10
7-V	Chlorobenzene	< 10
8-V	Chlorodibromomethane	< 10
9-V	Chloroethane	< 10
10-V	2-Chloroethylvinyl Ether	< 10
11-V	Chloroform	< 10
12-V	Dichlorobromomethane	< 10
13-V	Dichlorodifluoromethane	< 10
14-V	1,1 Dichloroethane	< 10
15-V	1,2 Dichloroethane	< 10
16-V	1,1 Dichloroethylene	< 10
17-V	1,2 Dichloropropane	< 10
18-V	1,2 Dichloropropylene	< 10
19-V	Ethylbenzene	< 10
20-V	Methyl Bromide	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

VOLATILE COMPOUND - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (µg/l)
21-V	Methyl Chloride	< 10
22-V	Methylene Chloride	< 10
23-V	1,1,2,2, Tetrachloroethane	< 10
24-V	Tetrachloroethylene	< 10
25-V	Toluene	< 10
26-V	1,2 Trans-Dichloroethylene	< 10
27-V	1,1,1 Trichloroethane	< 10
28-V	1,1,2 Trichloroethane	< 10
29-V	Trichloroethylene	< 10
30-V	Trichlorofluoromethane	< 10
31-V	Vinyl Chloride	< 10

ACID COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/l)
1-A	2-Chlorophenol	< 10
2-A	2,4 Dichlorophenol	< 10
3-A	2.4 Dimethylphenol	< 10
4-A	4,6 Dinitro-O-Cresol	< 10
5-A	2,4 Dinitrophenol	< 10
6-A	2-Nitrophenol	< 10
7-A	4-Nitrophenol	< 10
8-A	P-Chloro-M-Cresol	< 10
9-A	Pentachlorophenol	< 10
10-A	Phenol	< 10
11-A	2,4,6 Trichlorophenol	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

BASE/NEUTRAL COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/l)
1-B	Acenaphthene	< 10
2-B	Acenaphtylene	< 10
3-B	Anthrancene	< 10
4-B	Benzidine	< 10
5-B	Benzo (a) Anthracene	< 10
6-B	Benzo (a) Pyrene	< 10
7-B	Benzofluoranthene	< 10
8-B	Benzo (ghi) Perylene	< 10
9-B	Benzo (k) Fluoranthene	< 10
10-B	Bis (2-Chloroethoxy) Methane	< 10
11-B	Bis (2-Chloroethyl) Ether	< 10
12-B	Bis (2-Chloroisopropyl) Ether	< 10
13-B	Bis (2-Ethylhexyl) Phthalate	< 10
14-B	4 Bromophenyl Ether	< 10
15-B	Butyl Benzyl Phthalate	< 10
16-B	2-Chloronaphthalene	< 10
17-B	4-Chlorophenyl Ether	< 10
18-B	Chrysene	< 10
19-B	Dibenzo (a,h) Anthrancene	< 10
20-B	1,2 Dichlorobenzene	< 10
21-B	1,3 Dichlorobenzene	< 10
22-B	1,4 Dichlorobenzene	< 10
23-B	3,3 Dichlorobenzidine	< 10
24-B	Diethyl Phthalate	< 10
25-B	Dimethyl Phthalate	< 10
26-B	Di-N-Butyl Phthalate	< 10
27-B	2,4 Dinitrotoluene	< 10
28-B	2,6 Dinitrotoluene	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

BASE/NEUTRAL COMPOUNDS - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/l)
29-B	Di-N-Octyl Phthalate	< 10
30-B	1,2 Diphenylhydrazine	< 10
31-B	Fluoranthene	< 10
32-B	Fluorene	< 10
33-B	Hexachlorobenzene	< 10
34-B	Hexachlorobutadiene	< 10
35-B	Hexachlorocyclopentadiene	< 10
36-B	Hexachloroethane	< 10
37-B	Indeno (1,2,3-cd) Pyrene	< 10
38-B	Isophorene	< 10
39-B	Naphthalene	< 10
40-B	Nitrobenzene	< 10
41-B	N-Nitrosodiethylamine	< 10
42-B	N-Nitrosodi-N-Propylamine	< 10
43-B	N-Nitrosodiphenylamine	< 10
44-B	Phenathrene	< 10
45-B	Pyrene	< 10
46-B	1,2,4 Trichlorobenzene	< 10

PESTICIDES

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/l)
1-P	Aldrin	< 10
2-P	A-BHC	< 10
3-P	B-BHC	< 10
4-P	Y-BHC	< 10
5-P	S-BHC	< 10
6-P	Chlordane	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

PESTICIDES - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/l)
7-P	4,4 DDT	< 10
8-P	4,4 DDE	< 10
9-P	4,4 DDD	< 10
10-P	Dildrin	< 10
11-P	A-Endosulfan	< 10
12-P	B-Endosulfan	< 10
13-P	Endosulfan Sulfate	< 10
14-P	Endrin	< 10
15-P	Endrin Aldehyde	< 10
16-P	Heptachlor	< 10
17-P	Heptachlor Epoxide	< 10
18-P	PCB 1242	< 10
19-P	PCB 1254	< 10
20-P	PCB 1221	< 10
21-P	PCB 1232	< 10
22-P	PCB 1248	< 10
23-P	PCB 1260	< 10
24-P	PCB 1016	< 10
25-P	Toxaphene	< 10

BY _____

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

Engineering Science
P.O. Box 538
Arcardia, CA 91006
ATTN: Frank Teeple

Report #3328
November 14, 1983

SWLO Lab #7317
Date Submitted: 11/2/83

Sample Identification: Probe 9.7 10/28/83 Depth 14'

VOLATILE COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (µg/l)
1-V	Acrolein	< 10
2-V	Acrylonitrile	< 10
3-V	Benzene	< 10
4-V	Bis (Chloromethyl) Ether	< 10
5-V	Bromoform	< 10
6-V	Carbon Tetrachloride	< 10
7-V	Chlorobenzene	< 10
8-V	Chlorodibromomethane	< 10
9-V	Chloroethane	< 10
10-V	2-Chloroethylvinyl Ether	< 10
11-V	Chloroform	< 10
12-V	Dichlorobromomethane	< 10
13-V	Dichlorodifluoromethane	< 10
14-V	1,1 Dichloroethane	< 10
15-V	1,2 Dichloroethane	< 10
16-V	1,1 Dichloroethylene	< 10
17-V	1,2 Dichloropropane	< 10
18-V	1,2 Dichloropropylene	< 10
19-V	Ethylbenzene	< 10
20-V	Methyl Bromide	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

VOLATILE COMPOUND - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (µg/l)
21-V	Methyl Chloride	< 10
22-V	Methylene Chloride	< 10
23-V	1,1,2,2, Tetrachloroethane	< 10
24-V	Tetrachloroethylene	< 10
25-V	Toluene	< 10
26-V	1,2 Trans-Dichloroethylene	< 10
27-V	1,1,1 Trichloroethane	< 10
28-V	1,1,2 Trichloroethane	< 10
29-V	Trichloroethylene	< 10
30-V	Trichlorofluoromethane	< 10
31-V	Vinyl Chloride	< 10

ACID COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/l)
1-A	2-Chlorophenol	< 10
2-A	2,4 Dichlorophenol	< 10
3-A	2,4 Dimethylphenol	< 10
4-A	4,6 Dinitro-O-Cresol	< 10
5-A	2,4 Dinitrophenol	< 10
6-A	2-Nitrophenol	< 10
7-A	4-Nitrophenol	< 10
8-A	P-Chloro-M-Cresol	< 10
9-A	Pentachlorophenol	< 10
10-A	Phenol	< 10
11-A	2,4,6 Trichlorophenol	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

BASE/NEUTRAL COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/l)
1-B	Acenaphthene	< 10
2-B	Acenaphtylene	< 10
3-B	Anthrancene	< 10
4-B	Benzidine	< 10
5-B	Benzo (a) Anthracene	< 10
6-B	Benzo (a) Pyrene	< 10
7-B	Benzofluoranthene	< 10
8-B	Benzo (ghi) Perylene	< 10
9-B	Benzo (k) Fluoranthene	< 10
10-B	Bis (2-Chloroethoxy) Methane	< 10
11-B	Bis (2-Chloroethyl) Ether	< 10
12-B	Bis (2-Chloroisopropyl) Ether	< 10
13-B	Bis (2-Ethylhexyl) Phthalate	< 10
14-B	4 Bromophenyl Ether	< 10
15-B	Butyl Benzyl Phthalate	< 10
16-B	2-Chloronaphthalene	< 10
17-B	4-Chlorophenyl Ether	< 10
18-B	Chrysene	< 10
19-B	Dibenzo (a,h) Anthrancene	< 10
20-B	1,2 Dichlorobenzene	< 10
21-B	1,3 Dichlorobenzene	< 10
22-B	1,4 Dichlorobenzene	< 10
23-B	3,3 Dichlorobenzidine	< 10
24-B	Diethyl Phthalate	< 10
25-B	Dimethyl Phthalate	< 10
26-B	Di-N-Butyl Phthalate	< 10
27-B	2,4 Dinitrotoluene	< 10
28-B	2,6 Dinitrotoluene	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

BASE/NEUTRAL COMPOUNDS - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/l)
29-B	Di-N-Octyl Phthalate	< 10
30-B	1,2 Diphenylhydrazine	< 10
31-B	Fluoranthene	< 10
32-B	Fluorene	< 10
33-B	Hexachlorobenzene	< 10
34-B	Hexachlorobutadiene	< 10
35-B	Hexachlorocyclopentadiene	< 10
36-B	Hexachloroethane	< 10
37-B	Indeno (1,2,3-cd) Pyrene	< 10
38-B	Isophorene	< 10
39-B	Naphthalene	< 10
40-B	Nitrobenzene	< 10
41-B	N-Nitrosodiethylamine	< 10
42-B	N-Nitrosodi-N-Propylamine	< 10
43-B	N-Nitrosodiphenylamine	< 10
44-B	Phenathrene	< 10
45-B	Pyrene	< 10
46-B	1,2,4 Trichlorobenzene	< 10

PESTICIDES

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/l)
1-P	Aldrin	< 10
2-P	A-BHC	< 10
3-P	B-BHC	< 10
4-P	Y-BHC	< 10
5-P	S-BHC	< 10
6-P	Chlordane	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

PESTICIDES - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/l)
7-P	4,4 DDT	< 10
8-P	4,4 DDE	< 10
9-P	4,4 DDD	< 10
10-P	Dildrin	< 10
11-P	A-Endosulfan	< 10
12-P	B-Endosulfan	< 10
13-P	Endosulfan Sulfate	< 10
14-P	Endrin	< 10
15-P	Endrin Aldehyde	< 10
16-P	Heptachlor	< 10
17-P	Heptachlor Epoxide	< 10
18-P	PCB 1242	< 10
19-P	PCB 1254	< 10
20-P	PCB 1221	< 10
21-P	PCB 1232	< 10
22-P	PCB 1248	< 10
23-P	PCB 1260	< 10
24-P	PCB 1016	< 10
25-P	Toxaphene	< 10

BY _____

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

Engineering Science
P.O. Box 538
Arcadia, CA 91006
ATTN: Frank Teeple

Number 3403
December 7, 1983

SWLO Lab #7412
Date Submitted: 11/16/83

Sample Identification: Probe 9.8 Depth 21' Date 10/28/83

VOLATILE COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (µg/kg)
1-V	Acrolein	< 10
2-V	Acrylonitrile	< 10
3-V	Benzene	< 10
4-V	Bis (Chloromethyl) Ether	< 10
5-V	Bromoform	< 10
6-V	Carbon Tetrachloride	< 10
7-V	Chlorobenzene	< 10
8-V	Chlorodibromomethane	< 10
9-V	Chloroethane	< 10
10-V	2-Chloroethylvinyl Ether	< 10
11-V	Chloroform	< 10
12-V	Dichlorobromomethane	< 10
13-V	Dichlorodifluoromethane	< 10
14-V	1,1 Dichloroethane	< 10
15-V	1,2 Dichloroethane	< 10
16-V	1,1 Dichloroethylene	< 10
17-V	1,2 Dichloropropane	< 10
18-V	1,2 Dichloropropylene	< 10
19-V	Ethylbenzene	< 10
20-V	Methyl Bromide	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

VOLATILE COMPOUND - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (µg/kg)
21-V	Methyl Chloride	< 10
22-V	Methylene Chloride	< 10
23-V	1,1,2,2. Tetrachloroethane	< 10
24-V	Tetrachloroethylene	< 10
25-V	Toluene	< 10
26-V	1,2 Trans-Dichloroethylene	< 10
27-V	1,1,1 Trichloroethane	< 10
28-V	1,1,2 Trichloroethane	< 10
29-V	Trichloroethylene	< 10
30-V	Trichlorofluoromethane	< 10
31-V	Vinyl Chloride	< 10

ACID COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
1-A	2-Chlorophenol	< 10
2-A	2,4 Dichlorophenol	< 10
3-A	2.4 Dimethylphenol	< 10
4-A	4,6 Dinitro-O-Cresol	< 10
5-A	2,4 Dinitrophenol	< 10
6-A	2-Nitrophenol	< 10
7-A	4-Nitrophenol	< 10
8-A	P-Chloro-M-Cresol	< 10
9-A	Pentachlorophenol	< 10
10-A	Phenol	< 10
11-A	2,4,6 Trichlorophenol	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

BASE/NEUTRAL COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
1-B	Acenaphthene	< 10
2-B	Acenaphtylene	< 10
3-B	Anthrancene	< 10
4-B	Benzidine	< 10
5-B	Benzo (a) Anthracene	< 10
6-B	Benzo (a) Pyrene	< 10
7-B	Benzofluoranthene	< 10
8-B	Benzo (ghi) Perylene	< 10
9-B	Benzo (k) Fluoranthene	< 10
10-B	Bis (2-Chloroethoxy) Methane	< 10
11-B	Bis (2-Chloroethyl) Ether	< 10
12-B	Bis (2-Chloroisopropyl) Ether	< 10
13-B	Bis (2-Ethylhexyl) Phthalate	< 10
14-B	4 Bromophenyl Ether	< 10
15-B	Butyl Benzyl Phthalate	< 10
16-B	2-Chloronaphthalene	< 10
17-B	4-Chlorophenyl Ether	< 10
18-B	Chrysene	< 10
19-B	Dibenzo (a,h) Anthrancene	< 10
20-B	1,2 Dichlorobenzene	< 10
21-B	1,3 Dichlorobenzene	< 10
22-B	1,4 Dichlorobenzene	< 10
23-B	3,3 Dichlorobenzidine	< 10
24-B	Diethyl Phthalate	< 10
25-B	Dimethyl Phthalate	< 10
26-B	Di-N-Butyl Phthalate	< 10
27-B	2,4 Dinitrotoluene	< 10
28-B	2,6 Dinitrotoluene	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

BASE/NEUTRAL COMPOUNDS - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
29-B	Di-N-Octyl Phthalate	< 10
30-B	1,2 Diphenylhydrazine	< 10
31-B	Fluoranthene	< 10
32-B	Fluorene	< 10
33-B	Hexachlorobenzene	< 10
34-B	Hexachlorobutadiene	< 10
35-B	Hexachlorocyclopentadiene	< 10
36-B	Hexachloroethane	< 10
37-B	Indeno (1,2,3-cd) Pyrene	< 10
38-B	Isophorene	< 10
39-B	Naphthalene	< 10
40-B	Nitrobenzene	< 10
41-B	N-Nitrosodiethylamine	< 10
42-B	N-Nitrosodi-N-Propylamine	< 10
43-B	N-Nitrosodiphenylamine	< 10
44-B	Phenathrene	< 10
45-B	Pyrene	< 10
46-B	1,2,4 Trichlorobenzene	< 10

PESTICIDES

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
1-P	Aldrin	< 10
2-P	A-BHC	< 10
3-P	B-BHC	< 10
4-P	Y-BHC	< 10
5-P	S-BHC	< 10
6-P	Chlordane	< 10

SWLO

Southwest Laboratory of Oklahoma

10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

PESTICIDES - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
7-P	4,4 DDT	< 10
8-P	4,4 DDE	< 10
9-P	4,4 DDD	< 10
10-P	Dildrin	< 10
11-P	A-Endosulfan	< 10
12-P	B-Endosulfan	< 10
13-P	Endosulfan Sulfate	< 10
14-P	Endrin	< 10
15-P	Endrin Aldehyde	< 10
16-P	Heptachlor	< 10
17-P	Heptachlor Epoxide	< 10
18-P	PCB 1242	< 10
19-P	PCB 1254	< 10
20-P	PCB 1221	< 10
21-P	PCB 1232	< 10
22-P	PCB 1248	< 10
23-P	PCB 1260	< 10
24-P	PCB 1016	< 10
25-P	Toxaphene	< 10

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Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

Engineering Science
P.O. Box 538
Arcadia, CA 91006
ATTN: Frank Teeple

Number 3410
December 7, 1983

SWLO Lab #7419
Date Submitted: 11/16/83

Sample Identification: Probe 12.1 Depth 7' Date 11/9/83

VOLATILE COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (µg/kg)
1-V	Acrolein	< 10
2-V	Acrylonitrile	< 10
3-V	Benzene	< 10
4-V	Bis (Chloromethyl) Ether	< 10
5-V	Bromoform	< 10
6-V	Carbon Tetrachloride	< 10
7-V	Chlorobenzene	< 10
8-V	Chlorodibromomethane	< 10
9-V	Chloroethane	< 10
10-V	2-Chloroethylvinyl Ether	< 10
11-V	Chloroform	< 10
12-V	Dichlorobromomethane	< 10
13-V	Dichlorodifluoromethane	< 10
14-V	1,1 Dichloroethane	< 10
15-V	1,2 Dichloroethane	< 10
16-V	1,1 Dichloroethylene	< 10
17-V	1,2 Dichloropropane	< 10
18-V	1,2 Dichloropropylene	< 10
19-V	Ethylbenzene	< 10
20-V	Methyl Bromide	< 10

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VOLATILE COMPOUND - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (µg/kg)
21-V	Methyl Chloride	< 10
22-V	Methylene Chloride	< 10
23-V	1,1,2,2, Tetrachloroethane	< 10
24-V	Tetrachloroethylene	< 10
25-V	Toluene	< 10
26-V	1,2 Trans-Dichloroethylene	< 10
27-V	1,1,1 Trichloroethane	< 10
28-V	1,1,2 Trichloroethane	< 10
29-V	Trichloroethylene	< 10
30-V	Trichlorofluoromethane	< 10
31-V	Vinyl Chloride	< 10

ACID COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
1-A	2-Chlorophenol	< 10
2-A	2,4 Dichlorophenol	< 10
3-A	2,4 Dimethylphenol	< 10
4-A	4,6 Dinitro-O-Cresol	< 10
5-A	2,4 Dinitrophenol	< 10
6-A	2-Nitrophenol	< 10
7-A	4-Nitrophenol	< 10
8-A	P-Chloro-M-Cresol	< 10
9-A	Pentachlorophenol	< 10
10-A	Phenol	< 10
11-A	2,4,6 Trichlorophenol	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

BASE/NEUTRAL COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
1-B	Acenaphthene	< 10
2-B	Acenaphtylene	< 10
3-B	Anthrancene	< 10
4-B	Benzidine	< 10
5-B	Benzo (a) Anthracene	< 10
6-B	Benzo (a) Pyrene	< 10
7-B	Benzofluoranthene	< 10
8-B	Benzo (ghi) Perylene	< 10
9-B	Benzo (k) Fluoranthene	< 10
10-B	Bis (2-Chloroethoxy) Methane	< 10
11-B	Bis (2-Chloroethyl) Ether	< 10
12-B	Bis (2-Chloroisopropyl) Ether	< 10
13-B	Bis (2-Ethylhexyl) Phthalate	< 10
14-B	4 Bromophenyl Ether	< 10
15-B	Butyl Benzyl Phthalate	< 10
16-B	2-Chloronaphthalene	< 10
17-B	4-Chlorophenyl Ether	< 10
18-B	Chrysene	10
19-B	Dibenzo (a,h) Anthrancene	< 10
20-B	1,2 Dichlorobenzene	< 10
21-B	1,3 Dichlorobenzene	< 10
22-B	1,4 Dichlorobenzene	< 10
23-B	3,3 Dichlorobenzidine	< 10
24-B	Diethyl Phthalate	< 10
25-B	Dimethyl Phthalate	< 10
26-B	Di-N-Butyl Phthalate	< 10
27-B	2,4 Dinitrotoluene	< 10
28-B	2,6 Dinitrotoluene	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

BASE/NEUTRAL COMPOUNDS - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
29-B	Di-N-Octyl Phthalate	< 10
30-B	1,2 Diphenylhydrazine	< 10
31-B	Fluoranthene	< 10
32-B	Fluorene	< 10
33-B	Hexachlorobenzene	< 10
34-B	Hexachlorobutadiene	< 10
35-B	Hexachlorocyclopentadiene	< 10
36-B	Hexachloroethane	< 10
37-B	Indeno (1,2,3-cd) Pyrene	< 10
38-B	Isophorene	< 10
39-B	Naphthalene	< 10
40-B	Nitrobenzene	< 10
41-B	N-Nitrosodiethylamine	< 10
42-B	N-Nitrosodi-N-Propylamine	< 10
43-B	N-Nitrosodiphenylamine	< 10
44-B	Phenathrene	< 10
45-B	Pyrene	< 10
46-B	1,2,4 Trichlorobenzene	< 10

PESTICIDES

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
1-P	Aldrin	< 10
2-P	A-BHC	< 10
3-P	B-BHC	< 10
4-P	Y-BHC	< 10
5-P	S-BHC	< 10
6-P	Chlordane	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

PESTICIDES - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
7-P	4,4 DDT	< 10
8-P	4,4 DDE	< 10
9-P	4,4 DDD	< 10
10-P	Dildrin	< 10
11-P	A-Endosulfan	< 10
12-P	B-Endosulfan	< 10
13-P	Endosulfan Sulfate	< 10
14-P	Endrin	< 10
15-P	Endrin Aldehyde	< 10
16-P	Heptachlor	< 10
17-P	Heptachlor Epoxide	< 10
18-P	PCB 1242	< 10
19-P	PCB 1254	< 10
20-P	PCB 1221	< 10
21-P	PCB 1232	< 10
22-P	PCB 1248	< 10
23-P	PCB 1260	< 10
24-P	PCB 1016	< 10
25-P	Toxaphene	< 10

BY _____

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

Engineering Science
P.O. Box 538
Arcadia, CA 91006
ATTN: Frank Teeple

Number 3409
December 7, 1983

SWLO Lab #7418
Date Submitted: 11/16/83

Sample Identification: Probe 13.1 Depth 8' Date 11/9/83

VOLATILE COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (µg/kg)
1-V	Acrolein	< 10
2-V	Acrylonitrile	< 10
3-V	Benzene	< 10
4-V	Bis (Chloromethyl) Ether	< 10
5-V	Bromoform	< 10
6-V	Carbon Tetrachloride	< 10
7-V	Chlorobenzene	< 10
8-V	Chlorodibromomethane	< 10
9-V	Chloroethane	< 10
10-V	2-Chloroethylvinyl Ether	< 10
11-V	Chloroform	< 10
12-V	Dichlorobromomethane	< 10
13-V	Dichlorodifluoromethane	< 10
14-V	1,1 Dichloroethane	< 10
15-V	1,2 Dichloroethane	< 10
16-V	1,1 Dichloroethylene	< 10
17-V	1,2 Dichloropropane	< 10
18-V	1,2 Dichloropropylene	< 10
19-V	Ethylbenzene	< 10
20-V	Methyl Bromide	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

VOLATILE COMPOUND - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (µg/kg)
21-V	Methyl Chloride	< 10
22-V	Methylene Chloride	< 10
23-V	1,1,2,2. Tetrachloroethane	< 10
24-V	Tetrachloroethylene	< 10
25-V	Toluene	< 10
26-V	1,2 Trans-Dichloroethylene	< 10
27-V	1,1,1 Trichloroethane	< 10
28-V	1,1,2 Trichloroethane	< 10
29-V	Trichloroethylene	< 10
30-V	Trichlorofluoromethane	< 10
31-V	Vinyl Chloride	< 10

ACID COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
1-A	2-Chlorophenol	< 10
2-A	2,4 Dichlorophenol	< 10
3-A	2.4 Dimethylphenol	< 10
4-A	4,6 Dinitro-O-Cresol	< 10
5-A	2,4 Dinitrophenol	< 10
6-A	2-Nitrophenol	< 10
7-A	4-Nitrophenol	< 10
8-A	P-Chloro-M-Cresol	< 10
9-A	Pentachlorophenol	< 10
10-A	Phenol	< 10
11-A	2,4,6 Trichlorophenol	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

BASE/NEUTRAL COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
1-B	Acenaphthene	< 10
2-B	Acenaphtylene	< 10
3-B	Anthrancene	< 10
4-B	Benzidine	< 10
5-B	Benzo (a) Anthracene	< 10
6-B	Benzo (a) Pyrene	< 10
7-B	Benzofluoranthene	< 10
8-B	Benzo (ghi) Perylene	< 10
9-B	Benzo (k) Fluoranthene	< 10
10-B	Bis (2-Chloroethoxy) Methane	< 10
11-B	Bis (2-Chloroethyl) Ether	< 10
12-B	Bis (2-Chloroisopropyl) Ether	< 10
13-B	Bis (2-Ethylhexyl) Phthalate	< 10
14-B	4 Bromophenyl Ether	< 10
15-B	Butyl Benzyl Phthalate	< 10
16-B	2-Chloronaphthalene	< 10
17-B	4-Chlorophenyl Ether	< 10
18-B	Chrysene	< 10
19-B	Dibenzo (a,h) Anthrancene	< 10
20-B	1,2 Dichlorobenzene	< 10
21-B	1,3 Dichlorobenzene	< 10
22-B	1,4 Dichlorobenzene	< 10
23-B	3,3 Dichlorobenzidine	< 10
24-B	Diethyl Phthalate	< 10
25-B	Dimethyl Phthalate	< 10
26-B	Di-N-Butyl Phthalate	< 10
27-B	2,4 Dinitrotoluene	< 10
28-B	2,6 Dinitrotoluene	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

BASE/NEUTRAL COMPOUNDS - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
29-B	Di-N-Octyl Phthalate	< 10
30-B	1,2 Diphenylhydrazine	< 10
31-B	Fluoranthene	< 10
32-B	Fluorene	< 10
33-B	Hexachlorobenzene	< 10
34-B	Hexachlorobutadiene	< 10
35-B	Hexachlorocyclopentadiene	< 10
36-B	Hexachloroethane	< 10
37-B	Indeno (1,2,3-cd) Pyrene	< 10
38-B	Isophorene	< 10
39-B	Naphthalene	< 10
40-B	Nitrobenzene	< 10
41-B	N-Nitrosodiethylamine	< 10
42-B	N-Nitrosodi-N-Propylamine	< 10
43-B	N-Nitrosodiphenylamine	< 10
44-B	Phenathrene	< 10
45-B	Pyrene	< 10
46-B	1,2,4 Trichlorobenzene	< 10

PESTICIDES

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
1-P	Aldrin	< 10
2-P	A-BHC	< 10
3-P	B-BHC	< 10
4-P	Y-BHC	< 10
5-P	S-BHC	< 10
6-P	Chlordane	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

PESTICIDES - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
7-P	4,4 DDT	< 10
8-P	4,4 DDE	< 10
9-P	4,4 DDD	< 10
10-P	Dildrin	< 10
11-P	A-Endosulfan	< 10
12-P	B-Endosulfan	< 10
13-P	Endosulfan Sulfate	< 10
14-P	Endrin	< 10
15-P	Endrin Aldehyde	< 10
16-P	Heptachlor	< 10
17-P	Heptachlor Epoxide	< 10
18-P	PCB 1242	< 10
19-P	PCB 1254	< 10
20-P	PCB 1221	< 10
21-P	PCB 1232	< 10
22-P	PCB 1248	< 10
23-P	PCB 1260	< 10
24-P	PCB 1016	< 10
25-P	Toxaphene	< 10

BY _____

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

Engineering Science
P.O. Box 538
Arcadia, CA 91006
ATTN: Frank Teeple

Number 3407
December 7, 1983

SWLO Lab #7416
Date Submitted: 11/16/83

Sample Identification: Probe 14.2 Depth 6' Date 11/9/83

VOLATILE COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (µg/kg)
1-V	Acrolein	< 10
2-V	Acrylonitrile	< 10
3-V	Benzene	< 10
4-V	Bis (Chloromethyl) Ether	< 10
5-V	Bromoform	< 10
6-V	Carbon Tetrachloride	< 10
7-V	Chlorobenzene	< 10
8-V	Chlorodibromomethane	< 10
9-V	Chloroethane	< 10
10-V	2-Chloroethylvinyl Ether	< 10
11-V	Chloroform	< 10
12-V	Dichlorobromomethane	< 10
13-V	Dichlorodifluoromethane	< 10
14-V	1,1 Dichloroethane	< 10
15-V	1,2 Dichloroethane	< 10
16-V	1,1 Dichloroethylene	< 10
17-V	1,2 Dichloropropane	< 10
18-V	1,2 Dichloropropylene	< 10
19-V	Ethylbenzene	< 10
20-V	Methyl Bromide	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

VOLATILE COMPOUND - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (µg/kg)
21-V	Methyl Chloride	< 10
22-V	Methylene Chloride	< 10
23-V	1,1,2,2. Tetrachloroethane	< 10
24-V	Tetrachloroethylene	< 10
25-V	Toluene	< 10
26-V	1,2 Trans-Dichloroethylene	< 10
27-V	1,1,1 Trichloroethane	< 10
28-V	1,1,2 Trichloroethane	< 10
29-V	Trichloroethylene	< 10
30-V	Trichlorofluoromethane	< 10
31-V	Vinyl Chloride	< 10

ACID COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
1-A	2-Chlorophenol	< 10
2-A	2,4 Dichlorophenol	< 10
3-A	2,4 Dimethylphenol	< 10
4-A	4,6 Dinitro-O-Cresol	< 10
5-A	2,4 Dinitrophenol	< 10
6-A	2-Nitrophenol	< 10
7-A	4-Nitrophenol	< 10
8-A	P-Chloro-M-Cresol	< 10
9-A	Pentachlorophenol	< 10
10-A	Phenol	< 10
11-A	2,4,6 Trichlorophenol	< 10

SWLO

Southwest Laboratory of Oklahoma

10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

BASE/NEUTRAL COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
1-B	Acenaphthene	< 10
2-B	Acenaphtylene	< 10
3-B	Anthrancene	< 10
4-B	Benzidine	< 10
5-B	Benzo (a) Anthracene	< 10
6-B	Benzo (a) Pyrene	< 10
7-B	Benzofluoranthene	< 10
8-B	Benzo (ghi) Perylene	< 10
9-B	Benzo (k) Fluoranthene	< 10
10-B	Bis (2-Chloroethoxy) Methane	< 10
11-B	Bis (2-Chloroethyl) Ether	< 10
12-B	Bis (2-Chloroisopropyl) Ether	< 10
13-B	Bis (2-Ethylhexyl) Phthalate	< 10
14-B	4 Bromophenyl Ether	< 10
15-B	Butyl Benzyl Phthalate	< 10
16-B	2-Chloronaphthalene	< 10
17-B	4-Chlorophenyl Ether	< 10
18-B	Chrysene	< 10
19-B	Dibenzo (a,h) Anthrancene	< 10
20-B	1,2 Dichlorobenzene	< 10
21-B	1,3 Dichlorobenzene	< 10
22-B	1,4 Dichlorobenzene	< 10
23-B	3,3 Dichlorobenzidine	< 10
24-B	Diethyl Phthalate	< 10
25-B	Dimethyl Phthalate	< 10
26-B	Di-N-Butyl Phthalate	< 10
27-B	2,4 Dinitrotoluene	< 10
28-B	2,6 Dinitrotoluene	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

BASE/NEUTRAL COMPOUNDS - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
29-B	Di-N-Octyl Phthalate	< 10
30-B	1,2 Diphenylhydrazine	< 10
31-B	Fluoranthene	< 10
32-B	Fluorene	< 10
33-B	Hexachlorobenzene	< 10
34-B	Hexachlorobutadiene	< 10
35-B	Hexachlorocyclopentadiene	< 10
36-B	Hexachloroethane	< 10
37-B	Indeno (1,2,3-cd) Pyrene	< 10
38-B	Isophorene	< 10
39-B	Naphthalene	< 10
40-B	Nitrobenzene	< 10
41-B	N-Nitrosodiethylamine	< 10
42-B	N-Nitrosodi-N-Propylamine	< 10
43-B	N-Nitrosodiphenylamine	< 10
44-B	Phenathrene	< 10
45-B	Pyrene	< 10
46-B	1,2,4 Trichlorobenzene	< 10

PESTICIDES

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
1-P	Aldrin	< 10
2-P	A-BHC	< 10
3-P	B-BHC	< 10
4-P	Y-BHC	< 10
5-P	S-BHC	< 10
6-P	Chlordane	< 10

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

PESTICIDES - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
7-P	4,4 DDT	< 10
8-P	4,4 DDE	< 10
9-P	4,4 DDD	< 10
10-P	Dildrin	< 10
11-P	A-Endosulfan	< 10
12-P	B-Endosulfan	< 10
13-P	Endosulfan Sulfate	< 10
14-P	Endrin	< 10
15-P	Endrin Aldehyde	< 10
16-P	Heptachlor	< 10
17-P	Heptachlor Epoxide	< 10
18-P	PCB 1242	< 10
19-P	PCB 1254	< 10
20-P	PCB 1221	< 10
21-P	PCB 1232	< 10
22-P	PCB 1248	< 10
23-P	PCB 1260	< 10
24-P	PCB 1016	< 10
25-P	Toxaphene	< 10

BY _____

Southwest Laboratory of Oklahoma
10926 E. 55th Pl./Tulsa, Oklahoma 74145/(918) 665-0680

Engineering Science
P.O. Box 538
Arcadia, CA 91006
ATTN: Frank Teeple

Number 3408
December 7, 1983

SWLO Lab #7417
Date Submitted: 11/16/83

Sample Identification: Probe 14.2 Depth 19' Date 11/9/83

VOLATILE COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (µg/kg)
1-V	Acrolein	< 10
2-V	Acrylonitrile	< 10
3-V	Benzene	< 10
4-V	Bis (Chloromethyl) Ether	< 10
5-V	Bromoform	< 10
6-V	Carbon Tetrachloride	< 10
7-V	Chlorobenzene	< 10
8-V	Chlorodibromomethane	< 10
9-V	Chloroethane	< 10
10-V	2-Chloroethylvinyl Ether	< 10
11-V	Chloroform	< 10
12-V	Dichlorobromomethane	< 10
13-V	Dichlorodifluoromethane	< 10
14-V	1,1 Dichloroethane	< 10
15-V	1,2 Dichloroethane	< 10
16-V	1,1 Dichloroethylene	< 10
17-V	1,2 Dichloropropane	< 10
18-V	1,2 Dichloropropylene	< 10
19-V	Ethylbenzene	< 10
20-V	Methyl Bromide	< 10

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VOLATILE COMPOUND - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (µg/kg)
21-V	Methyl Chloride	< 10
22-V	Methylene Chloride	< 10
23-V	1,1,2,2, Tetrachloroethane	< 10
24-V	Tetrachloroethylene	< 10
25-V	Toluene	< 10
26-V	1,2 Trans-Dichloroethylene	< 10
27-V	1,1,1 Trichloroethane	< 10
28-V	1,1,2 Trichloroethane	< 10
29-V	Trichloroethylene	< 10
30-V	Trichlorofluoromethane	< 10
31-V	Vinyl Chloride	< 10

ACID COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
1-A	2-Chlorophenol	< 10
2-A	2,4 Dichlorophenol	< 10
3-A	2.4 Dimethylphenol	< 10
4-A	4,6 Dinitro-O-Cresol	< 10
5-A	2,4 Dinitrophenol	< 10
6-A	2-Nitrophenol	< 10
7-A	4-Nitrophenol	< 10
8-A	P-Chloro-M-Cresol	< 10
9-A	Pentachlorophenol	< 10
10-A	Phenol	< 10
11-A	2,4,6 Trichlorophenol	< 10

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BASE/NEUTRAL COMPOUNDS

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
1-B	Acenaphthene	< 10
2-B	Acenaphtylene	< 10
3-B	Anthrancene	< 10
4-B	Benzidine	< 10
5-B	Benzo (a) Anthracene	< 10
6-B	Benzo (a) Pyrene	< 10
7-B	Benzofluoranthene	< 10
8-B	Benzo (ghi) Perylene	< 10
9-B	Benzo (k) Fluoranthene	< 10
10-B	Bis (2-Chloroethoxy) Methane	< 10
11-B	Bis (2-Chloroethyl) Ether	< 10
12-B	Bis (2-Chloroisopropyl) Ether	< 10
13-B	Bis (2-Ethylhexyl) Phthalate	< 10
14-B	4 Bromophenyl Ether	< 10
15-B	Butyl Benzyl Phthalate	< 10
16-B	2-Chloronaphthalene	< 10
17-B	4-Chlorophenyl Ether	< 10
18-B	Chrysene	< 10
19-B	Dibenzo (a,h) Anthrancene	< 10
20-B	1,2 Dichlorobenzene	< 10
21-B	1,3 Dichlorobenzene	< 10
22-B	1,4 Dichlorobenzene	< 10
23-B	3,3 Dichlorobenzidine	< 10
24-B	Diethyl Phthalate	< 10
25-B	Dimethyl Phthalate	< 10
26-B	Di-N-Butyl Phthalate	< 10
27-B	2,4 Dinitrotoluene	< 10
28-B	2,6 Dinitrotoluene	< 10

SWLO

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BASE/NEUTRAL COMPOUNDS - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
29-B	Di-N-Octyl Phthalate	< 10
30-B	1,2 Diphenylhydrazine	< 10
31-B	Fluoranthene	< 10
32-B	Fluorene	< 10
33-B	Hexachlorobenzene	< 10
34-B	Hexachlorobutadiene	< 10
35-B	Hexachlorocyclopentadiene	< 10
36-B	Hexachloroethane	< 10
37-B	Indeno (1,2,3-cd) Pyrene	< 10
38-B	Isophorene	< 10
39-B	Naphthalene	< 10
40-B	Nitrobenzene	< 10
41-B	N-Nitrosodiethylamine	< 10
42-B	N-Nitrosodi-N-Propylamine	< 10
43-B	N-Nitrosodiphenylamine	< 10
44-B	Phenathrene	< 10
45-B	Pyrene	< 10
46-B	1,2,4 Trichlorobenzene	< 10

PESTICIDES

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
1-P	Aldrin	< 10
2-P	A-BHC	< 10
3-P	B-BHC	< 10
4-P	Y-BHC	< 10
5-P	S-BHC	< 10
6-P	Chlordane	< 10

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PESTICIDES - (continued)

EPA PRIORITY POLLUTANT NO.#	COMPOUND	RESULTS (mg/kg)
7-P	4,4 DDT	<10
8-P	4,4 DDE	< 10
9-P	4,4 DDD	<10
10-P	Dildrin	< 10
11-P	A-Endosulfan	<10
12-P	B-Endosulfan	< 10
13-P	Endosulfan Sulfate	< 10
14-P	Endrin	< 10
15-P	Endrin Aldehyde	< 10
16-P	Heptachlor	< 10
17-P	Heptachlor Epoxide	< 10
18-P	PCB 1242	<10
19-P	PCB 1254	< 10
20-P	PCB 1221	< 10
21-P	PCB 1232	< 10
22-P	PCB 1248	< 10
23-P	PCB 1260	< 10
24-P	PCB 1016	< 10
25-P	Toxaphene	< 10

BY _____

APPENDIX H

ANALYSIS OF LANDFILL SAMPLES FOR DIOXIN AND JET FUEL

Southwest Laboratory of Oklahoma

CLIENT: Engineering Science
P.O. Box 538
Arcadia, CA 91006
ATTN: Frank Teeple

NUMBER 3324

November 14, 1983

SUBJECT: Analysis of Soil Samples

SWLO Lab #7314-7318
Date Submitted: 11/2/83

Sample Identification		Dioxin (ppm)	Jet Fuel (%)
Probe 5.1.2 Depth 22.5'	10/25/83	< 10	< .01
Probe 7.1 Depth 14'	10/27/83	< 10	< .01
Probe 8.3 Depth 11'	10/31/83	< 10	< .01
Probe 9.7 Depth 14'	10/28/83	< 10	< .01
Probe 4.6 Depth 11'	11/1/83	< 10	< .01

Sample Identification		Ortho Xylene (ug/l)
Probe 4.6 Depth 11'	11/1/83	4980

Southwest Laboratory of Oklahoma

BY _____

TULSA BRANCH
10926 E. 55th Pl.
Tulsa, Okla. 74145
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OUR LETTERS AND REPORTS APPLY ONLY TO THE SAMPLE TESTED AND ARE NOT NECESSARILY INDICATIVE OF THE QUALITIES OF APPARENTLY IDENTICAL OR SIMILAR PRODUCTS.

CUSHING BRANCH
P. O. Box 368
Cushing, Okla. 74023
(918) 225-1064

Southwest Laboratory of Oklahoma

CLIENT: Engineering Science
P.O. Box 538
Arcadia, CA 91006
ATTN: Frank Teeple

NUMBER 3411
December 7, 1983

SUBJECT: Analysis of Soil Samples

SWLO Lab #7410-7419
Date Submitted: 11/16/83

Sample Identification	Dioxin (mg/kg)	Jet Fuel (%)
Probe 5.1.11 10/27/83 Depth 14'	< 10	< 0.01
Probe 8.1 10/31/83 Depth 4'	< 10	< 0.01
Probe 9.8 10/28/83 Depth 21'	< 10	< 0.01
Probe 3.4 11/9/83 Depth 6'	< 10	< 0.01
Probe 2.3 11/9/83 Depth 7'	< 10	< 0.01
Probe 1.1 11/9/83 Depth 9'	< 10	< 0.01
Probe 14.2 11/9/83 Depth 6'	< 10	< 0.01
Probe 14.2 11/9/83 Depth 19'	< 10	< 0.01
Probe 13.1 11/9/83 Depth 8'	< 10	< 0.01
Probe 12.1 11/9/83 Depth 7'	< 10	< 0.01

Sample Identification	Ortho Xylene (µg/kg)
Probe 5.1.11 10/27/83 Depth 14'	41.02
Probe 8.1 10/31/83 Depth 4'	115.5

Southwest Laboratory of Oklahoma

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(918) 225-1064

APPENDIX I

DATA SHEETS FOR MONITORING OF HAZARDOUS GASES

MONITORING INCIDENT

1.1	DATE	①	DATE	②	DATE	③
CO	11-4-83	2.5	11-8-83	<2	11-12	ND
BENZENE	11-4	<1	11-12	ND	11-17	ND
HC	11-4	<3.5	11-12	ND	11-17	ND
MERCAPTANS	11-12	ND	11-16	ND	11-20	ND
H_2S	11-4	ND		—		—
VINYL CHLORIDE	11-12	ND	11-16	ND	11-20	ND
CYANIDE	11-4	1	11-12	1		
ta/tw (°F)	11-8	58°/71°	11-12	55°/70°	11-16	67/71
1.2 (SEE NOTE 1)						
CO	11-8	<2	11-11	ND		
BENZENE	11-11	ND	11-15	ND		
HC	11-11	ND	11-17	ND		
MERCAPTANS	11-11	ND	11-16	ND		
H_2S		—		—		
VINYL CHLORIDE	11-11	ND	11-16	ND		
CYANIDE	11-11	ND	11-19	ND		
ta/tw (°F)	11-8	57/70°	11-12	58/68	11-16	67/69
2.1						
CO	11-8	ND	11-11	1	11-15	2
BENZENE	11-11	ND	11-15	ND	11-19	ND
HC	11-11	ND	11-15	ND	11-19	ND
MERCAPTANS	11-11	ND	11-15	ND	11-19	ND
H_2S		-	11-15	—	—	
VINYL CHLORIDE	11-11	ND	11-15	ND	11-19	ND
CYANIDE	11-11	ND	11-15	ND	11-19	ND
ta/tw	11-8	59°/78°	11-11	44/76	11-19	61/77
2.3						
CO	11-8	10	11-11	9	—	
BENZENE	11-11	10	11-15	10		—
HC	11-11	ND	11-15	ND	11-19	<1
MERCAPTANS	11-11	ND	11-15	ND	11-19	ND
H_2S		—		—		—
VINYL CHLORIDE	11-11	ND	11-15	ND	11-19	ND
CYANIDE	11-11	ND	11-15	ND	11-19	ND
ta/tw	11-8	61/78	11-11	46/77	11-19	61/77

MONITORING INCIDENT

2.5	DATE	①	DATE	②	DATE	③
CO	11-8-83	7	11-11-83	ND	11-15	ND
BENZENE	11-11-83	ND	11-15	ND	11-19	ND
HC	11-11	ND	11-15	ND	11-19	ND
MERCAPTANS	11-11	ND	11-15	ND	11-19	ND
H_2S		—		—		—
VINYL CHLORIDE	11-11	ND	11-15	ND	11-19	ND
CYANIDE	11-11	ND	11-15	ND	11-19	ND
ta/tw	11-8	65/74	11-11	47/73	11-19	67/72
3.2 (SEE NOTE 2)						
CO						
BENZENE						
HC						
MERCAPTANS						
H_2S						
VINYL CHLORIDE						
CYANIDE						
ta/tw	11-20	44/77				
4.6 (SEE NOTE 1)						
CO	11-12-83	25				
BENZENE	11-15	10				
HC	11-17	14				
MERCAPTANS	11-19	ND	WATER @ n=10			
H_2S	—					
VINYL CHLORIDE	11-16	ND	WATER @ n=10			
CYANIDE	11-20	ND	WATER @ n=7			
ta/tw	11-15	59/74	11-16	68/75	11-20	77/77
5.1.6						
CO	11-1-83	90	11-3	145	11-8	140
BENZENE	11-14	>10				
HC	11-14	10				
MERCAPTANS	11-14	ND	11-17	ND	11-20	ND
H_2S	—	—	—	—	—	
VINYL CHLORIDE	11-14	ND	11-17	ND	11-20	ND
CYANIDE	11-14	2				
ta/tw	11-8	66/79	11-14	53/77	11-20	40/78

MONITORING INCIDENT

5.1.9	DATE	①	DATE	②	DATE	③/④
CO	11-1-83	>170	11-3	145	11-8-83	167
BENZENE	↓	>20	↓	>20	↓	
HC		12		14		
MERCAPTANS		130		200		
H_2S		60		5	11-14	140
VINYL CHLORIDE	11-3	<0.13	11-14	ND	11-17	ND
CYANIDE	11-3	30	11-14	25	—	—
ta/tw	11-8	67/77	11-14	52/77	11-17	60/76
5.1.11						
CO	11-1-83	170	11-3-83	180	11-8-83	310
BENZENE	11-14	>10				
HC	11-14	19				
MERCAPTANS	11-14	25				
H_2S	11-14	9				
VINYL CHLORIDE	11-14	ND	11-17-83	ND	11-20	ND
CYANIDE	11-14	2				
ta/tw	11-8	68/74	11-14	52/72	11-17	60/72
7.1						
CO	10-31-83	20	11-1 & 11-2	10/25	11-3 & 11-8	25/70
BENZENE	11-2	10				
HC	10-31	5	11-2	5.5		
MERCAPTANS	11-14	35				
H_2S	10-31	18	11-2	17		
VINYL CHLORIDE	11-14	0.2				
CYANIDE	10-31	14	11-2	16		
ta/tw	11-8	66/103	11-17	63/106	11-20	50/106
7.2						
CO	11-1-83	<2.5	11-2-83	<2.5	11-3 & 11-8	<2.5/<
BENZENE	11-14	ND	11-17	ND	11-20	ND
HC	11-14	ND	11-17	ND	11-20	ND
MERCAPTANS	11-14	ND	11-17	ND	11-20	ND
H_2S	—	—	—	—	—	ND
VINYL CHLORIDE	11-14	ND	11-17	ND	11-20	ND
CYANIDE	11-14	ND	11-17	ND	11-20	ND
ta/tw	11-8	66/92	11-14	58/96	11-20	49/96

MONITORING INCIDENT

7.3	DATE	①	DATE	②	DATE	③/④
CO	11-1-83	15	11-2-83	15	11-3 & 11-8	25/7
BENZENE	11-14	10				
HC	11-14	3				
MERCAPTANS	11-14	18				
H_2S	11-14	1				
VINYL CHLORIDE	11-14	0.2				
CYANIDE	11-14	2.5				
ta/tw	11-8	66/77	11-14	54/77		
8.1						
CO	11-2	170	11-3	170	11-4 & 11-8	25/180
BENZENE		7	11-3	7		
HC		5	11-3	9		
MERCAPTANS		<5	11-3	5		
H_2S		<0.25	11-3	<0.25		
VINYL CHLORIDE	11-3	0.7				
CYANIDE	11-3	0.5	11-3	<0.5		
ta/tw	11-8	62/81	11-20	56/80		
8.3						
CO	11-2	25	11-3	30	11-4 & 11-8	15/15
BENZENE	11-14	1				
HC	11-14	3	—			
MERCAPTANS	11-14	30	—			
H_2S	11-14	10	—			
VINYL CHLORIDE	11-14	ND	11-17	ND	11-20	ND
CYANIDE	11-14	9	—			
ta/tw	11-8	63/86	11-14	58/85	11-20	57/83
8.5						
CO	11-2	10	11-8	20	11-4 & 11-8	10/10
BENZENE	11-14	10				
HC	11-14	14				
MERCAPTANS	11-14	12				
H_2S	11-14	5				
VINYL CHLORIDE	11-14	ND	11-17	ND	11-20	ND
CYANIDE	11-14	4				
ta/tw	11-8	62/80	11-14	54/80	11-20	55/80

MONITORING INCIDENT

9.3	DATE	①	DATE	②/③	DATE	③/④
CO	11-1-83	410	11-2	400	11-3 & 11-8	375/10
BENZENE	11-14	>10				
HC	11-14	23				
MERCAPTANS	11-14	ND	11-17	ND	11-20	ND
H_2S		—		—		
VINYL CHLORIDE	11-14	ND	11-17	ND	11-20	ND
CYANIDE	11-14	2.5				
ta/tw (°F)	11-8	65/76	11-14	57/75	11-20	59/75
9.7						
CO	11-2-83	20	11-2	50	11-3 & 11-8	50/25
BENZENE	11-2	7				
HC	11-2	8				
MERCAPTANS	11-2	5	11-14	14	11-17	14
H_2S	11-2	<0.25	11-17	7		
VINYL CHLORIDE	11-2	0.25	11-17	ND	11-20	ND
CYANIDE	11-2	<0.5	11-14	3.8		
ta/tw (°F)	11-8	65/82	11-14	57/81	11-20	60/80
9.8						
CO	10-31	20	11-1 & 11-2	90/110	11-3 & 11-8	110/85
BENZENE	10-31	>20	11-1	40		
HC	11-1	10				
MERCAPTANS	11-1	5				
H_2S	10-31	<0.25	11-1	<0.25	11-14	ND
VINYL CHLORIDE	11-14	ND	11-17	ND	11-20	ND
CYANIDE	11-1	10				
ta/tw (°F)	11-8	65/75	11-14	57/75	11-20	58/73
10.1						
CO	11-8	2	11-10	2		
BENZENE	11-10	3				
HC	11-10	6				
MERCAPTANS	11-10	ND	11-15	ND	11-19	ND
H_2S		—				
VINYL CHLORIDE	11-10	0.2				
CYANIDE	11-10	ND	11-15	ND	11-20	ND
ta/tw (°F)	11-8	65/80	11-15	63/79	11-20	43/79

MONITORING INCIDENT

12.1	DATE	①	DATE	②	DATE	③
CO	11-8-83	180	11-10-83	180		
BENZENE	11-10-83	13				
HC		18				
MERCAPTANS		ND	11-15	40		
H_2S		—	11-15	5		
VINYL CHLORIDE		ND	11-15	ND	11-19	ND
CYANIDE		ND	11-15	6		
ta/tw	11-8	46/73	11-15	61/72	11-19	60/71
13.1						
CO	11-8-83	700+	11-10-83	700		
BENZENE	11-10-83	13				
HC		23				
MERCAPTANS		ND	11-15	ND	11-19	ND
H_2S		—		—		
VINYL CHLORIDE		ND	11-15	ND	11-19	ND
CYANIDE		ND	11-15	ND	11-19	ND
ta/tw	11-8	48/78	11-15	59/77	11-19	60/78
14.5						
CO	11-11-83	160				
BENZENE		7				
HC		6				
MERCAPTANS		ND	11-15	ND	11-19	ND
H_2S		—		—		—
VINYL CHLORIDE		ND	11-15	ND	11-19	0.05 UC
CYANIDE		ND	11-15	ND	11-19	0.5
ta/tw	11-8	44/74	11-15	61/74	11-19	56/76
CO						
BENZENE						
HC						
MERCAPTANS						
H_2S						
VINYL CHLORIDE						
CYANIDE						

Emission Profile for Wells 9.8 and 7.1

9.8	10/31	11/1	11/2	11/3
CO	20	90	110	110
benzene	220	10		
HC		10 mg/l		
H_2S	<0.25	<0.25		
mercaptan		<5		
SO_2	<0.25	<0.25		
vinyl chloride				
cyanide		10 mg/m³		
phosgene	<0.065	<0.065		

well drilled 10/28 afternoon stopcock installed on probe 10/29

7.1	10/31	11/1	11/2	11/3
CO	20	10	25	40
benzene			10	
HC	5 mg/l		5.5	
H_2S	18		17	
mercaptan			40	
SO_2	<0.25		<0.25	
vinyl chloride				
cyanide	14 mg/m³		16	
phosgene	<0.065		<0.065	

well drilled 10/27 afternoon stopcock installed on probe 10/29

date: 10/31/83
well group: 9 (south)
sampled by: AJP/KK
comments: used pump with teflon diaphragm, put sample in tedlar bags

		southwest 9.8	north mid 9.3	east 9.7
results:	CO	20		
	benzene	720		
	hydrocarbon			
	H_2S	<0.25		
	mercaptan			
	SO_2	<0.25		
	vinyl chloride			
	cyanide			
	phosgene	<0.065		

date: 10/31/93
well group: 7 (west)
sampled by: AJP/KK
comments: used pump with teflon diaphragm, put samples in tedlar bags

		7.2 east	7.1 north	7.3 west
results:	CO		20	
	benzene			
	hydrocarbon		5 mg/l	
	H_2S		15	
	mercaptan			
	SO_2		<0.25	
	vinyl chloride			
	cyanide		14 mg/m³	
	phosgene		<0.065	

date: 11/1/83
well group: 5 (east)
sampled by: AJP
comments:

		south 5.1.9	east 5.1.6	north 5.1.11
results:	CO	>170	90	170
	benzene	>20		
	hydrocarbon	12 mg/l		
	H_2S	60		
	mercaptan	130		
	SO_2	<0.25		
	vinyl chloride			
	cyanide	30 mg/m³		
	phosgene	<0.065		

date: 11/1/93
well group: 9 (south)
sampled by: AJP
comments:

results:		9.5 southwest	9.3 north mid	east 9.7
	CO	90	410	20
	benzene	10		
	hydrocarbon	10 mg/l		
	H_2S	<0.25		
	mercaptan	<5		
	SO_2	<0.25		
	vinyl chloride			
	cyanide	10 mg/m³		
	phosgene	<0.065		

date: 11/1/83
well group: 7 (west)
sampled by: AJP
comments:

		7.1 north	7.2 east	7.3 west
results:	CO	10	15	<2.5
	benzene			
	hydrocarbon			
	H_2S			
	mercaptan			
	SO_2			
	vinyl chloride			
	cyanide			
	phosgene			

date: 11/2/93
well group: 7 (west)
sampled by: AJP
comments:

results:

	7.1 north	7.2 east	7.3 west
CO	25	<2.5	15
benzene	10		
hydrocarbon	5.5 mg/l		
H_2S	17		
mercaptan	40		
SO_2	<0.25		
vinyl chloride			
cyanide	16 mg/m³		
phosgene	<0.065		

date: 11/2/93
well group: 8 (far west)
sampled by: AJP
comments:

		8.1 south	8.6 east	8.3 west
results:	CO	170	10	25
	benzene	7		
	hydrocarbon	5 mg/l		
	H_2S	<0.25		
	mercaptan	<5		
	SO_2	<0.25		
	vinyl chloride			
	cyanide	0.5 mg/m^3		
	phosgene	<0.065		

date: 11/2/83
well group: 9 (south)
sampled by: AJP
comments:

results:

	9.7 (east)	9.3 (north mid)	9.8 southwest
CO	50	400	110
benzene	7		
hydrocarbon	8 mg/l		
H_2S	<0.25		
mercaptan	<5		
SO_2	<0.25		
vinyl chloride	0.25		
cyanide	<0.5 mg/m³		
phosgene	<0.065		

date: 11/3/93
well group: 5 (east)
sampled by: FET/AJP
comments:

results:		5.19 south	5.16 east	north 5.11
	CO	145	145	190
	benzene	>20		
	hydrocarbon	14 mg/l		
	H_2S	→		
	mercaptan	↳ 5		
	SO_2	→ ↳ 200		
	vinyl chloride	↳ <0.125		
	cyanide	25 mg/m³		
	phosgene			

J.L. 11/3/93
well group: 7 (west)
sampled by: AJP
comments:

results:		7.1 (north)	7.2 (east)	7.3 (west)
	CO	40	<2.5	25
	benzene			
	hydrocarbon			
	H_2S			
	mercaptan			
	SO_2			
	vinyl chloride			
	cyanide			
	phosgene			

date: 11/3/83
well group: 9 (south)
sampled by: AJP/KK
comments:

results:		9.8 southwest	9.3 north mid	9.7 east
	CO	110	375	50
	benzene			
	hydrocarbon			
	H_2S			
	mercaptan			
	SO_2			
	vinyl chloride			
	cyanide			
	phosgene			

date: 11/3/93
well group: 8 (far west)
sampled by: AJP/KK
comments:

results:		south 8.1	east 8.6	west 8.3
	CO	170	20	30
	benzene	7		
	hydrocarbon	9 mg/l		
	H_2S	<0.25		
	mercaptan	5		
	SO_2	<0.25		
	vinyl chloride	0.7		
	cyanide	<0.5 mg/m³		
	phosgene	<0.065		

date: 11/4/83
well group: 8 (far west)
sampled by: AJP
comments:

		8.1 south	8.3 west	8.6 east
results:	CO	25	15	10
	benzene			
	hydrocarbon			
	H_2S			
	mercaptan			
	SO_2			
	vinyl chloride			
	cyanide			
	phosgene			

date: 11/4/83
well group: 1 (north)
sampled by: AJP
comments:

results:

	1.1 east	(not finished) 1.2 west
CO	2.5	
benzene	<1	
hydrocarbon	<3.5 mg/l	
H_2S	<0.25	
mercaptan		
SO_2	<0.25	
vinyl chloride		
cyanide	<0.5 mg/m³	
phosgene	<0.065	

APPENDIX J

DATA SHEETS FOR MONITORING OF SUBSURFACE PRESSURES, TEMPERATURES AND GASES

PROBE NO.	P (IN WC)	CO (PPM)	* CO_2 11-10-83	COMBUST. GAS	t_w (°F)	O_2	REMARKS
1.1	ϕ	< 2	2	ND	71	12	ta = 58°F (AIR TEMP
1.2	ϕ	< 2	ND	ND	70	21	ta = 57°F
2.1	ϕ	< 2	ND	ND	78	21	ta = 59°F
2.3	ϕ	10	2	ND	78	20	= 61
2.5	ϕ	2	2	ND	74	11	= 65
3.2	NM	NM	ND	11-20-83 ND	NM	NM	WATER ABOVE PERF
4.6	NM	11-12-83 25	NM	NM	NM	NM	NO TOP ASSEM. ON 11-10
5.1.6	ϕ	140	18	32	79	1	ta = 66°F
5.1.9	ϕ	167	26	45	77	1	67°
5.1.11	ϕ	310	24	74	74	1	68°
7.1	ϕ	70	16	10	105	2	ta = 66°F
7.2	ϕ	< 2	8	ND	92	17	66°
7.3	ϕ	7	18	12	77	1	66°
8.1	ϕ	180	6	24	81	1	ta = 62°F
8.3	ϕ	15	14	20	86	1	63°
8.5	ϕ	10	10	38	80	9	62°
9.3	ϕ	100	16	32	76	8	ta = 65°F
9.7	ϕ	25	21	15	82	4	65
9.8	ϕ	85	12	2	75	1	65
10.1	-0.5	2	ND	ND	80	—	ta = 46° PART. BLOCKS
12.1	ϕ	180	24	74	73	—	ta = 46°
13.1	ϕ	700+	18	27	78	—	ta = 48°
11-11-83 145	11-11-83 ϕ	11-11-83 160	11-11-83 14	11-11-83 30	11-11-83 74	1	ta = 44°

* CO_2 & COMBUSTIBLE GAS ARE PERCENT BY VOLUME

ENGINEERING-SCIENCE
120 W. HUNTINGTON DRIVE
ARCADIA, CALIFORNIA
(213) 445-7560

PROJECT: COMPASS INDUSTRIES 36422.00 | DATE: 11-8-83
SUBJECT: LF. MONITORING | KK & FT

APPENDIX K

LABORATORY ANALYSIS OF LANDFILL GAS SAMPLES

Southwest Laboratory of Oklahoma

NATURAL GAS ANALYSIS SUMMARY

CLIENT: ENGINEERING SCIENCE
P.O. BOX 538
ARCADIA, CA 91006

REPORT NUMBER 1449

DATE	11/21/83	EFFECTIVE DATE		CYLINDER NUMBER	2
PURCHASER				PLANT	
OPERATOR		STATION		LEASE	5.1.11

SAMPLE DATA

BY

DATE 11/16/83
PRESSURE
TEMPERATURE 60
ATM TEMP. 60

HEATING VALUE GROSS BTU/CU. FT.

IDEAL GAS @ 14.696 & 60° F 622

PRESSURE BASE 14.65

WATER SATURATED 609

DRY 620

TESTER

CHROMATOGRAPHIC ANALYSIS

COMPONENT		CONC. (MOLE %)	GALS. /MCF
NITROGEN		14.20	
CARBON DIOXIDE		23.03	
METHANE	C1	61.55	
ETHANE	C2	0.00	
PROPANE	C3	0.00	0.0000
ISOBUTANE	IC4	0.00	0.0000
NORMAL BUTANE	NC4	0.00	0.0000
ISOPENTANE	IC5	0.00	0.0004
NORMAL PENTANE	NC5	0.00	0.0000
HEXANES	C6	0.00	0.0000
			0.0004
OXYGEN		1.22	

GASOLINE CONTENT

26# R.V.P.=27.5 PSIA TRUE 0.0004

14# R.V.P.=15.0 PSIA TRUE 0.0000

CALCULATED SPECIFIC GRAVITY 0.8417

REMARKS:

PHYSICAL DATA OBTAINED FROM NGPSA ENGINEERING DATA BOOK 9th EDITION 1972 REVISED

TULSA, OKLAHOMA
10926 E. 55th Pl.
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CUSHING, OKLAHOMA
1802 E. Main
Cushing, Okla. 74023
(918) 225-1064

Southwest Laboratory of Oklahoma

NATURAL GAS ANALYSIS SUMMARY

CLIENT: ENGINEERING SCIENCE
P.O. BOX 538
ARCADIA, CA 91006

REPORT NUMBER 1451

DATE	11/21/83	EFFECTIVE DATE		CYLINDER NUMBER	2
PURCHASER				PLANT	
OPERATOR		STATION		LEASE	7.1

SAMPLE DATA

BY

DATE 11/16/83
PRESSURE
TEMPERATURE 60
\TM TEMP. 60

HEATING VALUE GROSS BTU/CU. FT.

IDEAL GAS @ 14.696 & 60° F 103

PRESSURE BASE 14.65

WATER SATURATED 121

DRY 103

TESTER

CHROMATOGRAPHIC ANALYSIS

COMPONENT		CONC. (MOLE %)	GALS. /MCF
NITROGEN		71.09	
CARBON DIOXIDE		14.74	
METHANE	C1	10.22	
ETHANE	C2	0.00	
PROPANE	C3	0.00	0.0000
ISOBUTANE	IC4	0.00	0.0000
NORMAL BUTANE	NC4	0.00	0.0000
ISOPENTANE	IC5	0.00	0.0000
NORMAL PENTANE	NC5	0.00	0.0000
HEXANES	C6	0.20	0.0015
			0.0015
OXYGEN		3.95	

GASOLINE CONTENT

26# R.V.P.=27.5 PSIA TRUE 0.0015

14# R.V.P.=15.0 PSIA TRUE 0.0015

CALCULATED SPECIFIC GRAVITY 1.0119

REMARKS:

PHYSICAL DATA OBTAINED FROM NGPSA ENGINEERING DATA BOOK 9th EDITION 1972 REVISED

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Southwest Laboratory of Oklahoma

NATURAL GAS ANALYSIS SUMMARY

CLIENT: ENGINEERING SCIENCE
P.O. BOX 538
ARCADIA, CA 91006

REPORT NUMBER 1446

DATE	11/21/83	EFFECTIVE DATE		CYLINDER NUMBER	A
PURCHASER				PLANT	
OPERATOR		STATION		LEASE	9.3

SAMPLE DATA

BY

DATE 11/16/83
PRESSURE
TEMPERATURE 60
\TM TEMP. 60

HEATING VALUE-GROSS BTU/CU. FT.

IDEAL GAS @ 14.696 & 60° F 890

PRESSURE BASE 14.65

WATER SATURATED 871

DRY 887

TESTER

CHROMATOGRAPHIC ANALYSIS

COMPONENT		CONC. (MOLE %)	GALS. /MCF
NITROGEN		31.97	
CARBON DIOXIDE		1.79	
METHANE	C1	42.29	
ETHANE	C2	5.81	
PROPANE	C3	4.13	1.1330
ISOBUTANE	IC4	2.15	0.7022
NORMAL BUTANE	NC4	1.80	0.5645
ISOPENTANE	IC5	0.77	0.2797
NORMAL PENTANE	NC5	0.71	0.2576
HEXANES	C6	1.24	0.5703
			3.5074
OXYGEN		7.34	

GASOLINE CONTENT

26# R.V.P.=27.5 PSIA TRUE 1.3919

14# R.V.P.=15.0 PSIA TRUE 1.2107

CALCULATED SPECIFIC GRAVITY 0.9839

REMARKS:

PHYSICAL DATA OBTAINED FROM NGPSA ENGINEERING DATA BOOK 9th EDITION 1972 REVISED

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Southwest Laboratory of Oklahoma

NATURAL GAS ANALYSIS SUMMARY

CLIENT: ENGINEERING SCIENCE
P.O. BOX 538
ARCADIA, CA 91006

REPORT NUMBER 1448

DATE	11/21/83	EFFECTIVE DATE		CYLINDER NUMBER	0
PURCHASER				PLANT	
OPERATOR		STATION		LEASE	9.3

SAMPLE DATA

BY

DATE 11/16/83
PRESSURE
TEMPERATURE 60
\TM TEMP. 60

HEATING VALUE-GROSS BTU/CU. FT.

IDEAL GAS @ 14.696 & 60° F 335

PRESSURE BASE 14.65

WATER SATURATED 328

DRY 334

TESTER

CHROMATOGRAPHIC ANALYSIS

COMPONENT		CONC. (MOLE %)	GALS. /MCF
NITROGEN		49.40	
CARBON DIOXIDE		15.83	
METHANE	C1	33.16	
ETHANE	C2	0.00	
PROPANE	C3	0.00	0.0000
ISOBUTANE	IC4	0.00	0.0000
NORMAL BUTANE	NC4	0.00	0.0000
ISOPENTANE	IC5	0.00	0.0004
NORMAL PENTANE	NC5	0.00	0.0004
HEXANES	C6	0.00	0.0000
			0.0008
OXYGEN		1.64	

GASOLINE CONTENT

26# R.V.P.=27.5 PSIA TRUE 0.0008

14# R.V.P.=15.0 PSIA TRUE 0.0000

CALCULATED SPECIFIC GRAVITY 0.9197

REMARKS:

PHYSICAL DATA OBTAINED FROM NGPSA ENGINEERING DATA BOOK 9th EDITION 1972 REVISED

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Southwest Laboratory of Oklahoma

NATURAL GAS ANALYSIS SUMMARY

CLIENT: ENGINEERING SCIENCE
P.O. BOX 538
ARCADIA, CA 91006

REPORT NUMBER 1447

DATE	11/21/83	EFFECTIVE DATE		CYLINDER NUMBER	3
PURCHASER				PLANT	
OPERATOR		STATION		LEASE	12.1

SAMPLE DATA

BY

DATE 11/16/83
PRESSURE
TEMPERATURE 60
ATM TEMP. 60

HEATING VALUE GROSS BTU/CU. FT.

IDEAL GAS @ 14.696 & 60° F 649

PRESSURE BASE 14.65

WATER SATURATED 636

DRY 647

TESTER

CHROMATOGRAPHIC ANALYSIS

COMPONENT		CONC. (MOLE %)	GALS. /MCF
NITROGEN		6.72	
CARBON DIOXIDE		27.38	
METHANE	C1	64.30	
ETHANE	C2	0.00	
PROPANE	C3	0.00	0.0000
ISOBUTANE	IC4	0.00	0.0004
NORMAL BUTANE	NC4	0.00	0.0005
ISOPENTANE	IC5	0.00	0.0001
NORMAL PENTANE	NC5	0.00	0.0005
HEXANES	C6	0.00	0.0000
			0.0018
OXYGEN		1.10	

GASOLINE CONTENT

25# R.V.P.=27.5 PSIA TRUE 0.0012

14# R.V.P.=15.0 PSIA TRUE 0.0000

CALCULATED SPECIFIC GRAVITY 0.8570

REMARKS:

PHYSICAL DATA OBTAINED FROM NGPSA ENGINEERING DATA BOOK 9th EDITION 1972 REVISED

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Southwest Laboratory of Oklahoma

NATURAL GAS ANALYSIS SUMMARY

CLIENT: ENGINEERING SCIENCE
P.O. BOX 538
ARCADIA, CA 91006

REPORT NUMBER 1450

DATE	11/21/83	EFFECTIVE DATE		CYLINDER NUMBER	0
PURCHASER				PLANT	
OPERATOR		STATION		LEASE	14.5

SAMPLE DATA

BY

DATE 11/16/83
PRESSURE
TEMPERATURE 60
ATM TEMP. 60

HEATING VALUE-GROSS BTU/CU. FT.

IDEAL GAS @ 14.696 & 60° F 231

PRESSURE BASE 14.65

WATER SATURATED 226

DRY 230

TESTER

CHROMATOGRAPHIC ANALYSIS

COMPONENT		CONC. (MOLE %)	GALS. /MCF
NITROGEN		61.80	
CARBON DIOXIDE		14.10	
METHANE	C1	22.41	
ETHANE	C2	3.20	
PROPANE	C3	0.00	0.0000
ISOBUTANE	IC4	0.00	0.0000
NORMAL BUTANE	NC4	0.00	0.0010
ISOPENTANE	IC5	0.20	0.0010
NORMAL PENTANE	NC5	0.00	0.0006
HEXANES	C6	0.08	0.0347
			0.0373
OXYGEN		1.61	

GASOLINE CONTENT

26# R.V.P.=27.5 PSIA TRUE 0.0373

14# R.V.P.=15.0 PSIA TRUE 0.0373

CALCULATED SPECIFIC GRAVITY 0.9536

REMARKS:

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