REMOVAL PROGRAM
PRELIMINARY ASSESSMENT/
SITE INVESTIGATION
FOR
ANGELILLO PROPERTY SITE
SOUTHINGTON, CONNECTICUT
September 7 and October 30-31, 1995

Prepared For:

U.S. Environmental Protection Agency
Emergency Planning and Response Branch
60 Westview Street
Lexington, MA 02173

CONTRACT NO. 68-W5-0009

TDD NO. 95-08-1016B

PCS NO. 1268

DC NO. R-190

Prepared By:

ROY F. WESTON, INC.
Superfund Technical Assessment and Response Team
Region I

Revised November 1995

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I. Preliminary Assessment/Site Investigation Forms

EPA REGION I
REMOVAL PRELIMINARY ASSESSMENT

Site Name and Location

Name: Angelillo Property Site **Location:** 650 Old Turnpike Road
Town: Southington **County:** Hartford **State:** Connecticut

Site Status: ( )NPL ( )NON-NPL ( )RCRA ( )TSCA
( )ACTIVE (X)ABANDONED ( )OTHER

(X)Attached USGS Map of Location ( )Site I.D. #: Not Available

Latitude: 41 ° 34 ' 37.00 " N **Longitude:** 72 ° 53 ' 12.00 " W

Referral

( )Citizen ( )City/Town ( )State (X)Preremedial
( )RCRA ( )Other:

Name of referring party: Nancy Smith, Site Assessment Manager - EPA
Phone: (617) 593-9697

Contacts Identified

1) NA **Phone:** ( )

Source of Information

( ) **Verbal:**
(x) **Report:** *Site Inspection Report for Angelillo Property Site in Southington, Connecticut (January 13, 1995)*, prepared by TRC Companies, Inc., Lowell, Massachusetts. CERCLIS No. CTD983882233.
( ) **Other:**

Potential Responsible Parties

Owner: Ms. Mary Parent, Executor **Phone:** ( )NA
Address: 285 North Star Drive, Southington, CT 06489

Operator: Vacant **Phone:** ( )
Address:

Site Access

Authorizing Person: Ms. Mary Parent
Date: August 16, 1995 (X)Obtained (X)Verbal
Phone: NA ( )Not Obtained (X)Written

Physical Site Characterization

Background Information: The Angelillo Property site (the Site) was used by the Angelillo Scrap Metal Company during the late 1970's through the early 1980's. This business accepted and transported drums and scrap metal from various sources, including drums from Solvents Recovery Service of New England (SRSNE), and later sold them for resale as scrap.

Description of Substances Possibly Present, Known or Alleged: Between 1979 and 1983, the Connecticut Department of Environmental Protection (CTDEP) observed illegal on-site disposal activities at the site. CTDEP reported that some of the drums accepted for scrap at the site were partially filled with solvents and/or solvent sludge. For an unknown period of time, the liquid/sludge materials were disposed of illegally in a pit that was excavated on site. The exact dates of the illegal disposal activities are unknown.

Existing Analytical Data

( ) Real-Time Monitoring Data: NA

(X) Sampling Data: Sampling data generated between September 10 to 12, 1990, indicated the presence of several volatile organic compounds (VOCs), metals, total petroleum hydrocarbons (TPHs) and polychlorinated biphenyls (PCBS) in soils. In addition, VOCs and metals were present in groundwater samples collected at the time.

Potential Threat

Description of potential hazards to environment and/or population that may be met by the site under 40 CFR 300.415 [b] [2].

i. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants or contaminants.

ii. Actual or potential contamination of drinking water supplies or sensitive ecosystems.

iii. Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release.

iv. High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate.

v. Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.

vii. The availability of other appropriate federal or state response mechanisms to respond to the release.

viii. Other situations or factors that may pose threats to public health or welfare or the environment.

Prior Response Activities

(X) PRP (X) STATE (X) FEDERAL ( ) OTHER

Brief Description: The CTDEP conducted an initial site investigation and inventory investigation on March 23 and June 30, 1983, respectively. CTDEP representatives noted during these inspections that approximately 250 drums were located on site. Several drums of dry sludge were also observed next to three piles of what appeared to be the same material. The CTDEP concluded that after the liquid/sludge was allowed to drain from the drums onto the surrounding soil, that the soil was then excavated and placed into drums.

From September 10 to 12, 1990, an environmental assessment conducted by Advanced Environmental Interface, Inc. (AEI) on behalf of the Angelillo Scrap Metal Company was performed at the site. Part of the assessment included installing ten monitoring wells and collecting soil and groundwater samples.

On June 30, 1994, TRC Companies, Inc., personnel conducted an on-site reconnaissance of the Site on behalf of the EPA Preremedial Program.

Priority for Site Investigation

(X) High ( ) Medium ( ) Low ( ) None

Comments: The site is abandoned and unsecured. The site borders multiple residential lots.

Report Generation

Originator: Robert Kefalas **Date:** September 6, 1995
Affiliation: Roy F. Weston, Inc., START **Phone:** (617) 229-6430
TDD#: 95-08-1016 **PCS#:** 1187

EPA REGION I
REMOVAL SITE INVESTIGATION

Inspection Information

Site Name: Angelillo Property Site **Address:**650 Old Turnpike Road.
Town: Southington **County:** Hartford **State:** Connecticut
Date of Inspection: Sept. 7, 1995 **Time of Inspection:**1100-1545 Hrs.
Weather Conditions: Sunny 90° F
Site Status at Time of Inspection: **( ) ACTIVE (X) INACTIVE**
Comments: Commercial Property

Agencies/Personnel Performing Inspection

	Names	Program
(X) EPA:	Dorothy Girten	Emergency Planning and Response
(X) EPA Contractor:	Robert Kefalas	Roy F. Weston, Inc. (START)
	David Gorden	Roy F. Weston, Inc. (START)

Current Owner Based on Field Interview: Ms. Mary Parent, Executor

Physical Site Characteristics

Parameter	Quantities/Extent

(X) Population in Vicinity: Residential areas border the Site.
(X) Wells: **( ) Drinking:**
(X) Monitoring: Ten monitoring wells are located on site.
(X) Other: Scattered debris, two cylinders and five drums were located on site. One drum appeared to be half full with product.

Physical Site Observations

The Angelillo Property site (the Site) is approximately 2.32 acres and can be accessed from Old Turnpike Road through a locked gate which leads to an unpaved road. The topography of the site is relatively flat, sloping to the west. The site is bordered by residential property to the south and north, the Brunalli Construction Company property to the west and Old Turnpike road to the east. Scattered debris, drums and cylinders were observed throughout the site. The debris areas contained tires, wood scraps, automotive parts, wood pallets, 55-gallon drums and

construction debris. From September 10 to 12, 1990, ten monitoring wells were installed on the Site as part of an environmental assessment conducted by Advanced Environmental Interface, Inc. (AEI) on behalf of the Angelillo Scrap Metal Company. No physical damage to the monitoring wells was noted during the site investigation.

Field Sampling and Analysis

Matrix	Analytical Parameter	Field Instrumentation CGI/O_2	RAD	PID
Background Readings:		0%/20.8%	10-15 uR/hr	0-0.2 units

Air: No readings above background levels were detected.

Field Quality Control Procedures

(X) SOP Followed ( ) Deviation From SOP

Comments:

Description of Sampling Conducted

Five surface soil samples and one drum sample were collected from the Site. The soil samples were analyzed at the EPA New England Regional Laboratory (NERL) for polychlorinated biphenyl (PCB) and metals analyses. The drum sample was analyzed at EPA NERL for PCB, metals and volatile organic compounds (VOCs) analyses. Also, a qualitative subsurface geophysical survey was performed at selected site areas using Geonics Limited EM31-D Non-Contacting Terrain Conductivity Meter and EG & G Geometrics Proton Precession Magnetometer Model G-856 instrumentation.

Analyses

Analytical Parameter	Media	Laboratory
(X) VOA	( ) AIR	(X) NERL
(X) PCB	( ) WATER	( ) CLP
( ) PESTICIDE	(X) SOIL	( ) PRIVATE
(X) METALS	(X) SOURCE	( ) SAS
( ) CYANIDE	( ) SEDIMENT	( ) SOW
( ) SEMI VOA (BNA)		
( ) TOXICITY		
( ) DIOXIN		
( ) ASBESTOS		
( ) OTHER		

Receptors

Comments

( ) **Drinking Water** ( ) **Private:** ( ) **Municipal:**
(X) **Groundwater:** Material/waste may leach from the Site.
(X) **Unrestricted Access:** Locked gate only restricts motor vehicles.
(X) **Population in Proximity:** Residential properties border the Site.
( ) **Sensitive Ecosystem:**

Additional Procedures for Site Determination

( ) **Biological Evaluation** ( ) **ATSDR**
To be determined by the EPA Site Investigator.

Site Determination

Depending on further information, criteria that may be met by the site include 40 CFR 300.415 [b] [2], parts:

i. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants or contaminants.

iii. Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release.

iv. High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate.

v. Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.

vii. The availability of other appropriate federal or state response mechanisms to respond to the release.

viii. Other situations or factors that may pose threats to public health or welfare or the environment.

Report Generation

Originator: Robert Kefalas **Date:** September 10, 1995
Affiliation: Roy F. Weston, Inc. START **Phone:** (617)229-6430
TDD#: 95-08-1016 **PCS#:** 1187

II. Chronological Summary

Chronological Summary

September 7, 1995

U.S. Environmental Protection Agency (EPA) Site Investigator (SI) Dorothy Girten and Roy F. Weston, Inc., Superfund Technical Assistance and Response Team (START) members Robert Kefalas and David Gorden traveled to the Angelillo Property site (the Site), located at 650 Old Turnpike, Southington, Hartford County, Connecticut (See Appendix A - Site Location Map and Appendix B - Site Diagram). The purpose of the site visit was to conduct site investigation activities.

Once at the site, a site walk-through was conducted. During the walk-through, Mr. Kefalas and Mr. Gorden conducted air monitoring with a MSA Microgard Combustible Gas Indicator/Oxygen Meter (CGI/O2), a Ludlum Model 19 MicroR and Ludlum Model 3 Radiation Meters and a HNU ISPI-101 Photoionization Detector (PID). No readings above background were detected. At the conclusion of the site walk-through, Mr. Kefalas and SI Girten donned Level C personal protective equipment (PPE) in compliance with the site health and safety plan (see Appendix C - Health and Safety Plan) and proceeded to collect surface soil samples. A total of five surface soil samples were collected from numerous sample stations located throughout the site for polychlorinated biphenyl (PCB) and metal analyses. In addition, SI Girten collected one drum sample for PCB, metal and volatile organic compound analyses. All of the samples were collected in accordance with the site sampling quality assurance/quality control plan (Appendix D). During sample collection, Mr. Gorden performed a qualitative subsurface geophysical survey on selected areas of the site using Geonics Limited EM31-D Non-Contacting Terrain Conductivity Meter and EG & G Geometrics Proton Precession Magnetometer Model G-856 instrumentation. The geophysical study identified seven areas containing potential anomalies (See Appendix E - EM31-D/Magnetometer Survey Documentation).

Upon completion of sampling activities, SI Girten and START personnel completed the chain-of-custody documentation, placed the samples on ice and packed them for transport to the EPA New England Region Laboratory (NERL). SI Girten and the START personnel then departed the site.

Once at NERL, Mr. Kefalas relinquished the samples to EPA Sample Custodian Kathy Jarek.

October 30, 1995

U.S. Environmental Protection Agency (EPA) On-Scene Coordinators (OSC) Frank Gardner and Tom Hatzopoulos, as well as START members Kefalas, Joseph Resca and Daniel Keefe traveled to the site to perform further site investigation activities.

Once at the site, a site walk-through was conducted by OSCs Gardner and Hatzopoulos, Mr. Resca and Mr. Kefalas. During the walk-through, START conducted air monitoring using an MSA CGI/O2, Ludlum Model 19 MicroR and Ludlum Model 3 Radiation Meters and an HNU PID. No readings above background were detected. At the conclusion of the site walk-through, OSC Gardner and Mr. Kefalas located and identified with survey flags the seven areas containing potential anomalies identified during the previous site visit conducted on 7 September 1995.

As described in the site sampling quality assurance/quality control plan modifications, Mr. Resca and Mr. Kefalas advanced 12 soil vapors sample stations in the vicinity of the seven areas containing potential anomalies. A PID was used to initially screen the sample stations for organic vapors. Two sample stations exhibited elevated organic reading on the PID and were subsequently sampled for on-site volatile organic compounds (VOCs) screening analysis (See Appendix G - Volatile Organic Compounds Screening Data Memorandum).

EPA and START personnel departed the site upon the completion of the soil vapor survey.

October 31, 1995

START personnel Resca, Kefalas and Keefe arrived on site to meet with personnel from Tri-S, Inc. (Tri-S) of Ellington, CT. Tri-S had been selected in response to the solicitation for bids to perform exploratory excavation services at the site as outlined in *The Request for Proposal for Exploratory Excavation (Test Pit) Services at The Angelillo Property Site in Southington, Hartford County, Connecticut,* dated October 1995.

Tri-S representatives Mark Lajoie (equipment operator) and Patrick Schapp (field technician), arrived on site with a backhoe to perform excavation activities. After reviewing and signing the site heath and safety plan, Tri-S began to excavate test pits in and around the seven areas containing potential anomalies. OSC Gardner and START member Kefalas monitored excavation activities and performed continuous air monitoring for VOCs in Level C PPE. A total of eight test pits were excavated by Tri-S to various depths. No buried drums or containers were observed during excavation activities. However, what appeared to be product/waste material was observed near monitoring well no. 7. The product/waste material was subsequently sampled (sample no. 1) for PCB/pesticides, extractable base/neutral and acid compounds and polychlorinated napthalenes analyses to be conducted at NERL. After sampling this material, the sample location was excavated to a depth where this materal ended, approximately six feet below the initial ground surface.

Excavation activities were terminated after all seven areas containing potential anomalies had been explored. At the conclusion of excavation activities, OSC Gardner and Mr. Kefalas selected six additional surface soil sample stations. Mr. Resca and Mr. Kefalas proceeded to collect surface soil samples from the six sample stations for PCB/pesticides and metal analyses to be conducted at NERL.

Upon completion of sampling activities, START personnel completed chain-of-custody documentation and packaged the samples for transport. EPA, START and Tri-S personnel then departed the site.

November 1, 1995

Mr. Kefalas relinquished the samples to EPA Sample Custodian Kathy Jarek.

APPENDIX A

Site Location Map (Figure 1)

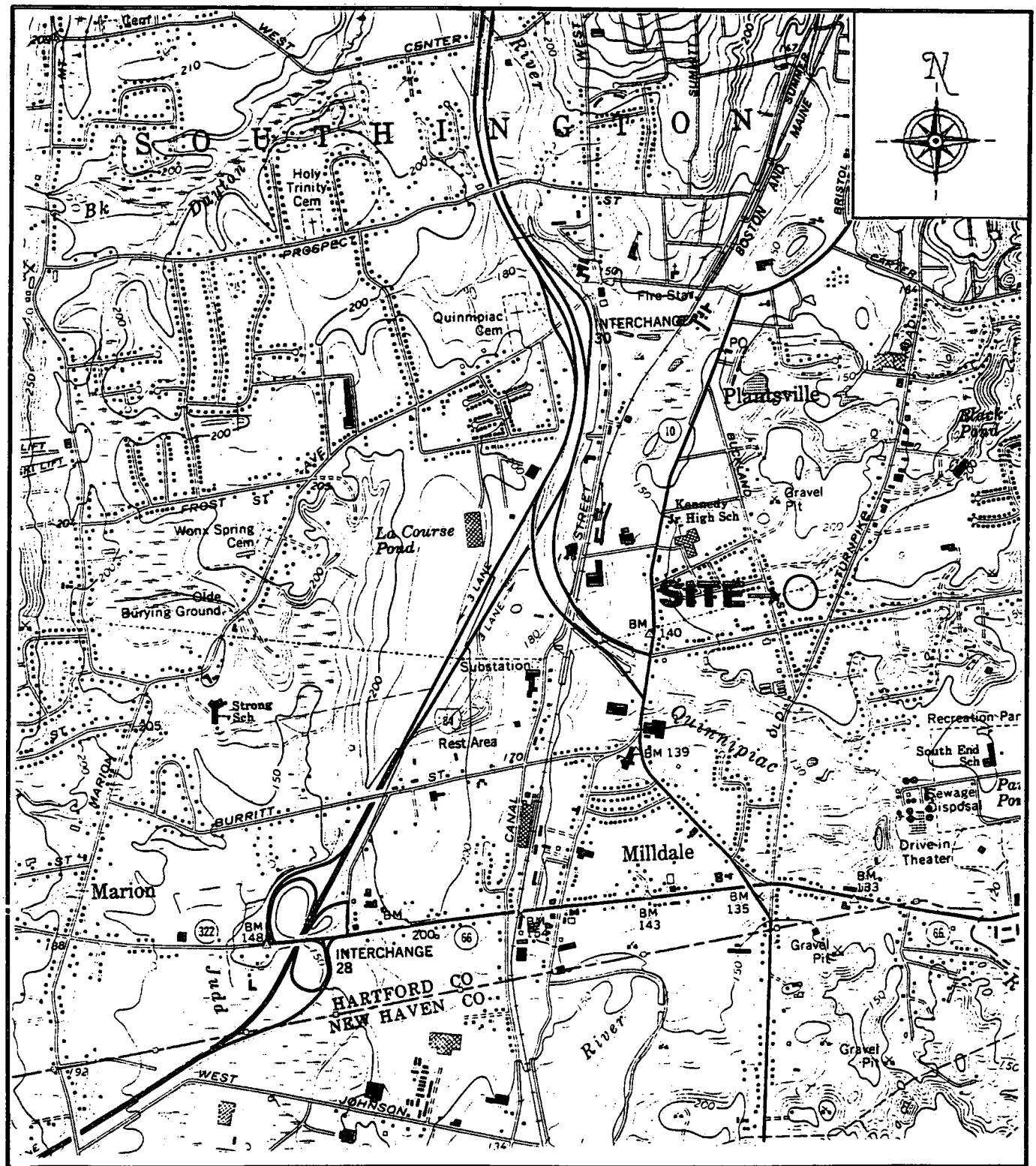

FIGURE 1

SITE LOCATION MAP

ANGELILLO PROPERTY SITE

SOUTHINGTON, CONNECTICUT

SOURCE: USGS 7.5 MINUTE SERIES, SOUTHINGTON, CONNECTICUT QUADRANGLE 1968, PHOTOREVISED 1984.

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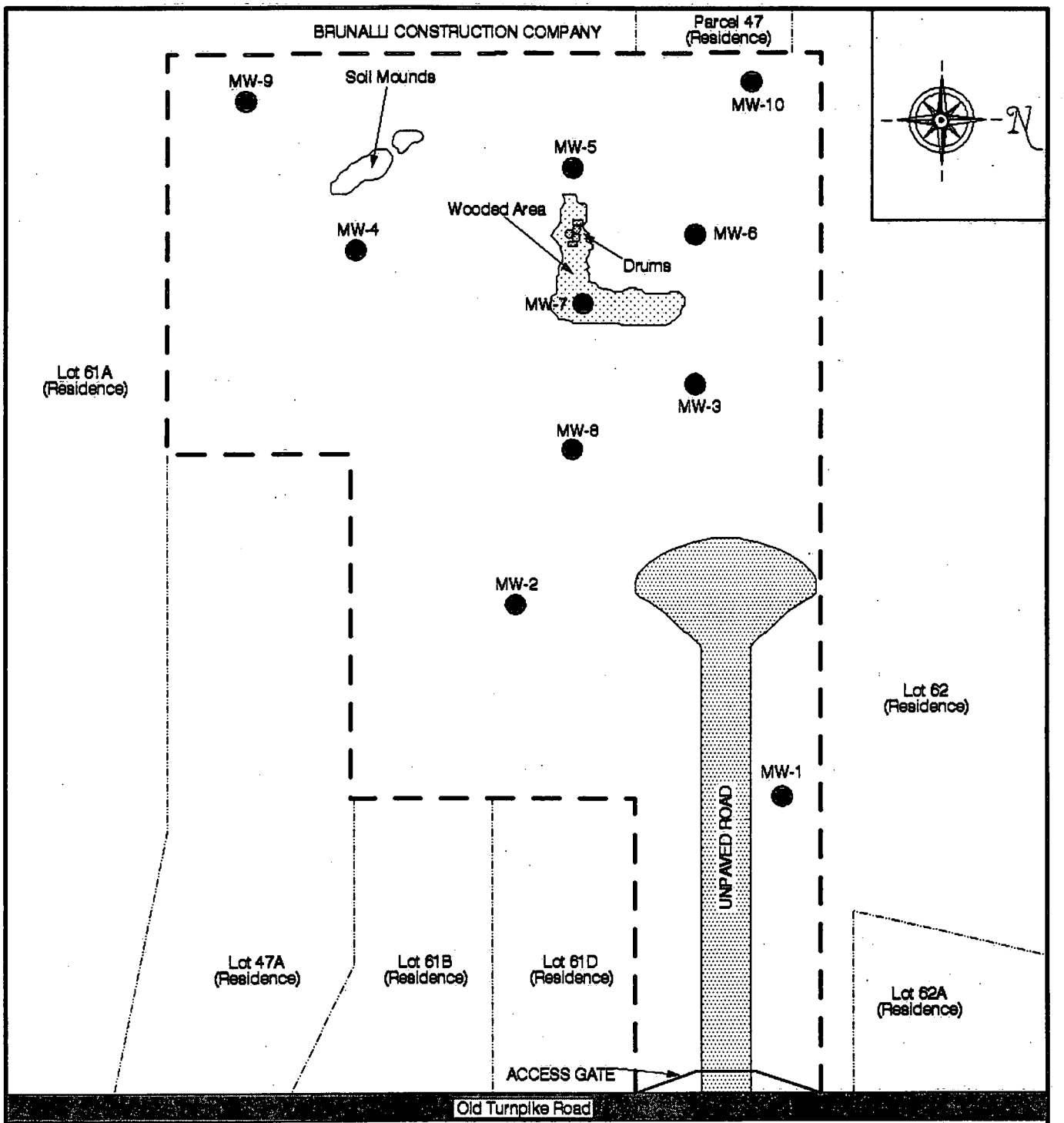
DRAWN BY R. KEFALAS	DATE 09/95	PCS # 1187
APPROVED BY	DATE 10/95	TDD # 95-08-1016

APPENDIX B

Site Diagram (Figure 2)



LEGEND:
- Monitoring Well (MW)
- Approximate Site Boundary
- Approximate Property Boundary

NOT TO SCALE

FIGURE 2
SITE DIAGRAM
ANGELILLO PROPERTY SITE
SOUTHINGTON, CONNECTICUT

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DRAWN BY: Gorden	DATE: 9/95	PCS #: 1187
APPROVED BY:	DATE: 10/95	TDD #: 95-08-1016

APPENDIX C

Health and Safety Plan

III. Appendices

DIG-SAFE (CT) 203-281-5437 Req# 954300035 10/26/95 → 11/23/95

REGION I START SITE HEALTH AND SAFETY PLAN (HASP)

Prepared by: Robert Kefalas / JOSEPH RESCA

W.O. Number: 11098-001-001-1240-1187-00 **Date:** 9/15/95

Project Identification:
Department/Office: Region 1 Burlington, MA
Site Name:Angelillo Property Site
TDD: 95-08-1016
EPA Contact: Dorothy Girten
Work Location Address: 650 Old Turnpike Road,
Southington, CT

Site History: The Angelillo Property was used to salvage scrap metal from various source for later resale. The exact dates of operation are unknown. After receiving an Order to Abate Pollution, Mr. Angelillo claimed to have ceased operations in 1984. However, Mr. Angelillo was still receiving and transporting drums in 1985. Currently, the Angelillo Property is a vacant lot.

TRC Companies, Inc. (TRCC) of Lowell, MA, prepared a Site Inspection (SI) report dated January, 1995. Information for the SI was collected during an on-site reconnaissance on June 30, 1994. During the on-site reconnaissance, TRCC observed scattered debris throughout the site and several concentrated debris areas containing tires, wood scraps, metal pipes, construction debris, automotive parts and batteries, wooden pallets, glass, plastic, asphalt shingles, empty 55-gallon drums and drum lids. A distinct area of stained soil measuring approximately 50 feet in diameter was also observed. The soil was black/brown in color and no vegetation was noted. Approximately four empty 55-gallon drums were adjacent to the stained soil area.

Scope of Work:
To perform a removal site investigation including: site recon, air monitoring, photodocumentation, sampling activities, and a magnetometer and EM-31 study. PERFORM TEST PIT EXCAVATION — OVERPACK DRUMS AS NEEDED. (MW)

Regulatory Status:

Site regulatory status:

CERCLA/SARA	☒ US EPA	☐ State	☐ NPL Site
RCRA	☐ US EPA	☐ State	
OSHA	☒ 1910	☐ 1926	☒ Hazard Communication

Review and Approval Documentation:

Reviewed by:
a. T.L. _____ (amendments) Date: 10/10/95
b. P.L. _____ Date: 9/6/95

Approved by: _____ Date: 9-6-95 10/24/95

☒ START HSO

Verbal Approval (Emergency Response/Modifications)
Approval by: _____ Date: _____

QA/QC Review by: _____ Date: _____

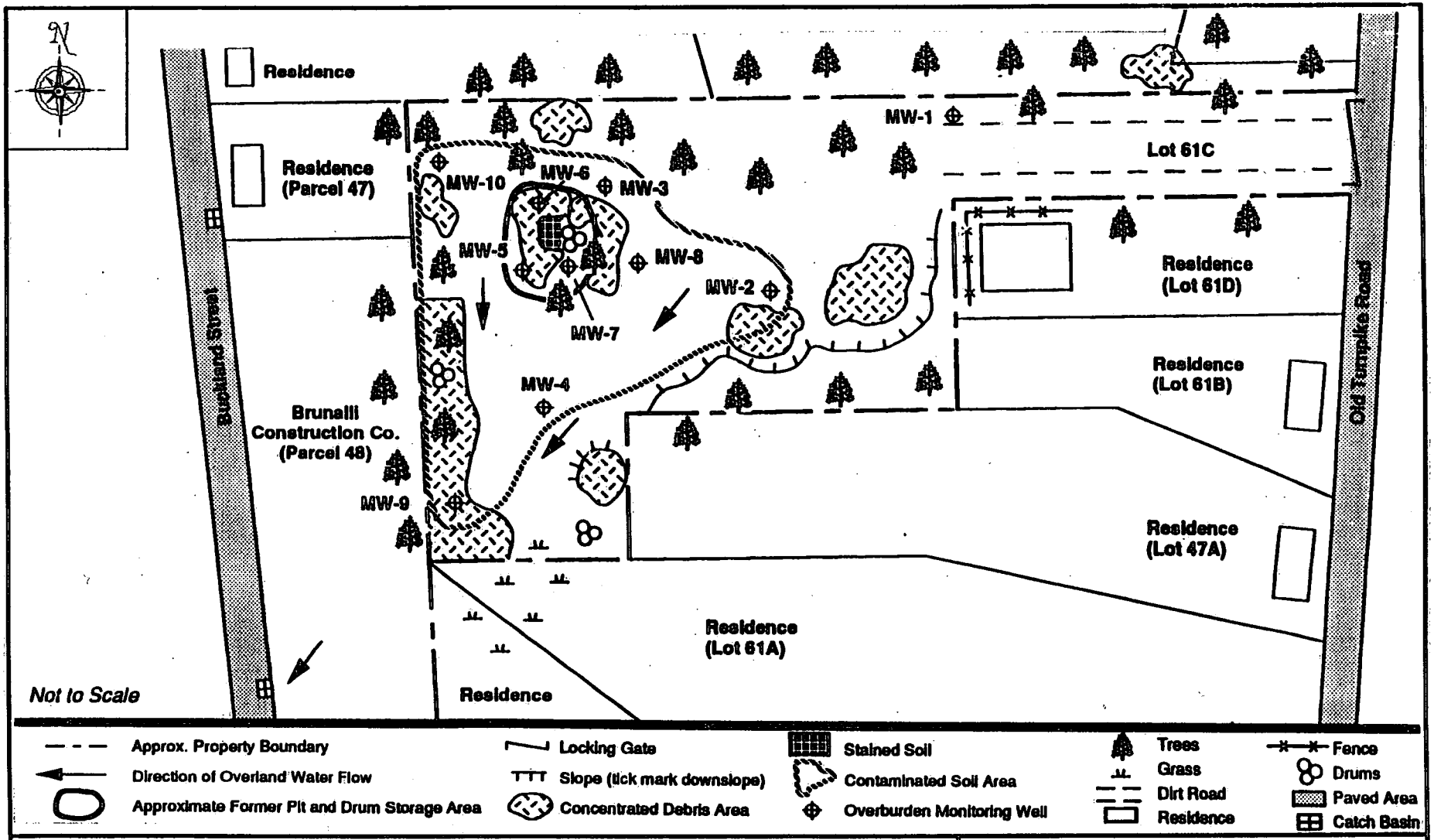
☐ Corporate Health and Safety

Hazard Assessment and Equipment Selection

In accordance with WESTON's Personal Protective Equipment Program and 29 CFR 1910.132 at the site prior to personnel beginning work the SHCS and/or the Site Manager have evaluated conditions and verified that the personal protective equipment selection outlined within this HASP is appropriate for the hazards known or expected to exist. (Refer to Safety Officer Manual Section 2 Personal Protection Program for Guidance)

☐ SHSC ☒ Site Manager Signature: _____ Date: 9/7/95

Project start date: End date: 9/17/95	Plan expiration date: 11/30/95 10/30/95 (MW)	Amendments: Test Pit 10/24/95 (MW)



NOT TO SCALE

FIGURE 1
SITE MAP/ WORK ZONES
ANGELILLO PROPERTY SITE
SOUTHINGTON, CONNECTICUT

SOURCE: ANGELILLO PROPERTY SITE INVESTIGATION REPORT, JANUARY 1995. TRC COMPANIES, INC., LOWELL, MA

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REGION I SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM

DRAWN BY R. KEEALAS	DATE 9/95	PCS # 1187
APPROVED BY	DATE 9/95	TDD # 95-08-1016

SITE SPECIFIC HAZARD EVALUATION

If box is marked a hazard evaluation form/section must be completed.

☒	CHEMICAL HAZARDS
☒	BIOLOGICAL HAZARDS
☐	RADIATION HAZARDS
☒	PHYSICAL HAZARDS

HEALTH AND SAFETY EVALUATION - CHEMICAL HAZARDS

☐ N/A

Chemical Contaminants of Concern

List chemical and concentration below and locate data sheets in Appendix A (HASP Form 33HASP.894, NIOSH pocket guide, ACGIH TLV booklet, etc.) of this HASP.

☐ N/A

Chemicals taken onto Site by WESTON or subcontractors

List chemicals (reagent type chemicals, solutions, or other identified materials brought on-site) and quantities below and locate Material Safety Data Sheets (MSDS) in Appendix B of this HASP.

Chemical Name	Concentration (if known)	Chemical Name	Quantity
Polychlorinated Biphenyl (PCB)	NA	Vermiculite	2 1-gallon cans
Copper	NA	Isobutylene in Air	17 liters
Lead	NA	MSA Calibration Check Gas (.75% Pentane,.15 Oxygen in Nitrogen)	17 liters
Zinc	NA		
1, 1 Dichloroethane	228 parts per billion	Liquid-Nox (Soap)	8 oz.
Benzene	9.0 parts per billion		
Toluene	180,000,000 ug/L		
Butyl Acetate	"Major"		
Methylethyl Ketone	220,000,000 ug/L		

OSHA SITE SPECIFIC HAZARDOUS SUBSTANCES

The following substances may require specific medical, training, or monitoring based upon concentration or evaluation of risk. See the appropriate citation listed under 29 CFR 1910 or 1926 for additional information.

☐ 1910.1001 Asbestos	☐ 1910.1002 Coal tar pitch vola tiles	☐ 1910.1003 4-Nitrobiphenyl
☐ 1910.1004 alpha-Naphthylamine	☐ 1910.1005 [Reserved]	☐ 1910.1006 Methyl chloromethyl ether
☐ 1910.1007 3,3'-Dichlorobenzidine (and its salts).	☐ 1910.1008 bis-Chloromethyl ether	☐ 1910.1009 beta-Naphthylamine
☐ 1910.1010 Benzidine	☐ 1910.1011 4-Aminodiphenyl	☐ 1910.1012 Ethyleneimine
☐ 1910.1013 beta-Propiolactone	☐ 1910.1014 2-Acetylaminofluorene	☐ 1910.1015 4-Dimethylaminoazobenzene
☐ 1910.1016 N-Nitrosodimethylamine	☐ 1910.1017 Vinyl chloride	☐ 1910.1018 Inorganic arsenic
☒ 1910.1025 Lead	☐ 1910.1027 Cadmium	☐ 1910.1028 Benzene
☐ 1910.1029 Coke oven emissions	☐ 1910.1043 Cotton dust	☐ 1910.1044 1,2-dibromo-3-chloropropane
☐ 1910.1045 Acrylonitrile	☐ 1910.1047 Ethylene oxide	☐ 1910.1048 Formaldehyde

HEALTH AND SAFETY EVALUATION - BIOLOGICAL HAZARDS OF CONCERN ☐ NA

☐ **Poisonous Plants** (FLD 43)
Location/Task No(s).:
Source: ☐ Known ☐ Suspect
Route of Exposure: ☐ Inhalation ☐ Ingestion ☐ Contact ☐ Direct Penetration

☐ **Insects** (FLD 43)
Location/Task No(s).:
Source: ☐ Known ☐ Suspect
Route of Exposure: ☐ Inhalation ☐ Ingestion ☐ Contact ☐ Direct Penetration

☐ **Snakes, Reptiles** (FLD 43)
Location/Task No(s).:
Source: ☐ Known ☐ Suspect
Route of Exposure: ☐ Inhalation ☐ Ingestion ☐ Contact ☐ Direct Penetration

☒ **Animals** (FLD 43)
Location/Task No(s).:
Source: ☐ Known ☒ Suspect
Route of Exposure: ☐ Inhalation ☐ Ingestion ☒ Contact ☒ Direct Penetration

FLD 43 — WESTON Biohazard Field Operating Procedures: Att. OP ☐

☐ **Sewage**
Location/Task No(s).:
Source: ☐ Known ☐ Suspect
Route of Exposure: ☐ Inhalation ☐ Ingestion ☐ Contact ☐ Direct Penetration
Tetanus Vaccination within Past 7 yrs: ☐ Yes ☐ No
(see Note #1 below)

☐ **Etiologic Agents (List)**
Location/Task No(s).:
Source: ☐ Known ☐ Suspect
Route of Exposure: ☐ Inhalation ☐ Ingestion ☐ Contact ☐ Direct Penetration

FLD 44 — WESTON Bloodborne Pathogens Exposure Control Plan - First Aid Procedures: Att. OP ☐

FLD 45 — WESTON Bloodborne Pathogens Exposure Control Plan – Working with Infectious Waste: Att. OP ☐

Note #1: A tetanus injection is recommended every 10 years for employees with "normal exposure risks." However, if employees have frequent potential for exposure at "higher risk," as working with raw sewage, then a frequency of 7 years is recommended.

HEALTH AND SAFETY EVALUATION — RADIATION HAZARDS OF CONCERN ☒ NA

NONIONIZING RADIATION

Task #	Type of Nonionizing Radiation	Source Onsite	TLV/PEL	Wavelength Range	Control Measures	Monitoring Instrument		

IONIZING RADIATION

				DAC (μCi/mL)				
Task #	Radionuclide	Major Radiations	Radioactive Half-Life (Years)	D	W	Y	Surface Contamination Limit	Monitoring Instrument

HEALTH AND SAFETY EVALUATION - PHYSICAL HAZARDS OF CONCERN ☐ NA			
Phy.Haz.Cond.	**Physical Hazard**	**Att.OP**	**Weston OP Titles**
Loud noise	Hearing loss/disruption of communication	☒	FLD01 - Noise Protection
Inclement weather	Rain/humidity/cold/ice/snow/lightning	☒	FLD02 - Inclement Weather
Ambient heat stress	Heat rash/cramps/exhaustion/heat stroke	☒	FLD05 - Heat Stress Prevention/Monitoring
Cold Stress	Hypothermia/frostbite	☒	FLD06 - Cold Stress
Cold/wet	Trench/paddy/immersion foot/edema	☐	FLD07 - Wet Feet
Confined spaces	Falls/burns/drowning/engulfment/electrocution	☐	FLD08 - Confined Space Entry
Explosive vapors	Thermal burns/impaction/dismemberment	☐	FLD09 - Hot Work
Improper lifting	Back strain/abdomen/arm/leg muscle/joint injury	☒	FLD10 - Manual Lifting/Handling Heavy Objects
Uneven Surfaces	Vehicle accidents/slips/trips/falls	☒	FLD11 - Rough Terrain
Poor housekeeping	Slips/trips/falls/punctures/cuts/fires	☒	FLD12 - Housekeeping
Hostile persons	Bodily injury	☐	FLD14 - Site Security
Remote Area	Slips/trips/falls/back strain/communication	☐	FLD15 - Remote Area
Improper Cyl.Handling	Mechanical injury/fire/explosion/suffocation	☐	FLD16 - Pressure Systems - Compressed Gases
Vehicle Hazards	Struck by vehicle/collision	☐	FLD20 - Traffic
Explosions	Explosion/fire/thermal burns	☐	FLD21 - Explosives
Moving mechanical parts	Crushing/pinch points/overhead hazards electrocution	☒	FLD22 - Heavy Equipment Operation
Working at elevation	Overhead hazard/falls/electrocution	☐	FLD25 - Working at Elevation
Working at elevation	Overhead hazard/falls/electrocution/slips	☐	FLD26 - Ladders
Trench Cave-in	Crushing/falling/overhead hazards/suffocation	☒	FLD28 - Excavating/Trenching
Improper material handling	Back injury/crushing from load shifts	☐	FLD29 - Materials Handling
Physiochemical	Explosions/fires from oxidizing, flam./corr.material	☒	FLD30 - Hazardous Materials Use/Storage
Physiochemical	Fire and explosion	☐	FLD31 - Fire Prevention/Response Plan Required
Physiochemical	Fire	☒	FLD32 - Fire Extinguishers Required
Structural integrity	Overhead/electrocution/slips/trips/falls/fire	☐	FLD33 - Demolition
Electrical	Electrocution/shock/thermal burns	☐	FLD34 - Utilities
Electrical	Electrocution/shock/thermal burns	☐	FLD35 - Electrical Safety
Burns/Fires	Heat Stress/Fires/Burns	☐	FLD36 - Welding/Cutting/Burning
Impact/thermal	Thermal burn/high pressure impaction/heat stress	☐	FLD37 - High Pressure Washers
Impaction/electrical	Smashing body parts/pinching/cuts/electrocution	☐	FLD38 - Hand and Power Tools
Poor visibility	Slips/trips/falls	☐	FLD39 - Illumination
Fire/Explosion	Burns/impaction	☒	FLD40 - Storage Tank
Chemical Exposure	Exposure to Benezene	☐	FLD41 - Benzene Guideline
Energy/Release	Unexpected release of energy	☐	FLD42 - Lockout/Tagout

TASK-BY-TASK RISK ASSESSMENT
Angelillo Site Task 1

TASK DESCRIPTION

Site reconnaissance with photodocumentation. Set up sampling grid with engineering transit. Perform EM-31 and magnetometer study.

EQUIPMENT REQUIRED/USED
(Be specific, e.g., hand tools, heavy equipment, instruments, PPE)

Air Monitoring Equipment: CGI/Oxygen Meter, Radiation meters, HNU
Personal Protective Equipment: Level D
Engineering Equipment: Transit, Measuring tape
Magnetic Study: EM-31 and Magnetometer

POTENTIAL HAZARDS/RISKS

CHEMICAL

☒ Hazard Present Risk Level: ☐ H ☒ M ☐ L

What Justifies Risk Level?
Accidentally being exposed to PCBs, Metals and/or VOCs.

PHYSICAL

☒ Hazard Present Risk Level: ☒ H ☐ M ☐ L

What Justifies Risk Level?
Heat stress due to high ambient temperatures and humidity.
Slips, trips, and falls resulting from topographic differences.

BIOLOGICAL

☒ Hazard Present Risk Level: ☐ H ☐ M ☒ L

What Justifies Risk Level?
Stray animals.

RADIOLOGICAL

☐ Hazard Present Risk Level: ☐ H ☐ M ☐ L

What Justifies Risk Level? NA

LEVELS OF PROTECTION/JUSTIFICATION

Modified Level D. Work boots, rubber booties, and surgical gloves will provide a barrier given the specific task. If dry soil conditions exist and dust could present a health concern, the PPE level of protection will be evaluated.

Note: Risk levels are defined as follows;
High - very likely to come in contact with identified hazards
Medium - possible contact with identified hazards
Low - not likely to come in contact with identified hazards

TASK-BY-TASK RISK ASSESSMENT
Angelillo Site Task 2

TASK DESCRIPTION

Surface Soil Sampling for PCBs, Metals, and VOCs.

EQUIPMENT REQUIRED/USED
(Be specific, e.g., hand tools, heavy equipment, instruments, PPE)

Air Monitoring Equipment: CGI/Oxygen Meter, Radiation Meters, HNU
Personal Protective Equipment: Level C

POTENTIAL HAZARDS/RISKS

CHEMICAL

☒ **Hazard Present** **Risk Level:** ☐ H ☒ M ☐ L

What Justifies Risk Level? Accidentally being exposed to PCBs, Metals, VOCs, or other unknown contaminants during sampling activities.

PHYSICAL

☒ **Hazard Present** **Risk Level:** ☒ H ☐ M ☐ L

What Justifies Risk Level? Heat stress due to high ambient temperatures and humidity. Slips, trips, and falls resulting from topographic differences.

BIOLOGICAL

☒ **Hazard Present** **Risk Level:** ☐ H ☐ M ☒ L

What Justifies Risk Level? Stray animals

RADIOLOGICAL

☐ **Hazard Present** **Risk Level:** ☐ H ☐ M ☐ L

What Justifies Risk Level? NA

LEVELS OF PROTECTION/JUSTIFICATION

Level C. During the sampling activities, the GMC-H cartridges will filter out pesticides, organic vapors, and dusts (up to 5ml/m^3).

(See site air monitoring program.)

Note: Risk levels are defined as follows;
High - very likely to come in contact with identified hazards
Medium - possible contact with identified hazards
Low - not likely to come in contact with identified hazards

TASK-BY-TASK RISK ASSESSMENT
(Complete One Sheet for Each Task)

TASK DESCRIPTION

TASK 3 - EXCAVATION OF SEVERAL AREAS ONSITE TO A DEPTH OF 10 FEET TO DETERMINE THE PRESENCE OF BURIED DRUMS, TANKS OR CONTAINERS. STOCKPILE EXCAVATED SOIL AND THEN BACKFILL EXCAVATION.

EQUIPMENT REQUIRED/USED
(Be specific, e.g., hand tools, heavy equipment, instruments, PPE)

AIR MONITORING: LEL/O2, RADIATION, PID AND/OR FID
PPE: LEVEL C WITH UPGRADE TO LEVEL B
EQUIPMENT: HAND TOOLS, EXCAVATOR, PRESSURE WASHER FOR DECON.

POTENTIAL HAZARDS/RISKS

CHEMICAL

☒ Hazard Present Risk Level: ☐ H ☒ M ☐ L

What Justifies Risk Level? POTENTIAL EXPOSURE TO CONTAMINATED SOILS OR BURIED CONTAINERS

PHYSICAL

☒ Hazard Present Risk Level: ☒ H ☐ M ☐ L

What Justifies Risk Level? HEAT STRESS DUE TO TEMPERATURES AND PPE. SLIPS, TRIPS AND FALLS; OPEN EXCAVATIONS, CAVE INS, STRUCK BY HEAVY EQUIPMENT. UNDERGROUND/OVERHEAD UTILITIES

BIOLOGICAL

☒ Hazard Present Risk Level: ☐ H ☐ M ☒ L

What Justifies Risk Level? STRAY ANIMALS

RADIOLOGICAL

☐ Hazard Present Risk Level: ☐ H ☐ M ☐ L

What Justifies Risk Level? NA.

LEVELS OF PROTECTION/JUSTIFICATION

LEVEL C PPE WILL BE WORN DURING INITIAL EXCAVATION ACTIVITIES. UPGRADE TO LEVEL B PPE WILL BE BASED ON AIR MONITORING RESULTS AND VISUAL OBSERVATIONS OF EXCAVATIONS (DRUMS, CONTAINERS PRESENT).

Note: Risk levels are defined as follows:
High - very likely to come in contact with identified hazards
Medium - possible contact with identified hazards
Low - not likely to come in contact with identified hazards

TASK-BY-TASK RISK ASSESSMENT
(Complete One Sheet for Each Task)

TASK DESCRIPTION

TASK 4 - OVER PACKING OF POTENTIAL DRUMS SHOULD THEY BE DISCOVERED TO BE LEAKING OR ARE PUMPED.

EQUIPMENT REQUIRED/USED
(Be specific, e.g., hand tools, heavy equipment, instruments, PPE)

AIR MONITORING: CGI/O2, RADIATION, PID AND/OR FID
PPE:- LEVEL B.
EQUIPMENT: HAND TOOLS, EXCAVATOR

POTENTIAL HAZARDS/RISKS

CHEMICAL

☒ Hazard Present Risk Level: ☒ H ☐ M ☐ L

What Justifies Risk Level? POTENTIAL EXPOSURE TO CONTENTS OF EXCAVATED/LEAKING DRUMS/CONTAINERS

PHYSICAL

☒ Hazard Present Risk Level: ☒ H ☐ M ☐ L

What Justifies Risk Level? HEAT STRESS; SLIPS, TRIPS, FALLS; OPEN EXCAVATIONS; SIMULTANEOUS BY EXCAVATOR AND/OR DRUM.

BIOLOGICAL

☐ Hazard Present Risk Level: ☐ H ☐ M ☒ L

What Justifies Risk Level? STRAY ANIMALS

RADIOLOGICAL

☐ Hazard Present Risk Level: ☐ H ☐ M ☐ L

What Justifies Risk Level? NA

LEVELS OF PROTECTION/JUSTIFICATION

LEVEL B PPE WILL BE UTILIZED WITH SCBA OR AIRLINE.

Note: Risk levels are defined as follows:
High - very likely to come in contact with identified hazards
Medium - possible contact with identified hazards
Low - not likely to come in contact with identified hazards

TASK-BY-TASK RISK ASSESSMENT
(Complete One Sheet for Each Task)

TASK DESCRIPTION

TASK 5 - SOIL GAS SURVEY IN AREAS WHERE TEST PIT EXCAVATIONS WILL BE PERFORMED.

EQUIPMENT REQUIRED/USED
(Be specific, e.g., hand tools, heavy equipment, instruments, PPE)

AIR MONITORING: LEL/O2, RADIATION, PID AND/OR FID
PPE: LEVEL D (Modified) (mw)
EQUIPMENT: SOIL GAS SAMPLING EQUIPMENT

POTENTIAL HAZARDS/RISKS

CHEMICAL

☒ Hazard Present Risk Level: ☐ H ☐ M ☒ L
What Justifies Risk Level? EXPOSURE TO SURFACE SOIL CONTAINING CONTAMINANTS.

PHYSICAL

☒ Hazard Present Risk Level: ☒ H ☐ M ☐ L
What Justifies Risk Level? HEAT STRESS; SLIP, TRIP, FALLS.

BIOLOGICAL

☒ Hazard Present Risk Level: ☐ H ☐ M ☒ L
What Justifies Risk Level? STRAY ANIMALS

RADIOLOGICAL

☐ Hazard Present Risk Level: ☐ H ☐ M ☐ L
What Justifies Risk Level? NA.

LEVELS OF PROTECTION/JUSTIFICATION

LEVEL D PPE WILL BE USED. DIRECT CONTACT WITH CONTAMINANTS IS NOT ANTICIPATED.

Note: Risk levels are defined as follows:
High - very likely to come in contact with identified hazards
Medium - possible contact with identified hazards
Low - not likely to come in contact with identified hazards

PERSONNEL PROTECTION PLAN

Engineering Controls
Describe Engineering Controls used as part of Personnel Protection Plan:

Task(s)

NA

Administrative Controls
Describe Administrative controls used as part of Personnel Protection Plan:

Task(s): Soil sampling for PCBs -Task 2, SOIL GAS SURVEY - TASK 5, EXCAVATION (TESTPITS) - TASK 3 AND OVER-PACKING OF DRUMS (TASK 4).

Exclusion, Contamination Reduction and Clean work Zones will be established.

Personnel Protective Equipment
Action Levels for Changing Levels of Protection. Define Action Levels for up or down grade for each task:

Task(s)
Initial site recon (1) will be conducted in modified Level D with air monitoring instruments. Establishing the sample grid and performing a magnetometer and EM-31 study (1) will be performed in modified Level D. Surface soil sampling (2) will be performed in Level C. SOIL GAS SURVEY IN LEVEL D (TASK 5), EXCAVATION (TESTPITS) IN LEVEL C (TASK 3) WITH OVERPACKING OF DRUMS (TASK 4) WILL BE CONDUCTED IN LEVEL B, UPGRADE TO LEVEL B IF NEEDED.

Description of Levels of Protection

Level D	Level D Modified	Level C	Level B
Task(s): Task 1	Task(s): Task 2, TASK 5	Task(s): Task 2, TASK 3	Task(s): TASK 3, TASK 4
☐ Head	☒ Head	☒ Head	☒ Head
☐ Eye and Face	☐ Eye and Face	☐ Eye and Face	☐ Eye and Face
☐ Hearing	☐ Hearing	☐ Hearing	☐ Hearing
☐ Appropriate Uniform	☒ Appropriate Uniform	☒ Appropriate Uniform	☒ Appropriate Uniform
☐ Hand - Gloves	☐ Coverall type)	☒ Coverall (Tyvek) Saranex	☒ Coverall (specify type) SARAN
☐ Foot - Safety Boots	☒ Hand - Gloves (inner) surgical	☒ Hand - Gloves (Surgical Nitrile)	☒ Hand - Gloves (inner) NITRILE
☐ Other (specify)	☐ Hand - Gloves (outer)	☒ Hand - Gloves (Nitrile)	☒ Hand - Gloves (outer) NITRILE
	☒ Foot - Safety Boots	☒ Foot - Safety Boots	☒ Foot - Safety Boots
	☒ Foot - Over boots vinyl	☒ Foot - Over boots	☒ Foot - Over boots
	☒ Other (specify) safety glasses when appropriate.	☒ Respirator (APR)	☒ SCBA (specify type) PRESSURE DEMAND
		☒ Cartridge (GMC-H)	☒ Other (specify) AIRLINE.
		☐ Other (specify)	

SITE OR PROJECT HAZARD MONITORING PROGRAM

Direct Reading Air Monitoring Instruments

Instrument Selection and Initial Check Record

Reporting Format: ☒ Field Notebook ☐ Field Data Sheets ☒ Air Monitoring Log ☐ Trip Report ☐ Other

Instrument	Task No.(s)	Number	Number	Checked	Comment	Initials
☐ CGI				☐		
☐ O_2				☐		
☒ CGI/O_2	Task No. 1, 2, 3, 4, 5			☐		
☐ CGI/O_2/tox-PPM, H_2S,H_2S/CO				☐		
☒ RAD	Task No. 1, 2, 3, 4 5			☐		
☒ Micro-R				☐		
☐ GM				☐		
☐ Other				☐		
☒ ~~PID~~ RB	Task No. 1, 2, 3, 4, 5			☐		
☒ ~~HNU 10.2~~ RB				☐		
☐ HNU 11.7				☐		
☒ Photovac, Microtip				☐		
☒ ~~OVM~~ RB MW				☐		
☐ Other				☐		
☒ FID	TASKS NO. 1, 2, 3, 4, 5			☐		
☒ FOX 128				☐		
☐ Heath, AID, Other				☐		
☐ RAM, Mini-RAM, Other				☐		
☐ Monotox				☐		
☐ H_2S				☐		
☐ COCL				☐		
☐ SO_2				☐		
☐ HCN				☐		
☐ Other				☐		
☐ Bio-Aerosol Monitor				☐		
☐ Detector Tubes				☐		
☒ Pump - MSA, Dräeger, Sensidyne	TASK NO. 1, 2, 3, 4, 5			☐		
☒ Tubes/type: Benzene				☐		
☐ Tubes/type:				☐		
☐ Other				☐		

SITE AIR MONITORING PROGRAM

Action Levels

These Action Levels, if not defined by regulation, are some percent (usually 50%) of the applicable PEL/REL/TLV. That number must also be adjusted to account for instrument response factors.

	Tasks	Action Level	Action
⊠ **Explosive atmosphere**		Ambient Air Concentration	
	1,2,3, 4,5	<10% LEL	Work may continue. Consider toxicity potential.
		10 to 25% LEL	Work may continue. Increase monitoring frequency.
		>25% LEL	Work must stop. Ventilate area before returning.
⊠ **Oxygen**		Ambient Air Concentration	
	1,2,3, 4,5	<19.5% O_2	Leave Area. Re-enter only with self-contained breathing apparatus.
		19.5% to 25% O2	Work may continue. Investigate changes from 21%.
		>25% O_2	Work must stop. Ventilate area before returning.
⊠ **Radiation**	1,2,3, 4,5	< 3 times background	Continue Work
		3 Times Background to < 1 mR/hour	Possible radiation source(s) present. Continue investigation with caution. Perform thorough monitoring. Consult with a Health Physicist.
		> 1 mrem/hour	Potential radiation hazard. Continue investigation only upon the advice of Health Physicist.
⊠ **Organic gases and vapors**	1,2,3, 4,5	Background	Level D Modified, continue investigation.
		0-5	Level C : Continue investigation, increase monitoring.
		5-500	Level B : or leave area.
⊠ **Inorganics and particulates**	1,2,3, 4,5	Vis. Dust	Level C

SITE SAMPLING ACTIVITIES

Sample Location

	Locations	Substances Sampled For
☐ Ambient background ☒ NA		
☐ Personal samples ☒ NA		
☒ Onsite samples ☐ NA	Nos 001-005 Soil (surface) Samples Analized for PCB, Metals (XRF) ⇒Screening Nos 006 - Drum Sample VOC, PCB, Metals (XRF) Sample Analized at NERL Lexington, KY	
☐ Offsite samples ☒ NA		
☐ Background sample stations ☒ NA		

SITE AIR SUMMARY LOG

Work Location Instrument Readings

Location:	% LEL	% O_2	PID (units)	FID (units)	Aerosol Monitor (mg/m³)	Radiation Meter	Detector Tubes ( )	
Background	0.0	20.8	0-02	—	—	0.03 mR/h		
walkthrough	Background		→			→		
Drums	Background		→			→		

CONTINGENCIES

Emergency Contacts and Phone Numbers

Agency	Contact	Phone Number
Local Medical Emergency Facility (LMF)	Bradley Memorial Hospital	(203) 276-5000
WESTON Medical Emergency Contact	EMR - Dr. Theriault	1-800-229-3674
WESTON Health and Safety	Bob Schoenfelder	(505) 837 6556
Fire Department	Southington, CT	(203) 628-5522
Police Department	Southington, CT	(203) 628-5521
Onsite Coordinator	Dorothy Girten, SI	(617) 860-4304
Site Telephone		
Nearest Telephone		
Chemtrec		1-800-424-9555
ATSDR		(404) 639-0615
ATF (explosives information)		1-800-424-9555
National Response Center		1-800-942-5969

Local Medical Emergency Facility(s)

Name of Hospital: Bradley Memorial Hospital

Address: Meriden Street, Southington, CT		**Phone:** 203-276-5000
Name of Contact:		**Phone No.:**
Type of Service: ☐ Physical trauma only ☐ Chemical exposure only ☒ Physical trauma and chemical exposure ☒ Available 24 hours	**Route to Hospital (written detail):** From the site take a left onto Old Turnpike Road. Continue for approximately 1 mile. Merge with Route 10 (Main Street), 2.25 miles turn right onto Meriden Street. Hospital is at intersection of Meriden Street and Oakland Street.	**Travel time from site:** 20 minutes **Distance to hospital:** 6 miles **Name/No. of 24-hr Ambulance Service:** 911

Secondary or Specialty Service Provider ☐ NA

Name of Hospital:		
Address:		**Phone No.:**
Name of Contact:		**Phone No.:**
Type of Service: ☐ Physical trauma only ☐ Chemical exposure only ☐ Physical trauma and chemical exposure ☐ Available 24 hours	**Route to Hospital (written detail):**	**Travel time from site:** **Distance to hospital:** **Name/No. of 24-hr Ambulance Service:**

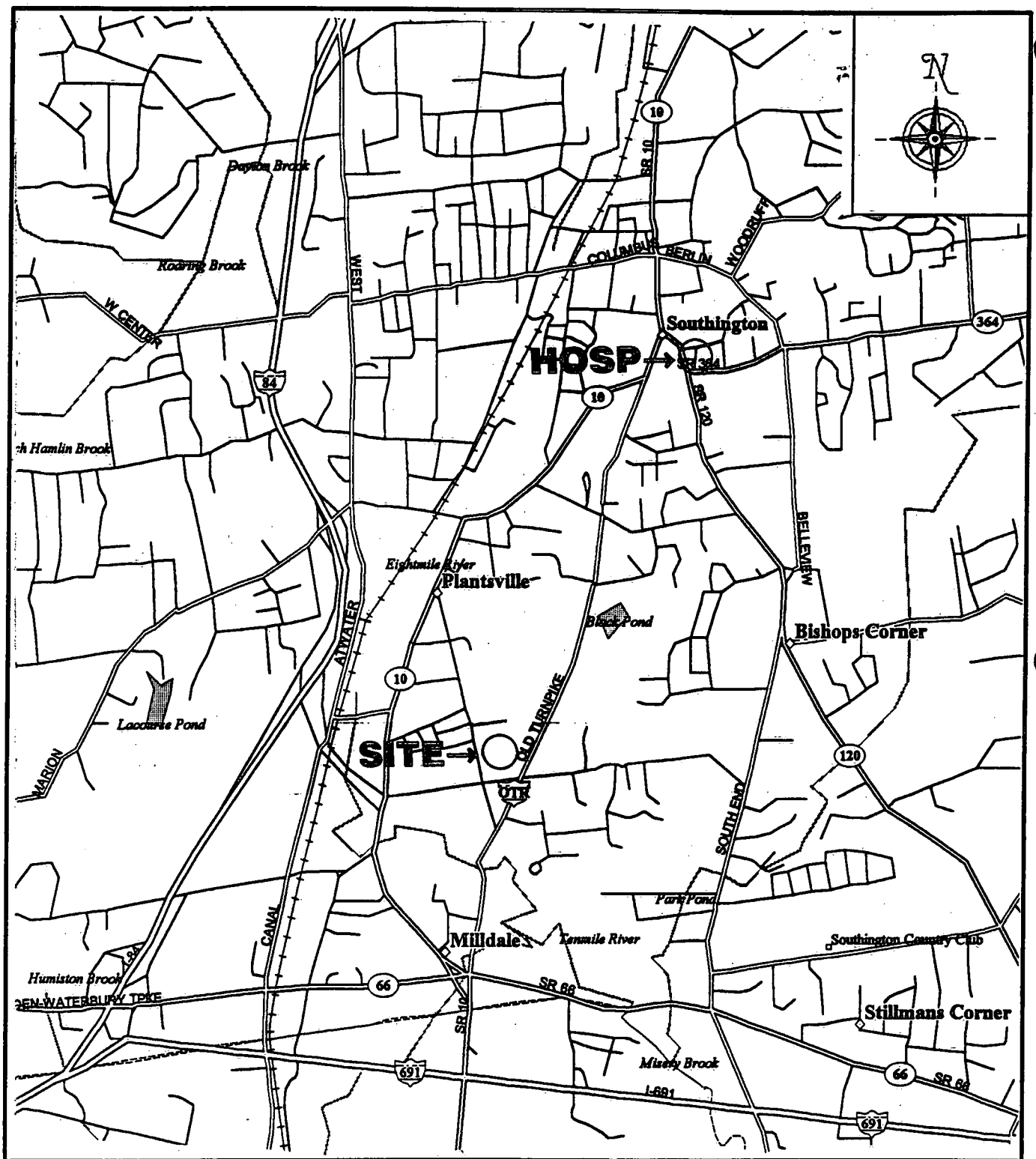

FIGURE 2
HOSPITAL LOCATION MAP
ANGELILLO PROPERTY SITE
SOUTHINGTON, CONNECTICUT

WESTON®
MANAGERS DESIGNERS/CONSULTANTS
SUPERFUND TECHNICAL ASSISTANCE AND RESPONSE TEAM

DRAWN BY	DATE	PCS #
R. KEFALAS	09/95	1187
APPROVED BY	DATE	TDD #
	9/95	95-08-1016

CONTINGENCIES

Response Plans

Medical - General Provide First Aid as trained, assess and determine need for further medical assistance, Transport or arrange for transport after appropriate decontamination,	First Aid Kit: START #	Type Field	Location Vehicle	Special First Aid Procedures: Cyanides on site ☐ Yes ☒ No. If yes, contact LMF. Do they have antidote kit? ☐ Yes ☐ No
	Eyewash required ☐ Yes ☒ No	Type	Location	HF on site ☐ Yes ☒ No. If yes, need neutralizing ointment for First Aid kit. Contact LMF.
	Shower required ☐ Yes ☒ No	Type	Location	

Plan for Response to Spill/Release		Plan for Response to Fire/Explosion		Fire Extinguisher
In the event of a spill or release, ensure safety, assess situation and perform containment and control measures as appropriate:	a. Clean up per MSDS if small or; Sound Alarm, call for assistance, Notify Emergency Coordinator b. Evacuate to pre- determined safe place c. Account for personnel d. Determine if Team can respond safely e. Mobilize per Site Spill Response Plan	In the event of a fire or explosion, ensure personal safety, assess situation and perform containment and control measures as appropriate:	a. Sound Alarm and call assistance, Notify Emergency Coordinator b. Evacuate to predeter-mined safe place c. Account for personnel d. Use fire extinguisher, only if safe and trained e. Standby to inform Emergency responders of materials and conditions	Type/Location ABC / vehicle
Description of Spill Response Gear	Location	Description (Other Fire Response Equipment)		Location

Plan to Response to Security Problems

DECONTAMINATION PLAN

Personnel Decontamination

Levels of Protection Required for Decontamination Personnel

The levels of protection required for personnel assisting with decontamination will be:

☐ Level B ☒ Level C ☒ Level D

Modifications include:

LEVEL D - TASKS 1, 2, 5
LEVEL C - TASKS 3, 4

Disposition of Decontamination Wastes

Provide a description of waste disposition including identification of storage area, hauler, and final disposal site, if applicable:

PPE will be placed in bags and labelled for disposal at NERL/EPA. (WESTON, EPA)

SUBCONTRACTOR WILL BE RESPONSIBLE FOR DISPOSAL OF PPE GENERATED BY THEIR PERSONNEL ONSITE.

Equipment Decontamination

Decontamination procedure required for site personnel:

☒ Dry decon
☒ Wet decon (WATER)
- ☐ Wash boots and gloves
- ☐ Remove outer boots
- ☐ Remove outer gloves
- ☐ Remove chemical coverall
- ☐ Remove respiratory protection

Sampling Equipment Decontamination

Sampling equipment will be decontaminated in accordance with the following procedure: (ALSO EXCAVATOR)

☒ Wash with soap and water (POWER WASHER)
☐ Rinse with distilled water
☐ Rinse with isopropanol
☐ Rinse with methanol
☐ Rinse with hexane
☐ Rinse with nitric acid
☐ Rinse with DI water

SITE PERSONNEL AND CERTIFICATION STATUS

WESTON

Name: Robert Kefalas **Title:** Environmental Engineer **Task(s):** 1, 2, 3, 4, 5 **Certification Level or Description:** B-T ☒ Medical Current ☒ Training Current ☒ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)	**Name:** DAN KEEFE **Title:** ENVIRONMENTAL SCIENTIST **Task(s):** 3, 4, 5 **Certification Level or Description:** B-S ☒ Medical Current ☒ Training Current ☒ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)
Name: David Gorden **Title:** Environmental Scientist **Task(s):** 1, 2. **Certification Level or Description:** B-T ☒ Medical Current ☒ Training Current ☒ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)	**Name:** **Title:** **Task(s):** **Certification Level or Description:** ☐ Medical Current ☐ Training Current ☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)
Name: JOSEPH RESCA **Title:** PROJECT MANAGER **Task(s):** 3, 4, 5 **Certification Level or Description:** B-S ☒ Medical Current ☒ Training Current ☒ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)	**Name:** **Title:** **Task(s):** **Certification Level or Description:** ☐ Medical Current ☐ Training Current ☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)

TRAINING CURRENT - Training: All personnel, including visitors, entering the exclusion or contamination reduction zones must have certifications of completion of training in accordance with OSHA 29 CFR 1910, 29 CFR 1926 or 29 CFR 1910.120.

FIT TEST CURRENT - Respirator Fit Testing: All persons, including visitors, entering any area requiring the use or potential use of any negative pressure respirator must have had as a minimum, a qualitative fit test, administered in accordance with OSHA 29 CFR 1910.134 or ANSI within the last 12 months. If site conditions require the use of a full face negative pressure, air purifying respirator for protection from Asbestos or Lead, employees must have had a quantitative fit test, administered according to OSHA 29 CFR 1910.1001 or 1025 within the last 6 months.

MEDICAL CURRENT - Medical Monitoring Requirements: All personnel, including visitors, entering the exclusion or contamination reduction zones must be certified as medically fit to work, and to wear a respirator, if appropriate, in accordance with 29 CFR 1910, 29 CFR 1926/1910 or 29 CFR 1910.120.

The Site Health and Safety Coordinator is responsible for verifying all certifications and fit tests.

SITE SPECIFIC HEALTH AND SAFETY PERSONNEL

The Site Health and Safety Coordinator (SHSC) for activities to be conducted at this site is: Robert Kefalas

The SHSC has total responsibility for ensuring that the provisions of this Site HASP are adequate and implemented in the field.

Changing field conditions may require decisions to be made concerning adequate protection programs. Therefore, the personnel assigned as SHSCs are experienced and meet the additional training requirements specified by OSHA in 29 CFR 1910.120

Qualifications:

☒ 40 Hour OSHA Training
☒ 8 Hour (Refresher Training)
☒ 8 Hour Site Safety Coord. Training
☐ Non-rescue Confined Space Training
☒ Extensive field experience

Designated alternates include: David Gorden

SITE PERSONNEL AND CERTIFICATION STATUS

Subcontractor's Health and Safety Program Evaluation ☒ NA

Name of Subcontractor: TRI-S, INC ELLINGTON, CT
Address: 25 PINNEY STREET.

Activities to Be Conducted by Subcontractor: TEST PIT EXCAVATIONS, OVER PACK DRUMS.

Evaluation Criteria

Medical program meets OSHA/WESTON criteria ☐ Acceptable ☐ Unacceptable Comments:	Personal protective equipment available ☐ Acceptable ☐ Unacceptable Comments:	Onsite monitoring equipment available, calibrated and operated properly ☐ Acceptable ☐ Unacceptable Comments:
Safe working procedures clearly specified ☐ Acceptable ☐ Unacceptable Comments:	Training meets OSHA/WESTON criteria ☐ Acceptable ☐ Unacceptable Comments:	Emergency procedures ☐ Acceptable ☐ Unacceptable Comments:
Decontamination procedures ☐ Acceptable ☐ Unacceptable Comments:	General health and safety program evaluation ☐ Acceptable ☐ Unacceptable Comments:	Additional comments: ☐ Subcontractor has agreed to and will conform with the WESTON HASP for this Project. ☐ Subcontractor will work under his own HASP which has been accepted by Corporate Health and Safety.

Evaluation Conducted by: **Date:**

Subcontractor

Name: PATRICK SCHAPP **Title:** **Task(s):** 3, 4 **Certification Level or Description:** ☒ Medical Current ☒ Training Current ☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)	**Name:** KEN GLOWACKI **Title:** **Task(s):** 3, 4 **Certification Level or Description:** ☒ Medical Current ☐ Training Current ☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)
Name: **Title:** **Task(s):** **Certification Level or Description:** ☐ Medical Current ☐ Training Current ☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)	**Name:** **Title:** **Task(s):** **Certification Level or Description:** ☐ Medical Current ☐ Training Current ☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)

HEALTH AND SAFETY PLAN APPROVAL/SIGNOFF FORM

Site Name: ANGELICO PROPERTY **WO#** 95-08-1016

Address: SOUTHINGTON, CONNECTICUT

I understand, agree to and will conform with the information set forth in this Health and Safety Plan (and attachments) and discussed in the Personnel Health and Safety briefing(s).

Name	Signature	Date
R M Kefalas	R M K RFW	9/7/95
DAVID GORDEN	David Gorden RFW	9/7/95
Joseph C Rizza	JOSEPH RESCA	10/26/95
A. HATZOPOULOS	EPA	10/30/95
Frank Gardner	EPA	10/30/95
D. Keefe ⟷	DAN KEEFE	10/30/95
Mark Lajoie	Mark Lajoie	10/31/95
Patrick C Schaap	Patrick C Schaap	10/31/95

ATTACHMENT "A"

CHEMICAL CONTAMINANTS

DATA SHEETS

(Use HASP Form 33HASP.894
or attach appropriate data sheets.)

Chemical Hazards

Analytical data and background information has indicated that the following substances are, or may be, present at the site. Detailed hazard information for each substance can be found in Appendix C.

CONTAMINANT (synonym)	TLV/PEL (ppm)	IDLH (ppm)	IP (eV)	PHYSICAL CHARACTERISTICS	ROUTE OF EXPOSURE	SYMPTOMS	FIRST AID	BP (°F)	FLASH POINT (°F)	LEL (%)	VAPOR PRESSURE (mm Hg)	EXTINGUISHING METHODS	FLAMMABILITY (NFPA SYSTEM)
Benzene	0.1 ppm	3000 ppm	9.24	Colorless to light yellow liquid aromatic odor	Inh Ing Abs Con	Irrit eyes, nose, resp sys; gidd; head, nau, staggered gait; ftg, anor, lass; derm; bone marrow depres; [carc]	Eye Skin Breath Swallow	176°F	12°F	1.3%	75mm	Dry Chemical Foam CO2	3
Butyl Acetate	150	10,000	10	Colorless liquid, fruity odor	Inh Ing Con	head, drow; dryness and irrit eyes, upper resp sys, skin	Eye Skin Breath Swallow	258°F	72°F	1.7%	15	Dry Chemical Foam CO2	3
Copper	1 mg/m3	NA	NA	Odorless solids	Inh Ing Con	Irr mucus membrane, phalynx, eye irrit, metallic taste	Eye Skin Breath Swallow	4532°F	NA	NA	NA	NA	NA
1,1 di-chloroethane	100 ppm	4000 ppm	11.06	Colorless, oily liquid, chloroform odor	Inh Ing Con	CNS depres; skin irrit; liver, kidney damage	Eye Skin Breath Swallow	135°F	22°F	5.6%	230mm	Dry Chemical Water Foam CO2	3
Lead	0.05 mg/m3	700 mg/m3	NA	Soft grey solid	Inh Ing Con	Weak, lass, insom; facial pallor; paleye anor, low-wgt, mal-nut; constip, abdom pain, colic; anemia; gingival lead line; tremor; para wrist, ankles; irrit eyes; encephalopathy; hypotension	Eye Skin Breath Swallow	3164°F	NA	NA	0	Water Spray Foam CO2	1
Methyl Ethyl Ketone	200	3,000	9.54	Colorless liquid sharp odor	Inh Ing Con	Irrit eyes, nose, skin, resp tract; head, dizz; acidosis	Eye Skin Breath Swallow	175°F	16°F	1.4%	71	Alcohol Foam Dry Chemical CO2	3
Polychlorinated Biphenyl (Chlorodiphenyls)	0.5 mg/m3	5 mg/m3	NA	Pale yellow viscous liquid with a mild hydrocarbon odor	Inh Ing Abs Con	Irrit eyes; chloracne; liver damage; [carc]	Eye Skin Breath Swallow	689-734°F	NA	NA	.00006	Dry Chemical Water Foam	1
Toluene (toluol, phenyl methane, methyl benzene)	100	2,000	8.82	Colorless liquid with sweet benzene-like odor	Inh Ing Con	Ftg, weak; conf, euph, dizz, head; dilated pupils, lac; ner, musc ftg, insom; pares; derm	Eye Skin Breath Swallow	232°F	40°F	na	na	na	na
Zinc	5 mg/m3	NA	NA	Blush, whire Blue to white metal	Inh	Irrit upper resp tract, head, nau, vomit, diarr, chills, fever, derm	Eye Skin Breath Swallow	1666°F	NA	1.1% 1.0% 1.1%	7 9 9	Dry Chemical Foam CO2	3 3 3

Chemical Hazards (cont)

Analytical data and background information has indicated that the following substances are, or may be, present at the site. Detailed hazard information for each substance can be found in Appendix C.

GENERAL

NA – Information not applicable
na – Information not available
CA – Carcinogenic
TLV – Threshold Limit Value
PEL – Permissible Exposure Limit
IP – Ionization Potential
BP – Boiling Point
LEL – Lower Explosive Limit
ppm – Parts per million
eV – Electron volt
atm – atmosphere
IDLH – Immediately Dangerous to Life or Health
mg/m3 – milligrams per cubic meter

ROUTE OF EXPOSURE

Inh – Inhalation
Ing – Ingestion
Abs – Skin Absorption
Con – Skin and Eye Contact

FLAMMABILITY (NFPA SYSTEM)

0– Material will not burn.
1– Material must be preheated before ignition can occur.
2– Material must be moderately heated or exposed to relatively high ambient temperature before ignition can occur.
3– Material can be ignited under almost all ambient temperature conditions.
4– Material will rapidly or completely vaporize at atmospheric pressure and normal ambient temperature, or is readily dispersed in air and will burn readily.

FIRST AID

Eye – Irrig immed
Skin – Water flush immed
Breath – Resp support
Swallow – Medical attention immed

– For additional codes refer to the following pages

SYMPTOMS – See abbreviations on following pages

ATTACHMENT "B"

MATERIAL SAFETY DATA SHEETS

(MSDS)

To Be Inserted Into Final Health And Safety Plan

MSDS PREPARED BY: Environmental Health Dept. Construction Products Div.

W.R.Grace & Co.-Conn.
62 Whittemore Ave.
Cambridge, MA 02140

W. R. Grace & Co. of Canada Ltd.
294 Clements Rd. West
Ajax, Ontario, L1S 3C6

Telephone Number for Information and Emergency Response
In USA: (617) 876-1400 X3140 In Canada: (416) 683-8561

MSDS Number: H-88130 000USA Cancels MSDS # H-88030 Date: 01/17/1989

SECTION I - PRODUCT IDENTIFICATION

Trade Names and Synonyms: Agricultural Vermiculite, Terra-Lite® Vermiculite, Horticultural Vermiculite

Chemical Names and Family: Expanded Vermiculite (Enoree, South Carolina Source) Magnesium-Aluminosilicate Mineral

Product Use: Soil amendment, other miscellaneous uses

Formula: $(Mg,CA,K,Fe^{II})_3(Si,Al,Fe^{III})_4O_{10}(OH)_2.H_2O$

CAS# (Chemical Abstract Service): 01318-00-9

Transportation Hazard Classification

USA Department of Transportation	CANADA Transportation of Dangerous Goods
DOT CLASS: Nonhazardous	TDG CLASS: Nonhazardous
DOT ID#: Not Applicable	
DOT LABEL: Not Applicable	

Surface Freight Classification: Vermiculite, Other than crude

NPCA-HMIS Hazard Index:

- Health: 1
- Flammability: 0
- Reactivity: 0
- Personal Protection: E (See Section VIII)

SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

INGREDIENT (Chemical Name, CAS#, & Common Name)	% By Wt.	TOXICITY DATA LD_{50}, LC_{50} etc. (See Section IX for Exposure Limits)
Not Applicable		

SECTION III - PHYSICAL DATA/CHEMICAL CHARACTERISTICS

Boiling Point: Not Applicable

Specific Gravity (H2O = 1) Not Applicable

Vapour Pressure (mm Hg.) Not Applicable

% Volatiles Not Applicable

Vapour Density(AIR = 1) Not Applicable

Evaporation Rate (Butyl Acetate = 1) Not Applicable

Solubility in Water: Negligible

pH Not Applicable

Bulk Density (#/cu. ft): 5-10

Appearance and Odour: Brown or gray free flowing aggregate with slight earthy odour.

Odour Threshold:
None Determined

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point: None
Method Used: Not Applicable

Flammable Limits:
LFL NA UFL NA

N.F.P.A. Rating: Not Applicable

Extinguishing Media

Not Applicable

Special Fire Fighting Procedures

None

Unusual Fire and Explosion Hazards

None

SECTION V - REACTIVITY DATA

Stable under normal conditions (yes or no): YES

Conditions or Materials to avoid (which may react or cause instability):

None Known

Hazardous Decomposition or Byproducts:

None Known

Hazardous Polymerization:

Will not occur

Conditions to Avoid:

None Known

SECTION VI - HEALTH HAZARD DATA & TOXICOLOGICAL PROPERTIES

(Include all known acute and chronic effects, signs, and symptoms of exposure and medical conditions generally aggravated by exposure)

Routes of Exposure:

Inhalation:
Dust that may be released in handling may cause symptoms typical of nuisance dusts, including coughing, sneezing and minor upper respiratory irritation.

Skin and Eye:
Direct eye contact may cause minor physical irritation. Skin contact is not expected to cause any harmful effects.

Ingestion:
Not considered harmful by ingestion.

Carcinogenicity According to NTP, IARC and OSHA:
Not Applicable

VII EMERGENCY AND FIRST AID PROCEDURES

In case of EYE contact, do not rub eyes. Flush with plenty of water while holding eyelids apart. If irritation, blinking or tearing occur and persist, consult a physician.

Adverse health effects are not expected if SWALLOWED. Consult a physician if symptoms develop.

If INHALED, get fresh air. If symptoms persist, consult a physician.

SECTION VIII - PREVENTIVE & CONTROL MEASURES

Warning Statements:
CAUTION! MAY CAUSE SLIGHT IRRITATION.
... Contains Vermiculite (CAS# 1318-00-9).
... Eye contact may cause minor physical irritation.
... Inhalation of dust may cause slight upper respiratory irritation with coughing and sneezing.

Precautionary Measures:
... Avoid contact with eyes.
... Avoid creating dust.
... Equip hoppers with dust covers where applicable.
... Provide adequate ventilation and respiratory protection if necessary.

Respiratory Protection:
Not generally required. A NIOSH (Type TC-21C-XXX) dust respirator is recommended if dust is created in handling.

Ventilation:

Local Exhaust:	Not generally required, but should be used where applicable.
Mechanical:	Not generally required, but should be used where applicable.
Special:	None
Other:	None

Protective Gloves:
Not generally required.

Eye Protection:
Goggles recommended.

Other Protective Clothing or Equipment:
Normal work clothes.

Work/Hygenic Practices:
Observe precautions noted above.

SECTION IX - HAZARDOUS INGREDIENTS EXPOSURE LIMITS - U. S. Only

INGREDIENT:	Exposure Limits OSHA	ACGIH	OTHER
RESPIRABLE DUST*	PEL/TWA: 5 mg/m ^{3}	—	—
TOTAL DUST*	PEL/TWA: 15 mg/m^3	TLV/TWA: 10 mg/m^3	—

SECTION X - SPILL & DISPOSAL INFORMATION - U. S. Only

Observing the above precautions, sweep up or shovel spilled material and place in suitable containers for recycle or disposal. Dampen with water spray or use other methods to clean spill which avoid creating dust.

Discard empty packaging promptly. Avoid excessive handling of empty packaging, which may result in unnecessary release of airborne particulates.

According to EPA (40 CFR § 261.3) waste of this product is not defined as hazardous. Dispose of all waste in accordance with federal, state and local regulations.

SECTION XI - GOVERNMENT REPORTING INFORMATION - U. S. Only

SARA Title III Reporting Information
Tier I & II Hazard Categories: IMMEDIATE-ACUTE

Contains Extremely Hazardous-SARA III Section 302 Ingredient: NO
Comments:

Contains Toxic Chemical Release-SARA III Section 313 Ingredient: NO
Comments:

Other Government Reporting Requirements:

Not Applicable

Non-Hazardous Ingredient Disclosure:
Not Applicable

"THE DATA INCLUDED HEREIN ARE PRESENTED ACCORDING TO W. R. GRACE & CO.-CONN's PRACTICES CURRENT AT THE TIME OF PREPARATION HEREOF, ARE MADE AVAILABLE SOLELY FOR THE CONSIDERATION, INVESTIGATION AND VERIFICATION OF THE ORIGINAL RECIPIENTS HEREOF AND DO NOT CONSTITUTE A REPRESENTATION OR WARRANTY FOR WHICH GRACE ASSUMES LEGAL

RESPONSIBILITY. IT IS THE RESPONSIBILITY OF A RECIPIENT OF THIS DATA TO REMAIN CURRENTLY INFORMED ON CHEMICAL HAZARD INFORMATION, TO DESIGN AND UPDATE ITS OWN PROGRAM AND TO COMPLY WITH ALL NATIONAL, FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS APPLICABLE TO SAFETY, OCCUPATIONAL HEALTH, RIGHT-TO-KNOW AND ENVIRONMENTAL PROTECTION."

Scott Specialty Gases
ROUTE 611 NORTH, PLUMSTEADVILLE, PA 18949 (215) 766-8861

Electronics Group
2330 HAMILTON BOULEVARD, P.O. BOX 648, SOUTH PLAINFIELD, N.J. 07080 (201) 754-7700

REGIONAL PHONE NUMBERS

PA (215) 766-8861 · CA (714) 887-2571 · MI (313) 589-2950 · TX (713) 844-4820
NJ (201) 754-7700 · CA (415) 659-0162 · CO (303) 442-4700 · MA (617) 245-8707

MATERIAL SAFETY DATA SHEET

SECTION I - MATERIAL IDENTIFICATION

CHEMICAL NAME: Isobutylene in Air

CHEMICAL FORMULA: C_4H_{10}/Air

CHEMICAL FAMILY: Alkene in gas mixture

DATE PREPARED: 4/23/92

SUPPLIER: Scott Specialty Gases, Inc.

ADDRESS: 2330 Hamilton Blvd., South Plainfield, NJ 07080

In Case of Emergency, call (908) 754-7700

OTHER DESIGNATIONS: None

SECTION II - HAZARDOUS INGREDIENTS

			EXPOSURE LIMITS (PPM)		
			ACGIH	OSHA	
COMPONENT	CAS #	CONCENTRATION	TLV	PEL	OTHER
Isobutylene	115-11-7	100 ppm	None established		
Air	25635-88-5	Balance	None established		

SECTION III - PHYSICAL DATA

BOILING POINT (°C): -194.4

SPECIFIC GRAVITY (H_2O = 1) @ 20°C: 0.88

VAPOR PRESSURE @ 20°C: N/A

PERCENT, VOLATILE BY VOLUME (%): 100%

VAPOR DENSITY (AIR = 1): 1.2 kg/m^3

EVAPORATION RATE (_____ = 1): N/A

SOLUBILITY IN WATER 20°C: Insoluble

APPEARANCE AND ODOR: Colorless gas with a possible slight olefinic odor.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT AND METHOD	FLAMMABLE LIMITS	LEL	UEL
Nonflammable	N/A		

EXTINGUISHING MEDIA: Use what is appropriate for surrounding fire.

SPECIAL FIRE FIGHTING PROCEDURES: Wear self-contained breathing apparatus and full protective clothing. Use water spray to keep fire exposed cylinders cool.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Compressed air at high pressures will accelerate the burning of flammable materials.

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SECTION V - REACTIVITY DATA

STABILITY: Stable under normal storage conditions.

INCOMPATIBILITY (MATERIALS TO AVOID): None

HAZARDOUS DECOMPOSITION PRODUCTS: None

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION IV - HEALTH HAZARD DATA

ROUTES OF ENTRY: Inhalation

EFFECTS OF OVEREXPOSURE: (ACUTE): The concentration of isobutylene in this mixture should not present any symptoms of toxicity. (CHRONIC): None (MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE): None

CARCINOGENICITY - NTP? NO IARC MONOGRAPHS? NO OSHA REGULATED? NO

EMERGENCY AND FIRST AID: Inhalation - Immediately remove victim to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN: Evacuate and ventilate area. Remove leaking cylinder to exhaust hood or safe outdoors are if this can be done safely.

WASTE DISPOSAL METHOD: Return cylinders to supplier for proper disposal with any valve outlet plugs or caps secured and valve protection cap in place. Allow gas to discharge at a slow rate to the atmosphere in an unconfined area or exhaust hood.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE): Use a self-contained breathing apparatus in case of emergency or non-routine use.

VENTILATION: Provide adequate general and local exhaust ventilation.

OTHER PROTECTIVE EQUIPMENT: Wear safety goggles, rubber gloves, and safety shoes. A safety shower and eyewash station should be readily available.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Store in well ventilated areas only. Keep valve protection cap on cylinders when not in use and secure cylinder when using to protect from falling. Use suitable hand truck to move cylinders.

OTHER PRECAUTIONS: Protect containers from physical damage. Do not deface cylinders or labels. Move cylinder with adequate hand truck. Cylinder should be refilled by qualified producers of compressed gases. Shipment of a compressed gas cylinder which has not been filled by the owner or with his written consent is a violation of federal law (49 CFR).

MATERIAL SAFETY DATA SHEET
29 CFR 1910.1200 OSHA Hazard Communication Rule Format

MINE SAFETY APPLIANCES COMPANY
P.O. Box 426
Pittsburgh, PA 15230
PHONE (412) 967-3000

This product contains pentane, oxygen and nitrogen, substances subject to the Pennsylvania Worker and Community Right-To-Know Act.

PRODUCT IDENTITY

LABEL IDENTITY - MSA P/N 476304 Calibration Check Gas, 0.75% Pentane and 15% Oxygen in Nitrogen

CHEMICAL NAME - Pentane, Oxygen, Nitrogen Mixture

ADDITIONAL IDENTITIES - MSA P/N 476304 Calibration Gas

FORMULA - C_5H_{12} in $O_2 + N_2$

APPLICABLE CHEMICAL CONTENTS

	%	TWA
Pentane (CAS 109-66-0)	0.75	0.06%
STEL 750 ppm (ACGIH 1992-93)		
Oxygen (CAS 7782-44-7)	15	None
Nitrogen (CAS 7727-37-9)	Balance	None

NOTE: Gas Under Pressure, 300 PSIG at 70°F
Approx. 19 Liters at Atmospheric Pressure

PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR Colorless Gas, Faint Hydrocarbon Odor
BOILING POINT - N/A
VAPOR PRESSURE - N/A
VAPOR DENSITY (AIR = 1) Approx. 1
SOLUBILITY IN WATER - Pentane -- 11 cm^3/100 ml (16°C)
Oxygen -- 3.2 cm^3/100 ml (25°C)
Nitrogen -- 2.3 cm^3/100 ml (0°C)

SPECIFIC GRAVITY (H_2O = 1) - N/A
PERCENT VOLATILE BY VOLUME - N/A

N/A - Not Applicable

Post-it® Fax Note 7671	Date 3/6/95	# of pages ▶ 3
To Tracy Schmidt	From Mark Cen	
Co./Dept.	Co.	
Phone # 617-272-3618	Phone #	
Fax #	Fax #	

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MSA P/N 476304

PHYSICAL HAZARD INFORMATION

PHYSICAL HAZARD - Compressed Gas, 300 PSIG at 70°F

CONDITIONS OR MATERIALS TO AVOID - None

FLASH POINT - N/A LEL N/A UEL N/A

EXTINGUISHING MEDIA - This Gas Mixture Is Not Flammable.

SPECIAL FIRE FIGHTING PROCEDURES - See Next Item

UNUSUAL FIRE AND EXPLOSION HAZARDS - Gas Under Pressure, 300 PSIG at 70°F. Do Not Exceed 120°F.

HEALTH HAZARDS

HEALTH HAZARDS - Pentane may be irritating to mucous membranes.

SIGNS AND SYMPTOMS OF EXPOSURE - Respiratory Tract Irritation

PRIMARY ROUTES OF ENTRY - Inhalation

TARGET ORGANS - Respiratory Tract

MEDICAL CONDITIONS GENERALLY RECOGNIZED AS BEING AGGRAVATED BY EXPOSURE - No Information

EXPOSURE LIMITS - ACGIH, Pentane 600 ppm, 750 ppm STEL (1992-93)

CARCINOGENICITY DATA - Component gases are not listed by NIOSH RTECS, OSHA, NTP or IARC.

EMERGENCY AND FIRST AID PROCEDURES - Remove from Exposure

SAFE HANDLING AND USE

HYGIENIC PRACTICES - Avoid Breathing Gas

PROTECTIVE MEASURES DURING REPAIR AND MAINTENANCE OF CONTAMINATED EQUIPMENT - N/A

PROCEDURES FOR SPILL OR LEAK CLEANUP - Ventilate Area.
Avoid Breathing Gas.

WASTE DISPOSAL - Do not puncture or incinerate cylinder. Before discarding cylinder, slowly release contents to a safe exhaust.

STORAGE - Store in a cool, dry, well-ventilated area. Do not exceed 120°F.

CONTROL MEASURES

PERSONAL PROTECTIVE EQUIPMENT - Due to the limited amount of gas in the cylinder, and the low release rate employed in instrument calibration, respiratory protection is not indicated under conditions of intended use.

ENGINEERING CONTROLS - Mechanical ventilation is suitable.

WORK PRACTICES - Avoid breathing gas. Use in well-ventilated areas. Follow the calibration procedure detailed in the MSA instruction manual provided with the instrument under calibration.

DATE OF PREPARATION - Rev. 4, March 1993

The information provided herein has been compiled from sources believed to be reliable. However, Mine Safety Appliances Company makes no warranty as to the accuracy, completeness, or sufficiency of the information and in no event will Mine Safety Appliances Company be responsible for loss or damage of any nature whatsoever resulting from use of the information.

MATERIAL SAFETY DATA SHEET
MAY BE USED TO COMPLY WITH
OSHA'S HAZARD COMMUNICATION STANDARD,
29 CFR 1910.1200. STANDARD MUST BE
CONSULTED FOR SPECIFIC REQUIREMENTS.

U.S. DEPARTMENT OF LABOR
OCCUPATIONAL SAFETY AND HEALTH
ADMINISTRATION
(NON-MANDATORY FORM)
FORM APPROVED OMB NO. 1218-0072

FORM # 1 PM

IDENTITY (AS USED ON LABEL AND LIST)
LIQUI-NOX 21837-005, 21837-027, 21837-060

SECTION I

MANUFACTURER'S NAME:
ALCONOX, INC.
ADDRESS:
215 PARK AVENUE SOUTH
NEW YORK, NEW YORK 10003

EMERGENCY TELEPHONE NUMBER:
(212)-473-1300
TELEPHONE NUMBER FOR INFORMATION:
(212)-473-1300
DATE PREPARED:
MARCH 1, 1992

SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

THERE ARE NO INGREDIENTS IN LIQUI-NOX WHICH APPEARED ON THE OSHA STANDARD. 29 CFR 1910 SUBPART Z. ALL OF THE INGREDIENTS IN LIQUI-NOX ARE CONSIDERED TO BE PROPRIETARY INFORMATION AND WE SHALL EXERCISE THE RIGHT TO CONFIDENTIALITY AFFORDED US UNDER THE FEDERAL LAW.

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

BOILING POINT: 214 F
VAPOR PRESSURE (MMHG): NO DATA
VAPOR DENSITY (AIR=1): NO DATA

SPECIFIC GRAVITY (H2O=1): 1.075
MELTING POINT: N.A.
EVAPORATION RATE: SLOWER
(BUTYL ACETATE=1)

SOLUBILITY IN WATER: COMPLETELY SOLUBLE IN ALL PROPORTIONS
APPEARANCE AND ODOR: YELLOW LIQUID - PRACTICALLY ODORLESS

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED): NONE
(CLEVELAND OPEN CUP)

FLAMMABLE LIMITS:
LEL: N.A. UEL: N.A.

EXTINGUISHING MEDIA:
WATER, DRY CHEMICAL, FOAM, CO2, SAND/EARTH
SPECIAL FIRE FIGHTING PROCEDURES:
FOR FIRES INVOLVING THIS MATERIAL DO NOT ENTER WITHOUT PROTECTIVE EQUIPMENT AND SELF CONTAINED BREATHING APPARATUS.
UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE

SECTION V - REACTIVITY DATA

ABILITY: STABLE CONDITIONS TO AVOID: NONE
INCOMPATIBILITY (MATERIALS TO AVOID): NONE
HAZARDOUS DECOMPOSITION OR BYPRODUCTS: SO2 MAY BE RELEASED ON BURNING

HAZARDOUS POLYMERIZATION WILL NOT OCCUR
CONDITIONS TO AVOID: NONE

SECTION VI - HEALTH HAZARD DATA

ROUTES OF ENTRY: INHALATION-NO SKIN-YES INGESTION-YES
HEALTH HAZARDS (ACUTE AND CHRONIC):
SKIN CONTACT MAY PROVE LOCALLY IRRITATING. INGESTION MAY CAUSE DISCOMFORT AND/OR DIARRHEA.
CARCINOGENICITY: NTP: NO IARC MONOGRAPHS: NO OSHA REGULATED: NO

SIGNS AND SYMPTOMS OF EXPOSURE:
PROLONGED SKIN CONTACT MAY CAUSE DRYING AND/OR CHAPPING.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:
NONE
EMERGENCY AND FIRST AID PROCEDURES:
EYES-FLUSH WITH PLENTY OF WATER FOR 15 MINUTES SKIN-FLUSH WITH WATER INGESTION-DRINK LARGE QUANTITIES OF WATER, GET MEDICAL ATTENTION FOR DISCOMFORT

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
MATERIAL FOAMS PROFUSELY. RECOVER AS MUCH AS POSSIBLE WITH ABSORBENT MATERIAL AND RINSE REMAINDER TO SEWER. MATERIAL IS COMPLETELY BIODEGRADABLE.

WASTE DISPOSAL METHOD:
SMALL QUANTITIES MAY BE DISPOSED OF IN SEWER. LARGE QUANTITIES SHOULD BE SOAKED UP WITH ABSORBENT MATERIAL AND DISPOSED OF ACCORDING TO LOCAL ORDINANCES.
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:
NONE REQUIRED - VISCOSITY OF MATERIAL INCREASES AT VERY LOW TEMPERATURES.

OTHER PRECAUTIONS:
NO SPECIAL REQUIREMENTS OTHER THAN THE GOOD INDUSTRIAL HYGIENE AND SAFETY PRACTICES EMPLOYED WITH ANY INDUSTRIAL CHEMICAL.

SECTION VIII - CONTROL MEASURES

RESPIRATORY PROTECTION (SPECIFY TYPE):

VENTILATION: LOCAL EXHAUST: NORMAL
MECHANICAL (GENERAL): N.A.
SPECIAL: N.A.
OTHER: N.A.
PROTECTIVE GLOVES: RECOMMENDED
EYE PROTECTION: RECOMMENDED
OTHER PROTECTIVE CLOTHING OR EQUIPMENT:
NOT REQUIRED
WORK/HYGIENIC PRACTICES:
NO SPECIAL PRACTICES REQUIRED

"ISSUED BY VWR 10/02/93"

ATTACHMENT "C"

SAFETY PROCEDURES/FIELD OPS

(FLDOP'S)
See Accompanying Field OP Binder

ATTACHMENT "D"

SITE SPECIFIC HAZARD COMMUNICATION PROGRAM

Location Specific Hazard Communications Program/Checklist

In order to ensure an understanding of and compliance with the Hazard Communication Standard, WESTON will utilize this checklist/document (or similar document) in conjunction with the WESTON Written Hazard Communications Program as a means of meeting site or location specific requirements.

While responsibility for activities within this document reference the WESTON Safety Officer, it is the responsibility of all personnel to effect compliance. Responsibilities under various conditions can be found within the WESTON Written Hazard Communication Program.

To ensure that information about the dangers of all hazardous chemicals used by WESTON are known by all affected employees, the following hazardous information program has been established. All affected personnel will participate in the hazard communication program. This written program as well as WESTON's Corporate Hazard Communication Program will be available for review by any employee, employee representative, representative of OSHA, NIOSH or any affected employer/employee on a multi-employer site.

✓ Site or other location name/address: Angelillo Property Site

✓ Site/Project/Location Manager: Robert Kefalas

✓ Site/Location Safety Officer: Robert Kef

✓ List of chemicals complied, format: HASP:____ Other: ✓ NIOSH

✓ Location of MSDS Files: Attachment B

✓ Training Conducted by (name and date): Gene Schmidt

✓ Indicate format of training documentation: Field Log: ✓ Other:____

___ Client briefing conducted regarding hazard communication:

___ If multi-employer site, indicate name of affected companies:

___ Other employer(s) notified of chemicals, labelling and MSDS information:

___ WESTON notified of other employer's or clients hazard communication program as necessary.

List of Hazardous Chemicals

A list of known hazardous chemicals used by WESTON personnel must be prepared and attached to this document or in a centrally identified location with the MSDS's. Further information on each chemical may be obtained by reviewing the appropriate MSDS's. The list will be arranged to enable cross reference with the MSDS file and the label on the container. The SO or location manager is responsible for ensuring the chemical listing remains up-to-date.

Container Labeling

The WESTON Safety Officer (SO) will verify that all containers received from the chemical manufacturer, importer or distributor for use on site will be clearly labeled.

The SO is responsible for assuring labels are placed where required and for comparing MSDS's and other information with label information to ensure correctness.

Material Safety Data Sheets (MSDS)

The SO is responsible for establishing and monitoring WESTON's MSDS program for the location. The SO will make sure procedures are developed to obtain the necessary MSDS's and will review incoming MSDS's for new or significant health and safety information. He/she will see that any new information is passed on to the affected employees. If an MSDS is not received at the time of initial shipment, the SO will call the manufacturer and have a MSDS delivered for that product in accordance with the requirements of WESTON's Written Hazard Communication Program.

A log for, and copies of, MSDS's for all hazardous chemicals in use will be kept in the MSDS folder at a location known to all site workers. MSDS's will be readily available to all employees during each work shift. If an MSDS is not available, immediately contact the WESTON SO or designated alternate. When revised MSDS's are received the SO will immediately replace the old MSDS's.

Employee Training and Information

The SO is responsible for the WESTON site-specific personnel training program. The SO will ensure that all program elements specified below are supplied to all affected employees.

At the time of initial assignment for employees to the work site or whenever a new hazard is introduced into the work area employees will attend a health and safety meeting or briefing that includes the information indicated below.

- Hazardous chemicals present at the worksite
- Physical and health risks of the hazardous chemicals

- The signs and symptoms of overexposure
- Procedures to follow if employees are overexposed to hazardous chemicals
- Location of the MSDS file and written hazard communication program
- How to determine the presence or release of hazardous chemicals in the employees work area
- How to read labels and review MSDS's to obtain hazard information
- Steps WESTON has taken to reduce or prevent exposure to hazardous chemicals
- How to reduce or prevent exposure to hazardous chemicals through use of controls procedures, work practices and personal protective equipment
- Hazardous, non-routine tasks to be performed (if any)
- Chemicals within unlabeled piping (if any)

Hazardous Non-Routine Tasks

When employees are required to perform hazardous non-routine tasks the affected employee(s) will be given information by the SO about the hazardous chemicals he or she may utilize during such activity. This information will include specific chemical hazards, protective and safety measures the employee can use and steps WESTON is using to reduce the hazards. These steps include, but are not limited to, ventilation, respirators, presence of another employee and emergency procedures.

Chemicals in Unlabeled Pipes

Work activities may be performed by employees in areas where chemicals are transferred through unlabeled pipes. Prior to starting work in these areas, the employee shall contact the SO at which time information as to; the chemical(s) in the pipes, potential hazards of the chemicals or the process involved, and safety precautions which should be taken will be determined and presented.

Multi-Employer Worksites

It is the responsibility of the SO to provide other employers with information about hazardous chemicals imported by WESTON to which their employees may be exposed, along with suggested safety precautions. It is also the responsibility of SO and the site manager to obtain information about hazardous chemicals used by other employers to which WESTON employees may be exposed. WESTON's chemical listing will be made available to other employers as requested. MSDS's will be available for viewing as necessary.

The location, format and/or procedures for accessing MSDS information must be relayed to affected employees.

MATERIAL SAFETY DATA SHEETS

for

HEXANE(S) (J. T. Baker)

METHANOL (EM Science and Canaan Scientific)

NITRIC ACID (VWR/BDH Inc.)

J.T. Baker Inc.
222 Red School Lane
Phillipsburg, NJ 08865
24-Hour Emergency Telephone 908-859-2151
National Response Center 800-424-8802
Chemtrec 800-424-9300

National Response in Canada
CANUTEC 613-996-6666
Outside U.S. and Canada
Chemtrec 202-483-7616

MATERIAL SAFETY DATA SHEET
FICHE HOJAS DE DATOS
SIGNALETIQUE DE SEGURIDAD

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers are to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals. All non-emergency questions should be directed to Customer Service (1-800-JTBAKER) for assistance.

J.T.BAKER INC., 222 Red School Lane, Phillipsburg, NJ 08865

SECTION I - PRODUCT IDENTIFICATION

Product Name: Hexane
Common Synonyms: Normal Hexane; Hexyl Hydride
Chemical Family: Aliphatic Hydrocarbons
Formula: $CH_3(CH_2)_4CH_3$
Formula Wt.: 86.18
CAS No.: 110-54-3
NIOSH/RTECS No.: MN9275000
Product Use: Laboratory Reagent
Product Codes: 9303,9126,9316,9308,N168,9310,9304,9262

PRECAUTIONARY LABELING

BAKER SAF-T-DATA* System

Laboratory Protective Equipment

U.S. Precautionary Labeling

DANGER!
CAUSES IRRITATION. EXTREMELY FLAMMABLE. HARMFUL IF SWALLOWED, INHALED, OR ABSORBED THROUGH SKIN.
Keep away from heat, sparks, flame. Do not breathe vapor. Keep in tightly closed container. Use with adequate ventilation. Wash thoroughly after handling. In case of fire, use alcohol foam, dry chemical, carbon dioxide - water may be ineffective. Flush spill area with water spray.

Continued on Page: 2

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PRECAUTIONARY LABELING (CONTINUED)

International Labeling

Avoid contact with eyes. After contact with skin, wash immediately with plenty of water. Keep container tightly closed.

SAF-T-DATA* Storage Color Code: Red (flammable)

SECTION II - COMPONENTS

Component	CAS No.	Weight %	OSHA/PEL	ACGIH/TLV
n-Hexane	110-54-3	85-99	50 ppm	50 ppm
Methylcyclopentane	96-37-7	1-2	N/E	N/E

Contains a trace amount of benzene (2 ppm)

SECTION III - PHYSICAL DATA

Boiling Point: 69°C (156°F)
(at 760 mm Hg)

Melting Point: -95°C (-139°F)
(at 760 mm Hg)

Specific Gravity: 0.66
(H_2O=1)

Solubility(H_2O): Negligible (<0.1%)

pH: N/A

Odor Threshold (ppm): N/A

Coefficient Water/Oil Distribution: N/A

Appearance & Odor: Colorless liquid. Light odor.

Vapor Pressure (mmHg): 130
(20°C)

Vapor Density (air=1): 3.0

Evaporation Rate: 9
(Butyl Acetate = 1)

% Volatiles by Volume: 100
(21°C)

Physical State: Liquid

Continued on Page: 3

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SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point (Closed Cup): -23°C (-10°F) NFPA 704M Rating: 1-3-0

Autoignition Temperature: 224°C (437°F)

Flammable Limits: Upper - 7.7 % Lower - 1.2 %

Fire Extinguishing Media

Use alcohol foam, dry chemical or carbon dioxide. (Water may be ineffective.)

Special Fire-Fighting Procedures

Firefighters should wear proper protective equipment and self-contained breathing apparatus with full facepiece operated in positive pressure mode. Move exposed containers from fire area if it can be done without risk. Use water to keep fire-exposed containers cool.

Unusual Fire & Explosion Hazards

Vapors may flow along surfaces to distant ignition sources and flash back. Closed containers exposed to heat may explode. Contact with strong oxidizers may cause fire.

Toxic Gases Produced

carbon monoxide, carbon dioxide

Explosion Data-Sensitivity to Mechanical Impact

None identified.

Explosion Data-Sensitivity to Static Discharge

Yes.

SECTION V - HEALTH HAZARD DATA

Threshold Limit Value (TLV/TWA): 180 mg/m^3 (50 ppm)

Short-Term Exposure Limit (STEL): Not Established

Permissible Exposure Limit (PEL): 1800 mg/m^3 (50 ppm)

Toxicity of components

Oral Rat LD_{50} for n-Hexane 28.7 g/kg

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MATERIAL SAFETY DATA SHEET
HOJA DE DATOS DE SEGURIDAD

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SECTION V - HEALTH HAZARD DATA (CONTINUED)

Carcinogenicity: NTP: No IARC: No Z List: No OSHA Reg: No

Carcinogenicity
None identified.

Reproductive Effects
Blood changes have been reported in laboratory animals. In tests with laboratory animals, fetal death has been reported in one out of three studies.

Effects of Overexposure

INHALATION: headache, nausea, vomiting, dizziness, drowsiness, irritation of upper respiratory tract, unconsciousness, may cause narcosis

SKIN CONTACT: irritation, dermatitis

EYE CONTACT: irritation

SKIN ABSORPTION: May be harmful.

INGESTION: headache, nausea, vomiting, dizziness, gastrointestinal irritation

CHRONIC EFFECTS: central nervous system depression

Target Organs
skin, eyes, respiratory system, lungs

Medical Conditions Generally Aggravated by Exposure
none identified

Primary Routes of Entry
inhalation, ingestion, eye contact, skin contact

Emergency and First Aid Procedures

INGESTION: CALL A PHYSICIAN. If swallowed, do NOT induce vomiting.

INHALATION: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Prompt action is essential.

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SECTION V - HEALTH HAZARD DATA (CONTINUED)

SKIN CONTACT: In case of contact, immediately flush skin with plenty of water for at least 15 minutes.

EYE CONTACT: In case of eye contact, immediately flush with plenty of water for at least 15 minutes.

SARA/TITLE III HAZARD CATEGORIES and LISTS

Acute: Yes Chronic: Yes Flammability: Yes Pressure: No Reactivity: No

Extremely Hazardous Substance: No
CERCLA Hazardous Substance: No
SARA 313 Toxic Chemicals: Yes
Generic Class: Generic Class Removed from CFR: 7/1/91
TSCA Inventory: Yes

SECTION VI - REACTIVITY DATA

Stability: Stable Hazardous Polymerization: Will not occur

Conditions to Avoid: heat, flame, other sources of ignition

Incompatibles: strong oxidizing agents, chlorine, fluorine, magnesium perchlorate

Decomposition Products: carbon monoxide, carbon dioxide

SECTION VII - SPILL & DISPOSAL PROCEDURES

Steps to be Taken in the Event of a Spill or Discharge

Wear suitable protective clothing. Shut off ignition sources; no flares, smoking, or flames in area. Stop leak if you can do so without risk. Use water spray to reduce vapors. Take up with sand or other non-combustible absorbent material and place into container for later disposal. Flush area with water.

J. T. Baker SOLUSORB^{R} solvent adsorbent is recommended for spills of this product.

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SECTION VII - SPILL & DISPOSAL PROCEDURES (CONTINUED)

Disposal Procedure

Dispose in accordance with all applicable federal, state, and local environmental regulations.

EPA Hazardous Waste Number: D001 (Ignitable Waste)

SECTION VIII - INDUSTRIAL PROTECTIVE EQUIPMENT

Ventilation: Use general or local exhaust ventilation to meet TLV requirements.

Respiratory Protection: Respiratory protection required if airborne concentration exceeds TLV. At concentrations up to 1000 ppm, a chemical cartridge respirator with organic vapor cartridge is recommended. Above this level, a self-contained breathing apparatus is recommended.

Eye/Skin Protection: Safety goggles, uniform, apron, neoprene glovesare recommended.

SECTION IX - STORAGE AND HANDLING PRECAUTIONS

SAF-T-DATA* Storage Color Code: Red (flammable)

Storage Requirements

Keep container tightly closed. Store in a cool, dry, well-ventilated, flammable liquid storage area.

Special Precautions

Bond and ground containers when transferring liquid.

SECTION X - TRANSPORTATION DATA AND ADDITIONAL INFORMATION

Domestic (D.O.T.)

Proper Shipping Name: Hexanes
Hazard Class: 3
UN/NA: UN1208 Packaging Group: II

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MATERIAL SAFETY DATA SHEET
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SECTION X - TRANSPORTATION DATA AND ADDITIONAL INFORMATION (CONTINUED)

Labels: 3 FLAMMABLE LIQUID
Regulatory References: 49CFR 172.101

International (I.M.O.)

Proper Shipping Name: Hexanes
Hazard Class: 3.1 I.M.O. Page: 3129
UN: UN1208 Marine Pollutants: No Packaging Group: II
Labels: 3 FLAMMABLE LIQUID
Regulatory References: 49CFR PART 176; IMDG Code

AIR (I.C.A.O.)

Proper Shipping Name: Hexanes
Hazard Class: 3
UN: UN1208 Packaging Group: II
Labels: 3 FLAMMABLE LIQUID
Regulatory References: 49CFR PART 175; ICAO=== We believe the transportation data and references contained herein to be factual and the opinion of qualified experts. The data is meant as a guide to the overall classification of the product and is not package size specific, nor should it be taken as a warranty or representation for which the company assumes legal responsibility.=== The information is offered solely for your consideration, investigation, and verification. Any use of the information must be determined by the user to be in accordance with applicable Federal, State, and Local laws and regulations. See shipper requirements 49CFR 171.2, Certification 172.204, and employee training 49 CFR 173.1(b).

U.S. Customs Harmonization Number: 29011060001

NOTE: When handling liquid products, secondary protective containers must be used for carrying.
-N/A = Not Applicable, or not Available;
N/E = Not Established.-
The information in this Material Safety Data Sheet meets the requirements of the United States OCCUPATIONAL SAFETY AND HEALTH ACT and regulations promulgated thereunder (29 CFR 1910.1200 et. seq.) and the Canadian WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM. This document is intended only as a guide to the appropriate precautionary handling of the material by a person trained in, or supervised by a person trained

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MATERIAL SAFETY DATA SHEET
HOJA DE DATOS DE SEGURIDAD

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in, chemical handling. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application. Depending on usage, protective clothing including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/fumes.
Exposure to this product may have serious adverse health effects. This chemical may interact with other substances. Since the potential uses are so varied, Baker cannot warn of all of the potential dangers of use or interaction with other chemicals or materials. Baker warrants that the chemical meets the specifications set forth on the label.
BAKER DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR PURPOSE.
The user should recognize that this product can cause severe injury and even death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Baker will periodically revise this Material Safety Data Sheet.
Note: CHEMTREC, CANUTEC, and NATIONAL RESPONSE CENTER emergency telephone numbers are to be used ONLY in the event of CHEMICAL EMERGENCIES involving spill, leak, fire, exposure, or accident involving chemicals. All non-emergency questions should be directed to Customer Service (1-800-JTBAKER) for assistance.

===
Approved by Quality Assurance Department.

Chempure Brand

CSP provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. Individuals receiving this information must exercise their independent judgment in determining its appropriateness for a particular purpose.

Material Safety Data Sheet

Emergency Phone Number: 314-982-5000

CSP makes no representations, or warranties, either express or implied, of merchantability, fitness for particular purpose with respect to the information set forth herein or to the product to which the information refers. Accordingly, CSP will not be responsible for damages resulting from use of or reliance upon this information.

Distributed by:
CAMBAM SCIENTIFIC PRODUCTS
P.O. Box 941364
Atlanta, GA 31141

METHYL ALCOHOL

PRODUCT IDENTIFICATION:

Synonyms: Wood alcohol; methanol; carbinol

Formula CAS No.: 67-56-1

Molecular Weight: 32.04

Chemical Formula: CH_3OH

Hazardous Ingredients: Methyl alcohol

PRECAUTIONARY MEASURES

DANGER! MAY BE FATAL IF SWALLOWED.
HARMFUL IF INHALED. VAPOR HARMFUL. FLAMMABLE!
MAY CAUSE BLINDNESS. CANNOT BE MADE NONPOISONOUS.
CAUSES IRRITATION.

Keep away from heat, sparks and flame.
Avoid breathing vapor.
Keep container closed.
Use with adequate ventilation.
Wash thoroughly after handling.

EMERGENCY/FIRST AID

In all cases call a physician immediately. If swallowed, induce vomiting immediately by giving two glasses of water and sticking finger down throat. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes.
SEE SECTION 5.

DOT Hazard Class: Flammable Liquid

SECTION 1 Physical Data

Appearance: Clear, colorless liquid.

Odor: Characteristic odor.

Solubility: Miscible with water.

Boiling Point: 64.5°C (148°F)

Melting Point: -98°C (-144°F)

Specific Gravity: 0.8

Vapor Density (Air=1): 1.1

Vapor Pressure (mm Hg): 97 @ 20°C (68°F)

Evaporation Rate: (BuAc=1): 5.9

SECTION 2 Fire and Explosion Information

Fire:
Flammable. Flashpoint: 11°C (52°F) (CC).
Autoignition temperature: 385°C (725°F).
Flammable limits, in air, % by volume:
lel = 6.7; uel = 36.

Explosion:
Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Moderate explosion hazard and dangerous fire hazard when exposed to heat, sparks or flames.

Fire Extinguishing Media:
Water spray, dry chemical, alcohol foam, or carbon dioxide.

Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Use water spray to blanket fire, cool fire exposed containers, and to flush non-ignited spills or vapors away from fire. Vapors can flow along surfaces to distant ignition source and flash back

SECTION 3 Reactivity Data

Stability:
Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:
Carbon oxides and formaldehyde may form when heated to decomposition.

Hazardous Polymerization:
This substance does not polymerize.

Incompatibilities:
Strong oxidizing agents such as nitrates, perchlorates or sulfuric acid. Will attack some forms of plastics, rubber, and coatings. May react with metallic aluminium and generate hydrogen gas.

SECTION 4 Leak/Spill Disposal Information

Ventilate area of leak or spill. Remove all sources of ignition. Clean-up personnel require protective clothing and respiratory protection from vapors. Contain and recover liquid when possible. Collect as hazardous waste and atomize in a suitable RCRA approved combustion chamber, or absorb with vermiculite, dry sand, earth or similar material for disposal as hazardous waste in a RCRA approved facility. Do not flush to sewer.

Reportable Quantity (RQ)(CWA/CERCLA) : 5000 lbs.

Ensure compliance with local, state and federal regulations.

SECTION 5 Health Hazard Information

A. EXPOSURE / HEALTH EFFECTS

Inhalation:
A slight irritant to the mucous membranes. Toxic effects exerted upon nervous system, particularly the optic nerve. Once absorbed into the body, it is very slowly eliminated. Symptoms of overexposure may include headache, drowsiness, nausea, vomiting, blurred vision, blindness, coma, and death. A person may get better but then worse again up to 30 hours later.

Ingestion:
Toxic. Symptoms parallel inhalation. Can intoxicate and cause blindness. Usual fatal dose: 100-125 milliliters.

Skin Contact:
Methyl alcohol is a defatting agent and may cause skin to become dry and cracked. Skin absorption can occur; symptoms may parallel inhalation exposure.

Eye Contact:
Irritant. Continued exposure may cause eye lesions.

Chronic Exposure:
Marked impairment of vision and enlargement of the liver has been reported. Repeated or prolonged exposure may cause skin irritation.

Aggrevation of Pre-existing Conditions:
Persons with pre-existing skin disorders or eye problems or impaired liver or kidney function may be more susceptible to the effects of the substance.

B. FIRST AID

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion:
If swallowed, induce vomiting immediately by giving two glasses of water and sticking finger down throat. Never give anything by mouth to an unconscious person. Call physician immediately.

Skin Exposure:
Remove any contaminated clothing. Wash skin with soap or mild detergent and water for at least 15 minutes. Get medical attention if irritation develops or persists.

Eye Exposure:
Wash eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

C. TOXICITY DATA (RTECS, 1986)

Oral rat LD50: 5628 mg/kg. Skin rabbit: 20 gm/kg. Aquatic toxicity rating TLm 96: Over 1,000. Mutation data cited. Reproductive effects data cited.

SECTION 6 Occupational Control Measures

Airborne Exposure Limits:
-OSHA Permissible Exposure Limit (PEL):
200 ppm (TWA), 250 ppm (STEL) skin

-ACGIH Threshold Limit Value (TLV):
200 ppm (TWA), 250 ppm (STEL) skin

Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

Personal Respirators: (NIOSH Approved)
If the TLV is exceeded, wear a supplied air, full-facepiece respirator, airlined hood, or self-contained breathing apparatus.

Skin Protection:
Rubber or neoprene gloves and additional protection including impervious boots, apron, or coveralls, as needed in areas of unusual exposure.

Eye Protection:
Use chemical safety goggles. Contact lenses should not be worn when working with this material. Maintain eye wash fountain and quick-drench facilities in work area.

SECTION 7 Storage and Special Information

Protect against physical damage. Outside or detached storage is preferred. Inside storage should be in a standard flammable liquids storage room or cabinet. Separate from oxidizing materials. Storage and use areas should be No Smoking areas. Spark-proof tools and explosion-proof equipment should be used in the storage and handling area.

Chempure Brand

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Material Safety Data Sheet

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Distributed by:
CANLAB SCIENTIFIC PRODUCTS
P.O. Box 94:364
Atlanta, GA 3934:

Addendum to Material Safety Data Sheet

REGULATORY STATUS

This Addendum Must Not Be Detached from the MSDS

Identifies SARA 313 substance(s)

Any copying or redistribution of the MSDS must include a copy of this addendum

(Chem.Key: METOL)

Hazard Categories for SARA Section 311/312 Reporting

Acute	Chronic	Fire	Pressure	Reactive
X	X	X		

Product or Components of Product	SARA EHS Sect. 302 RQ (lbs.)	SARA EHS Sect. 302 TPQ (lbs.)	SARA Section 313 Chemicals Name List	SARA Section 313 Chemicals Chemical Category	CERCLA Sec.103 RQ (lbs.)	RCRA Sec. 261.33
METHYL ALCOHOL (67-56-1)	No	No	Yes	No	5000	U154

SARA Section 302 EHS RQ: Reportable Quantity of Extremely Hazardous Substance, listed at 40 CFR 355.
SARA Section 302 EHS TPQ: Threshold Planning Quantity of Extremely Hazardous Substance. An asterisk (*) following a Threshold Planning Quantity signifies that if the material is a solid and has a particle size equal to or larger than 100 micrometers, the Threshold Planning Quantity = 10,000 LBS
SARA Section 313 Chemicals: Toxic Substances subject to annual release reporting requirements listed at 40 CFR 372.65.
CERCLA Sec. 103: Comprehensive Environmental Response, Compensation and Liability Act (Superfund). Releases to air, land or water of these hazardous substances which exceed the Reportable Quantity (RQ) must be reported to the National Response Center, (800-424-8802); Listed at 40 CFR 302.4
RCRA: Resource Conservation and Reclamation Act. Commercial chemical product wastes designated as acute hazards and toxic under 40 CFR 261.33

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1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MANUFACTURER.....:

EM SCIENCE (Then VWR)
A DIVISION OF EM INDUSTRIES
P.O. BOX 70
480 DEMOCRAT RD.
GIBBSTOWN, N.J. 08027

PREPARATION DATE.: 11/08/91
DATE MSDS PRINTED.: JUN 11, 1992

INFORMATION PHONE NUMBER.: 609-354-9200
HOURS: MON. TO FRI. 8:30-5
CHEMTREC EMERGENCY NUMBER: 800-424-9300
HOURS: 24 HRS A DAY

CATALOG NUMBER(S):
MX0475 MX0480 MX0483 MX0484 MX0485 MX0487 MX0488 MX0489 MX0490
AX1699M MX0475P MX0482 MX0485P MX0485S MX0488B MX0488P MX0475RI
MX0485J

CHEMICAL NAME....: ~~METHANOL~~
TRADE NAME.....: METHYL ALCOHOL, WOOD ALCOHOL
CHEMICAL FAMILY..: ALIPHATIC ALCOHOL
FORMULA.....: CH3OH

MOLECULAR WEIGHT.: 32.04

2. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENT	CAS #	APPR %
METHANOL	67-56-1	100%

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
FLAMMABLE LIQUID AND VAPOR.
VAPOR HARMFUL.
MAY BE FATAL OR CAUSE BLINDNESS IF SWALLOWED.
CANNOT BE MADE NON-POISONOUS.
MAY CAUSE DAMAGE TO LUNGS AND CENTRAL NERVOUS SYSTEM.
ABSORPTION THROUGH SKIN HARMFUL.
APPEARANCE.....:
COLORLESS LIQUID, CHARACTERISTIC
ALCOHOLIC ODOR

POTENTIAL HEALTH EFFECTS (ACUTE AND CHRONIC)

SYMPTOMS OF EXPOSURE:
TOXIC BY INGESTION AND INHALATION. CAN BE TOXIC BY SKIN ABSORPTION. AFTER INGESTION OR INHALATION, INITIAL SYMPTOMS MAY BE ONLY THAT OF MILD INTOXICATION, BUT MAY BECOME SEVERE AFTER 12 TO 18 HOURS. AFFECTS CENTRAL NERVOUS SYSTEM, ESPECIALLY OPTIC NERVE. MARKED IMPAIRMENT OF VISION AND ENLARGEMENT OF THE LIVER HAS BEEN REPORTED WITH CHRONIC EXPOSURE. CHRONIC EXPOSURE MAY ALSO CAUSE DAMAGE TO KIDNEYS AND CENTRAL NERVOUS SYSTEM. CAUSES DIZZINESS, NAUSEA, MUSCLE WEAKNESS, NARCOSIS, RESPIRATORY FAILURE. INGESTION CAN PRODUCE BLINDNESS (100 ML CAN BE FATAL). PROLONGED OR REPEATED SKIN CONTACT MAY CAUSE IRRITATION. FETAL DEVELOPMENT ABNORMALITIES AND EFFECTS ON EMBRYO OR FETUS HAVE BEEN REPORTED FROM PROLONGED EXPOSURE TO METHYL ALCOHOL IN LABORATORY TESTS INVOLVING PREGNANT RATS.

MEDICAL COND. AGGRAVATED BY EXPOSURE:
SKIN CONDITIONS, EYE PROBLEMS, OR IMPAIRED LIVER OR KIDNEY FUNCTION.

ROUTES OF ENTRY.....:
INHALATION, INGESTION OR SKIN CONTACT.

CARCINOGENICITY.....:
THE MATERIAL IS NOT LISTED (IARC, NTP, OSHA) AS CANCER CAUSING AGENT.

4. FIRST AID MEASURES

EMERGENCY FIRST AID:
GET MEDICAL ASSISTANCE FOR ALL CASES OF OVEREXPOSURE.
SKIN: WASH THOROUGHLY WITH SOAP AND WATER.
EYES: IMMEDIATELY FLUSH THOROUGHLY WITH WATER FOR AT LEAST 15 MINUTES.
INHALATION: REMOVE TO FRESH AIR; GIVE ARTIFICIAL RESPIRATION IF BREATHING HAS STOPPED.
INGESTION: GET IMMEDIATE MEDICAL ATTENTION. IF MEDICAL ATTENTION IS NOT IMMEDIATELY AVAILABLE, INDUCE VOMITING. DO NOT INDUCE VOMITING IF PATIENT IS UNCONSCIOUS.
REMOVE CONTAMINATED CLOTHING AND WASH BEFORE REUSE.

5. FIRE FIGHTING MEASURES

FLASH POINT (F).....: 52F (TCC)
FLAMMABLE LIMITS LEL (%).: 6.7
FLAMMABLE LIMITS UEL (%).: 36.5
EXTINGUISHING MEDIA.....:
DRY CHEMICAL, "ALCOHOL" FOAM, CO2, WATER MIST.
FIRE FIGHTING PROCEDURES.:

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WEAR SELF-CONTAINED BREATHING APPARATUS.
FIRE & EXPLOSION HAZARDS.:
DANGEROUS FIRE AND EXPLOSIVE HAZARD.
CLOSED CONTAINERS MAY EXPLODE UPON HEATING.
VAPOR CAN TRAVEL DISTANCES TO IGNITION SOURCE AND FLASH BACK.
HOT ORGANIC CHEMICAL VAPORS OR MISTS ARE SUSCEPTIBLE TO SUDDEN SPONTANEOUS COMBUSTION WHEN MIXED WITH AIR. IGNITION MAY OCCUR AT TEMPERATURES BELOW PUBLISHED AUTOIGNITION OR IGNITION TEMPERATURES. IGNITION TEMPERATURES DECREASE WITH INCREASING VAPOR VOLUME AND VAPOR/AIR CONTACT TIME AND ARE INFLUENCED BY PRESSURE CHANGES. IGNITION MAY OCCUR AT TYPICAL ELEVATED TEMPERATURE PROCESS CONDITIONS, ESPECIALLY IN PROCESS OPERATING UNDER VACUUM IF SUBJECTED TO SUDDEN INGRESS OF AIR, OR OUTSIDE PROCESS EQUIPMENT OPERATING UNDER ELEVATED PRESSURE IF SUDDEN ESCAPE OF VAPORS OR MISTS TO THE ATMOSPHERE OCCURS.

6. ACCIDENTAL RELEASE MEASURES

SPILL RESPONSE:
EVACUATE THE AREA OF ALL UNNECESSARY PERSONNEL.
WEAR SUITABLE PROTECTIVE EQUIPMENT LISTED UNDER EXPOSURE / PERSONAL PROTECTION.
ELIMINATE ANY IGNITION SOURCES UNTIL THE AREA IS DETERMINED TO BE FREE FROM EXPLOSION OR FIRE HAZARDS.
CONTAIN THE RELEASE AND ELIMINATE ITS SOURCE, IF THIS CAN BE DONE WITHOUT RISK.
TAKE UP AND CONTAINERIZE FOR PROPER DISPOSAL AS DESCRIBED UNDER DISPOSAL.
COMPLY WITH FEDERAL, STATE, AND LOCAL REGULATIONS ON REPORTING RELEASES. REFER TO REGULATORY INFORMATION FOR REPORTABLE QUANTITY AND OTHER REGULATORY DATA.
EM SCIENCE RECOMMENDS SPILL-X ABSORBENT AGENTS FOR VARIOUS TYPES OF SPILLS. ADDITIONAL INFORMATION ON THE SPILL-X PRODUCTS CAN BE PROVIDED THROUGH THE EM SCIENCE TECHNICAL SERVICE DEPARTMENT (609) 354-9200.
THE FOLLOWING EM SCIENCE SPILL-X ABSORBENT IS RECOMMENDED FOR THIS PRODUCT:

SX0863 SOLVENT SPILL TREATMENT KIT

7. HANDLING AND STORAGE

HANDLING & STORAGE:
KEEP CONTAINER CLOSED.
STORE IN A COOL AREA AWAY FROM IGNITION SOURCES AND OXIDIZERS.
DO NOT BREATH VAPOR OR MIST.

15

DO NOT GET IN EYES, ON SKIN, OR ON CLOTHING.
ELECTRICALLY GROUND ALL EQUIPMENT WHEN HANDLING THIS PRODUCT.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS AND PERSONAL PROTECTIVE EQUIPMENT:

VENTILATION, RESPIRATORY PROTECTION, PROTECTIVE CLOTHING, EYE PROTECTION
RESPIRATORY PROTECTION: IF WORKPLACE EXPOSURE LIMIT(S) OF PRODUCT OR ANY COMPONENT IS EXCEEDED (SEE TLV/PEL), A NIOSH/MSHA APPROVED AIR SUPPLIED RESPIRATOR IS ADVISED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. OSHA REGULATIONS ALSO PERMIT OTHER NIOSH/MSHA RESPIRATORS (NEGATIVE PRESSURE TYPE) UNDER SPECIFIED CONDITIONS (SEE YOUR SAFETY EQUIPMENT SUPPLIER). ENGINEERING AND/OR ADMINISTRATIVE CONTROLS SHOULD BE IMPLEMENTED TO REDUCE EXPOSURE.
MATERIAL SHOULD BE HANDLED OR TRANSFERRED IN AN APPROVED FUME HOOD OR WITH ADEQUATE VENTILATION.
PROTECTIVE GLOVES MUST BE WORN TO PREVENT SKIN CONTACT (BUTYL RUBBER, VITON OR EQUIVALENT)
SAFETY GLASSES WITH SIDE SHIELDS MUST BE WORN AT ALL TIMES.

WORK / HYGENIC PRACTICES:
WASH THOROUGHLY AFTER HANDLING.
DO NOT TAKE INTERNALLY.
EYE WASH AND SAFETY EQUIPMENT SHOULD BE READILY AVAILABLE.

EXPOSURE GUIDELINES

OSHA - PEL:

	TWA		STEL		CL		
COMPONENT	PPM	MG/M3	PPM	MG/M3	PPM	MG/M3	SKIN
METHANOL	200	260	250	325			X

ACGIH - TLV:

	TWA		STEL		CL		
COMPONENT	PPM	MG/M3	PPM	MG/M3	PPM	MG/M3	SKIN
METHANOL	200	262	250	328			X

9. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT (C 760 MMHG).: 64.5C
MELTING POINT (C).....: -98C
SPECIFIC GRAVITY (H20 = 1).: 0.791
VAPOR PRESSURE (MM HG).....: 97 20C
PERCENT VOLATILE BY VOL (%): 99.9+
VAPOR DENSITY (AIR = 1).....: 1.1
EVAPORATION RATE (BUAC = 1): 5.91
SOLUBILITY IN WATER (%).....: MISCIBLE
APPEARANCE.....:
COLORLESS LIQUID, CHARACTERISTIC
ALCOHOLIC ODOR

10. STABILITY AND REACTIVITY

STABILITY.....: YES
HAZARDOUS POLYMERIZATION:
DOES NOT OCCUR

HAZARDOUS DECOMPOSITION.:
COX, FORMALDEHYDE

CONDITIONS TO AVOID.....:
HEAT; CONTACT WITH IGNITION SOURCE.

MATERIALS TO AVOID.....:
( )WATER
(X)ACIDS
( )BASES
( )CORROSIVES
(X)OXIDIZERS
(X)OTHER :

REACTIVE METALS

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA:
ORL-HMN LDLO: 143 MG/KG ORL-RAT LD50: 5628 MG/KG
IHL-RAT LC50: 64000 PPM/4H SKN-RBT LD50: 15800 MG/KG
TOXICOLOGICAL FINDINGS:
TESTS ON LABORATORY ANIMALS INDICATE MATERIAL MAY PRODUCE ADVERSE
MUTAGENIC AND REPRODUCTIVE EFFECTS
CITED IN REGISTRY OF TOXIC EFFECTS OF SUBSTANCES (RTECS)

12. DISPOSAL CONSIDERATIONS

EPA WASTE NUMBERS: U154 D001

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TREATMENT:
INCINERATION, FUELS BLENDING OR RECYCLE. CONTACT YOUR LOCAL PERMITTED WASTE DISPOSAL SITE (TSD) FOR PERMISSIBLE TREATMENT SITES.
ALWAYS CONTACT A PERMITTED WASTE DISPOSER (TSD) TO ASSURE COMPLIANCE WITH ALL CURRENT LOCAL, STATE AND FEDERAL REGULATIONS.

13. TRANSPORT INFORMATION

DOT PROPER SHIPPING NAME...:
METHANOL
DOT ID NUMBER.....: UN1230

14. REGULATORY INFORMATION

TSCA INVENTORY.....:
THE CAS NUMBER OF THIS PRODUCT IS LISTED ON THE TSCA INVENTORY.

COMPONENT	SARA EHS (302)	SARA EHS TPQ (LBS)	CERCLA RQ (LBS)
METHANOL			5000

COMPONENT	OSHA FLOOR LIST	SARA 313	DEMINIMIS FOR SARA 313 (%)
METHANOL	Y	Y	1.0

15. OTHER INFORMATION

COMMENTS:
NONE
NFPA HAZARD RATINGS:
HEALTH : 1
FLAMMABILITY : 3

15

REACTIVITY : 0
SPECIAL HAZARDS:

REVISION HISTORY:
02/01/83 10/01/83 05/01/85 12/08/86 01/31/87 06/10/87 08/28/87
10/27/87 08/10/88 10/06/88 03/14/89 09/28/89 10/09/89 05/10/90
01/11/91 03/01/91 08/07/91

| = REVISED SECTION
N/A = NOT AVAILABLE
N/E = NONE ESTABLISHED

"ISSUED BY VWR 02-22-95"

VW3904-1 VW3334

20

BDH INC.(
M A T E R I A L S A F E T Y D A T A S H E E T(

SECTION I CHEMICAL PRODUCT AND COMPANY IDENTIFICATION(

MANUFACTURER:(VWR
BDH INC.
350 EVANS AVENUE
TORONTO, ONTARIO
CANADA, M8Z 1K5

INFORMATION PHONE NO.: 416-255-8521(
HOURS: MON. TO FRI. (0830 - 1630)(
CHEMTREC TRANSPORTATION EMERGENCY CENTER(
(CHEMTREC) 24-HOUR...1-800-424-9300(

PRODUCT NAME: NITRIC ACID 6.0N, 50% V/V, 3.10N, 7.80N, 2.85N, 20% V/V, 10% W/V (1+3)
CATALOGUE NUMBER(S): VW3334, VW3335, VW3440, BDH0033, VW3607, VW3904, BDH0093, SAM037
CHEMICAL NAME/OTHER NAME: NITRIC ACID 6.0N, 50% V/V, 3.10N, 7.80N, 2.85, 10 % W/V, 20% V/V, (1+3)
CHEMICAL FORMULA: HNO3, H2O
CHEMICAL FAMILY: ACID

SECTION II COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS NO.	OSHA PEL	ACGIH TLV	%
NITRIC ACID	7697-37-2	2 PPM	2 PPM	10-65
WATER	7732-18-5	-	-	

SECTION III HAZARDS IDENTIFICATION

APPEARANCE: CLEAR, COLORLESS LIQUID

********** EMERGENCY OVERVIEW **********
* CAUSES SEVERE BURNS *
* OXIDIZING MATERIAL *
* TOXIC *
****

POTENTIAL HEALTH EFFECTS (ACUTE & CHRONIC)
SYMPTOMS OF EXPOSURE: CAUSES SEVERE BURNS ON CONTACT WITH ANY BODY TISSUE. VAPOR IS IRRITATING TO THE EYES AND TISSUES OF THE RESPIRATORY TRACT.
MEDICAL CONDITION AGGRAVATED BY EXPOSURE: NONE IDENTIFIED
ROUTES OF ENTRY: INHALATION, INGESTION
CARCINOGENICITY: THIS MATERIAL IS NOT LISTED (IARC, NTP, OSHA) AS A CANCER CAUSING AGENT.

SECTION IV FIRST AID MEASURES

EYE: IN CASE OF EYE CONTACT, FLUSH WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES WHILE HOLDING THE EYELIDS OPEN. HAVE EYES EXAMINED BY MEDICAL PERSONNEL.

SKIN: IN CASE OF SKIN CONTACT, IMMEDIATELY FLUSH SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING

20

AND SHOES.

INGESTION: IF SWALLOWED, DO NOT INDUCE VOMITING. GIVE VICTIM A GLASS OF WATER OR MILK. CALL A PHYSICIAN IMMEDIATELY. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

INHALATION: IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING, TRAINED PERSONNEL SHOULD BEGIN ARTIFICIAL RESPIRATION. SEEK MEDICAL ATTENTION.

SECTION V FIRE FIGHTING MEASURES

FLAMMABILITY CLASSIFICATION: NONCOMBUSTIBLE
EXTINGUISHING MEDIA: USE AN EXTINGUISHER APPROPRIATE TO THE SURROUNDING MATERIAL THAT IS BURNING.
FLASH POINT(F)/METHOD: NOT APPLICABLE
FIRE & EXPLOSION HAZARD: THERMAL DECOMPOSITION PRODUCES TOXIC FUMES.
UPPER FLAMMABLE LIMIT (%): NOT APPLICABLE
LOWER FLAMMABLE LIMIT (%): NOT APPLICABLE
AUTOIGNITION TEMPERATURE: NOT APPLICABLE
FIREFIGHTING PROCEDURES: FIREFIGHTERS SHOULD WEAR A SELF CONTAINED BREATHING APPARATUS.
HAZARDOUS COMBUSTION PRODUCTS: NOX, HNO3
SENSITIVITY TO STATIC DISCHARGE: NO
SENSITIVITY TO MECHANICAL IMPACT: NO

SECTION VI ACCIDENTAL RELEASE MEASURES

LEAK OR SPILL CLEANUP: EVACUATE THE AREA OF ALL UNNECESSARY PERSONNEL. WEAR SUITABLE PROTECTIVE EQUIPMENT LISTED IN EXPOSURE CONTROLS/PERSONAL PROTECTION. CONTAIN THE RELEASE & ELIMINATE IT'S SOURCE, IF THIS CAN BE DONE WITHOUT RISK. TAKE UP AND CONTAINERIZE FOR PROPER DISPOSAL AS DESCRIBED UNDER DISPOSAL. COMPLY WITH FEDERAL, STATE, AND LOCAL REGULATIONS ON REPORTING RELEASES. REFER TO REGULATORY INFORMATION FOR REPORTABLE QUANTITY AND OTHER REGULATORY DATA.

SECTION VII HANDLING & STORAGE

HANDLING & STORAGE: STORE IN A COOL, DRY, WELL-VENTILATED AREA. SEPARATE FROM ALKALIES, METALS, ORGANICS AND OTHER OXIDIZING MATERIALS.

SECTION VIII EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: ENGINEERING AND/OR ADMINISTRATIVE CONTROLS SHOULD BE IMPLEMENTED TO REDUCE EXPOSURE.

PERSONAL PROTECTIVE EQUIPMENT

GLOVES: NEOPRENE OR EQUIVALENT
RESPIRATORY PROTECTION: FUME HOOD OR NIOSH/MSHA RESPIRATORS AS APPROPRIATE
EYE PROTECTION: SAFETY GLASSES WITH SIDE SHIELDS
CLOTHING: IMPERVIOUS PROTECTIVE CLOTHING SHOULD BE WORN TO PREVENT SKIN CONTACT

SECTION IX PHYSICAL & CHEMICAL PROPERTIES

PHYSICAL STATE: LIQUID
APPEARANCE: CLEAR, COLORLESS LIQUID

ODOR: ODORLESS
ODOR THRESHOLD: NOT APPLICABLE
VAPOR PRESSURE: NOT AVAILABLE
VAPOR DENSITY: NOT AVAILABLE
SPECIFIC GRAVITY: NOT AVAILABLE
BOILING POINT (F): NOT AVAILABLE
MELTING POINT (F): NOT AVAILABLE
EVAPORATION RATE: NOT AVAILABLE
PH: NOT AVAILABLE
SOLUBILITY IN WATER: SOLUBLE
OCTANOL/WATER PARTITION COEFFICIENT: NOT AVAILABLE
PER CENT VOLATILE BY VOL (%): 100
MOLECULAR WEIGHT: 63 (NITRIC ACID)

SECTION X STABILITY & REACTIVITY

CHEMICAL STABILITY: NORMALLY STABLE
CONDITIONS TO AVOID: CONTACT WITH COMBUSTIBLE MATTER
MATERIALS TO AVOID: BASES, CYANIDES, METAL POWDERS, SULFIDES, ORGANIC SOLVENTS, CARBIDES, ALKALIES
HAZARDOUS POLYMERIZATION: DOES NOT OCCUR
HAZARDOUS DECOMPOSITION PRODUCTS: NOX, HNO3

SECTION XI TOXICOLOGICAL INFORMATION

EFFECTS OF ACUTE EXPOSURE: THIS MATERIAL CAUSES SEVERE BURNS AND DESTROYS TISSUE ON CONTACT. IT MAY CAUSE SEVERE EYE DAMAGE RESULTING IN BLINDNESS. INGESTION MAY PRODUCE VIOLENT PAIN IN THE THROAT, COLLAPSE AND POSSIBLE DEATH.
EFFECTS OF CHRONIC EXPOSURE: NO INFORMATION AVAILABLE
LD50: NOT AVAILABLE
LC50: NOT AVAILABLE
IRRITANCY (DRAIZE TEST RESULTS): NO INFORMATION AVAILABLE
CARCINOGENICITY: THIS MATERIAL IS NOT LISTED (IARC, NTP, OSHA) AS A CANCER CAUSING AGENT.
TERATOGENICITY: NO INFORMATION AVAILABLE
MUTAGENICITY: NO INFORMATION AVAILABLE
REPRODUCTIVE EFFECTS: MAY PRODUCE ADVERSE REPRODUCTIVE EFFECTS (NITRIC ACID)
SENSITIZATION TO PRODUCT: NO INFORMATION AVAILABLE
TARGET ORGANS: NONE IDENTIFIED

SECTION XII DISPOSAL CONSIDERATIONS

EPA WASTE NUMBER(S): D002
TREATMENT: NEUTRALIZE TO PH 6-9. CONTACT YOUR LOCAL PERMITTED WASTE DISPOSAL SITE (TSD) FOR PERMISSIBLE TREATMENT SITES.
ALWAYS CONTACT A PERMITTED WASTE DIPOSER (TSD) TO ASSURE COMPLIANCE WITH ALL CURRENT LOCAL, STATE AND FEDERAL REGULATIONS

SECTION XIII TRANSPORT INFORMATION

DOT SHIPPING NAME: NITRIC ACID
DOT NUMBER (UN): 2031
PACKING GROUP: II
HAZARD CLASS: 8

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SECTION XIV REGULATORY INFORMATION

(REFER TO LAST PAGE FOR DISCLAIMER) VW3334 PAGE: 3

TSCA INVENTORY (YES/NO): YES, THIS MATERIAL IS A MIXTURE. THE CAS NUMBERS OF ALL COMPONENTS ARE LISTED ON THE TSCA INVENTORY.

COMPONENT	SARA EHS (302)	SARA EHS TPQ (LBS)	CERCLA RQ (LBS)
NITRIC ACID	Y	1000	1000
WATER	-	-	-

COMPONENT	OSHA FLOOR LIST	SARA 313	DEMINIMIS (SARA 313)(%)
NITRIC ACID	Y	Y	1.0
WATER	-	-	-

SECTION XV OTHER INFORMATION

NFPA HAZARD RATINGS (0-4)

HEALTH: 3 FLAMMABILITY: 0 REACTIVITY: 0

NFPA SPECIAL WARNINGS: OX
PREPARATION DATE: APRIL 13, 1993
REVISION HISTORY: AUGUST 9, 1993; FEB 3, 1994; JULY 8, 1994
COMMENTS: NONE

PREPARED BY: TECHNICAL AFFAIRS DEPARTMENT, BDH INC.,
TORONTO, ONTARIO, CANADA
(416) 255-8521

THE STATEMENTS CONTAINED HEREIN ARE OFFERED FOR INFORMATIONAL PURPOSES ONLY AND ARE BASED UPON TECHNICAL DATA THAT BDH INC BELIEVES TO BE ACCURATE. IT IS INTENDED FOR USE ONLY BY PERSONS HAVING THE NECESSARY TECHNICAL SKILLS AND AT THEIR OWN DISCRETION AND RISK. SINCE CONDITIONS AND MANNER OF USE ARE OUTSIDE OUR CONTROL, WE MAKE NO WARRANTY, EXPRESS OR IMPLIED OF MERCHANTABILITY, FITNESS OR OTHERWISE.

APPENDIX D

Site Sampling Quality Assurance/Quality Control Plan

ANGELILLO PROPERTY SITE
SAMPLING QUALITY ASSURANCE/ QUALITY CONTROL PLAN
SOUTHINGTON, CT

Prepared For:

U.S. Environmental Protection Agency
Region I
60 Westview Street
Lexington, MA 02173

CONTRACT NO. 68-W5-0009

TDD NO. 95-08-1016

PCS NO. 1187

DC NO. 165

Prepared By:

ROY F. WESTON, INC.
Superfund Technical Assessment and Response Team
Region I

October 1995

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1.0 BACKGROUND

The Angelillo Property site (the Site) is located in Southington, Hartford County, Connecticut. The geographic coordinates are 41°34'37" North Latitude and 72°53'12" West Longitude (See Figure 1 - Site Location Map). The topography of the site is relatively flat, sloping to the west. The site is bordered to the east by Old Turnpike Road, to the south and north by residential lots and the west by the Brunalli Construction Company. The site is approximately 2.32 acres and is accessed by a locked gate leading to an unpaved road (See Figure 2 - Site Diagram).

The site was used by the Angelillo Scrap Metal Company during the late 1970's through the early 1980's. This business accepted and transported drums and scrap metal from various sources, including drums from Solvents Recovery Service of New England (SRSNE), and later sold them for resale as scrap.

Between 1979 and 1983, the Connecticut Department of Environmental Protection (CTDEP) observed illegal on-site disposal activities. CTDEP reported that some of the drums accepted for scrap at the site were partially filled with solvents and/or solvent sludge. For an unknown period of time, the liquid/sludge materials were disposed of illegally in a pit that was excavated on site. The exact dates of the illegal disposal activities are unknown.

From September 10 to 12, 1990, an environmental assessment conducted by Advanced Environmental Interface, Inc. (AEI) on behalf of the Angelillo Scrap Metal Company was performed at the site. Part of the assessment included installing ten monitoring wells and collecting soil and groundwater samples. The sample data generated during the assessment indicated the presence of several volatile organic compounds (VOCs), metals, total petroleum hydrocarbons and polychlorinated biphenyls (PCBS) in the soils. In addition, VOCs and metals were present in ground water samples collected at that time.

2.0 OBJECTIVES

The objective of this sampling survey is to obtain sufficient analytical data from a representative number of samples which could be used to determine whether further actions at the site by the U. S. Environmental Protection Agency (EPA), Region I, Emergency Planning and Response Branch (EPRB) are necessary.

3.0 DELIVERABLES

In addition to this sampling Quality Assurance/Quality Control (QA/QC) plan, a Preliminary Assessment/Site Investigation (PA/SI) Report documenting project activities at the site will be generated by The Roy F. Weston, Inc., Superfund Technical Assessment and Response Team (START). If samples are collected, copies of the chain-of-custody (COC) documentation will be included in Attachment I. COC documentation may include: COC record(s), sampling cards, and Notice to the Laboratory forms regarding potential hazards of the samples. Sample locations will be illustrated in Figure 3. If any modifications are made to the practices described in this sampling QA/QC

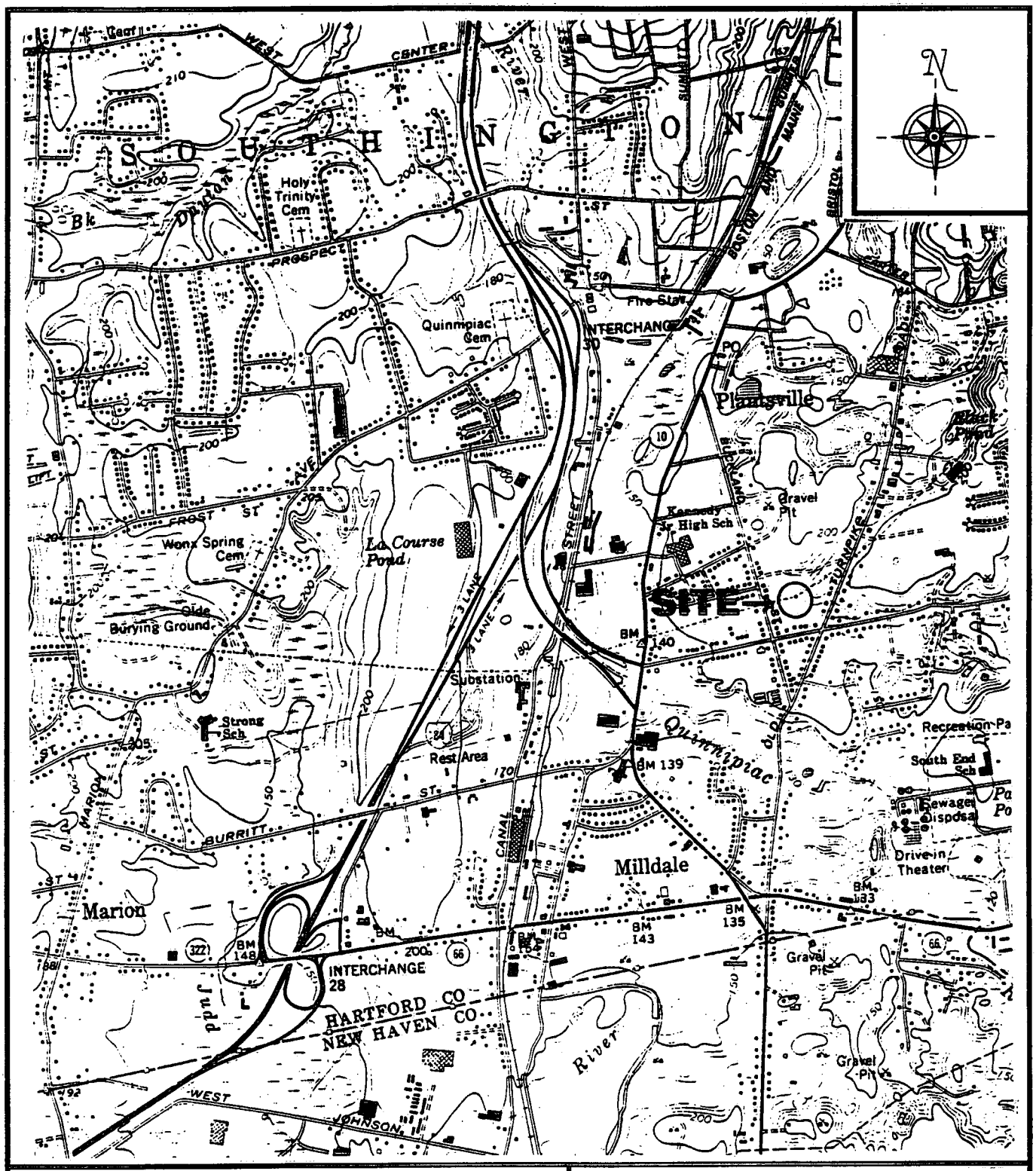


FIGURE 1

SITE LOCATION MAP

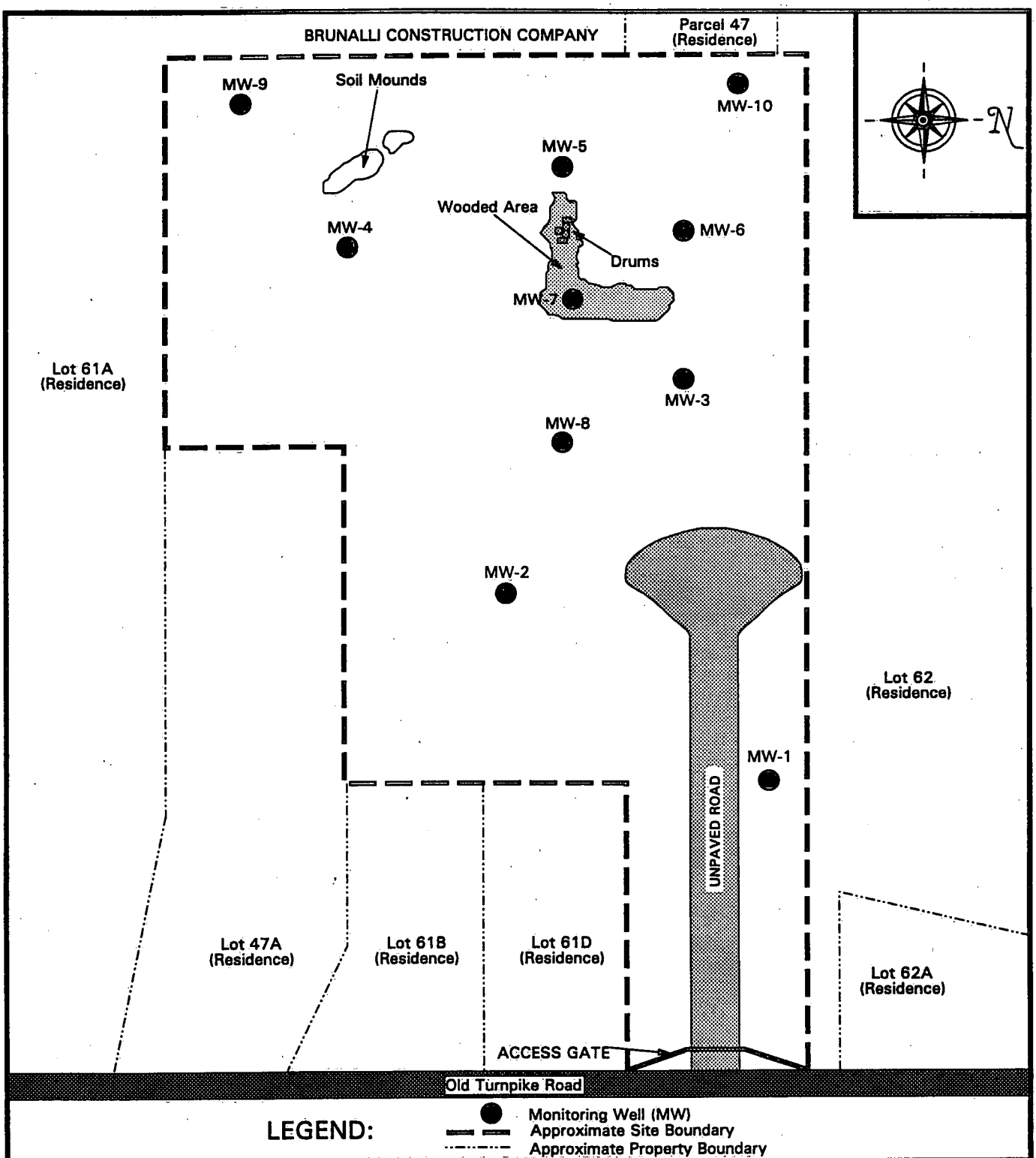
ANGELILLO PROPERTY SITE

SOUTHINGTON, CONNECTICUT

SOURCE: USGS 7.5 MINUTE SERIES, SOUTHINGTON, CONNECTICUT QUADRANGLE 1968, PHOTOREVISED 1984.

WESTON®
MANAGERS DESIGNERS/CONSULTANTS
SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM

DRAWN BY	DATE	PCS #
R. KEFALAS	10/95	1187
APPROVED BY	DATE	TDD #
	10/5	95-08-1016



LEGEND:

- Monitoring Well (MW)
- Approximate Site Boundary
- Approximate Property Boundary

NOT TO SCALE

FIGURE 2
SITE DIAGRAM
ANGELILLO PROPERTY SITE
SOUTHINGTON, CONNECTICUT

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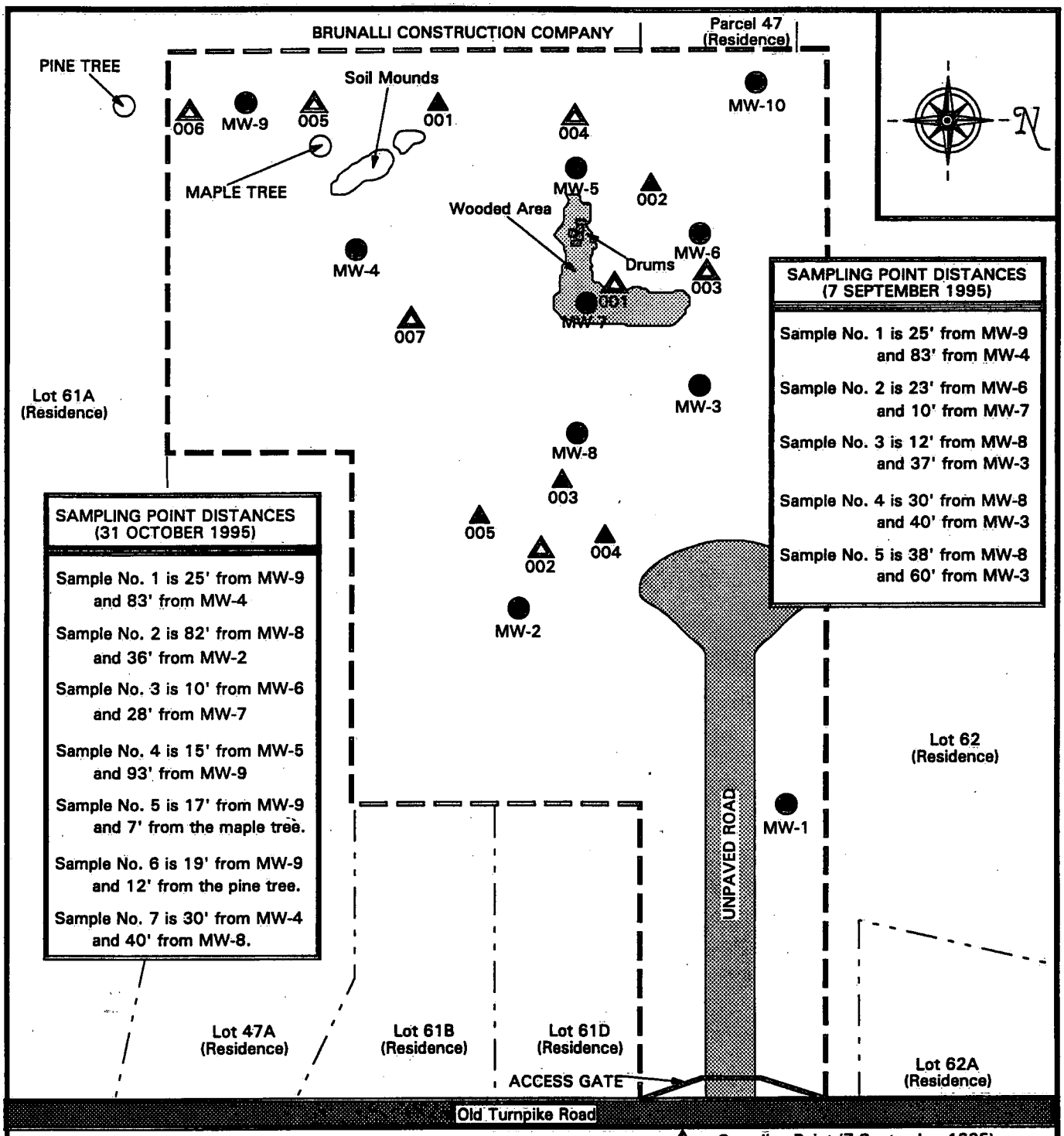
Gorden	9/95	1187
APPROVED BY	DATE	TDD #
	10/95	95-08-1016



NOT TO SCALE

FIGURE 3

SAMPLE LOCATION MAP

ANGELILLO PROPERTY SITE

SOUTHINGTON, CONNECTICUT

WESTON®

MANAGERS DESIGNERS/CONSULTANTS

SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM

DRAWN BY	DATE	PCS #
KEFALAS	11/95	1268
APPROVED BY	DATE	TDD #
	11/27/95	95-08-1016B

4

plan, they will be documented in Attachment II to this report when the sampling is completed and the report is finalized.

4.0 QUALITY ASSURANCE LEVELS

The quality assurance (QA) level for the on-site air monitoring activities will be QA1, as detailed in Section 7.1 of this document. The QA levels are described in Section 2.7 of OSWER Directive 9360.4-01 (April 1990-Interim Final), *Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan and Data Validation Procedures, EPA/540/G-90/004* (OSWER). QA1 activities include the use of the following instrumentation/test equipment:

- Photoionization Detector Model HW-101, or ISPI-101 by HNU Systems, Inc.
- Combustible Gas Indicator/Oxygen Meter Model 260 or MicroGard by MSA.
- Radiation Meter, Model 490 by Victoreen or Model 3 by Ludlum.
- Radiation Meter, Micro R Meter, Model 19 by Ludlum.

The samples collected for laboratory analysis will be analyzed at the EPA New England Regional Laboratory (NERL). Samples are identified using an internal classification designation (Screening, Quick Turnaround, or EPA Standard Method) which refers to the method of analysis being performed at NERL. These methods are generally used to analyze for high, medium, and low levels of anticipated contamination, respectively. This classification system was instituted by EPRB and NERL on June 25, 1992.

See Section 7.0 for quality assurance requirements.

5.0 APPROACH AND SAMPLING METHODOLOGIES

The relative sampling protocols used to develop this sampling plan are described in a Roy F. Weston, Inc. draft inter-office memorandum, *Technical Assistance Team Sampling Protocols*, dated March 1992.

The sampling survey will be conducted on September 7, 1995 as part of a PA/SI. Field screening, air monitoring and/or visual observation will be used to determine the location and number of samples to be collected. Wherever practical, samples will be collected from the least contaminated locations first. The samples will be containerized, preserved, and analyzed in accordance with Table 1. EPA chain-of-custody procedures will be utilized for all sampling activities. Samples will be disposed of by the laboratory performing the analyses. All contaminated sampling materials will be disposed of by NERL.

Up to five surface soil samples will be collected for polychlorinated biphenyl (PCB) and metals analyses to be conducted at NERL.

TABLE 1

SAMPLING SUMMARY, ANALYTICAL METHODS, AND QA/QC SAMPLES
ANGELILLO PROPERTY SITE
SOUTHINGTON, CONNECTICUT

MATRIX	*SUBTOTAL #SAMPLES*	*ANALYTICAL PARAMETER*	*VOLUME*	*CONTAINER*	*PRESERVATIVE*	*METHOD*	*HOLDING TIME*	*QA/QC SAMPLES (type, volume, container)*	*TOTAL # SAMPLES*
Soil	5	PCBs	8 oz	Glass	Ice	Standard	14 Days	---	5
Soil	5	Metals	40 ml	Glass	Ice	Screening	14 Days	---	5

oz	ounces
PCBs	polychlorinated biphenyls

5.1 Surface Soil Sampling

The number of soil samples and the sample locations will be determined by the EPA Site Investigator (SI). Surface samples (0-3 inches in depth) will be collected over a surface area of one square foot per sample station. The area will be prepared for sampling by carefully removing extraneous material from the top layer of the soil.

To increase data reliability and reproducibility, it is desirable to homogenize soil samples before sending samples for analysis. Samples will be collected using disposable scoops and placed directly into the appropriate (see Table 1) labelled glass containers (preferably wide-mouthed) with Teflon-lined lids. Containers will be filled half full. Samples will be manually homogenized by mixing the soil thoroughly with the scoop used to collect the sample, then the cap(s) will be secured tightly on the container(s). Samples will be preserved by immediately placing on ice.

5.2 Classification of Field Samples for Shipment

The samples collected at the site will be transported according to either Department of Transportation (DOT) Hazardous Materials Regulations or International Air Transport Association (IATA) Dangerous Goods Regulations. Samples will be transported in a manner that will maintain their integrity, as well as protect against detrimental effects from sample breakage or leakage. The Roy F. Weston, Inc. Guidelines for Classifying Field Sample Shipments (Revision 4.0, 16 June 1994) will be followed whenever samples are shipped.

Samples collected will be classified as either "environmental" or "hazardous materials" samples. Environmental samples are generally those collected from streams, ponds, lakes, wells, and off-site soils which are not expected to be contaminated with hazardous materials. Hazardous materials samples are collected from on-site soils or water, and materials from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools and leachates from hazardous waste sites.

Once samples are classified as environmental or hazardous materials, they will be screened, packaged, and shipped accordingly.

Environmental samples will be packaged and shipped according to the following procedures:

Environmental Samples

- Place properly-identified sample container in a sealed polyethylene bag.
- Place sample in a DOT-approved fiberboard container or picnic cooler lined with a large polyethylene bag.

- Pack container with enough noncombustible, absorbent, cushion material (e.g. vermiculite) to minimize the possibility of containers breaking, and to absorb any material which may leak from the sample jars.

- If there are multiple samples, make certain that there is sufficient cushioning material between the sample containers (each in its individual polyethylene bag) to prevent breakage due to dropping or severe shock.

- Seal large bag, add more absorbent if needed.

- Seal outside container with duct tape or strapping tape. Any cooler drain outlets should be taped shut.

The outside of the picnic cooler will be marked "Environmental Samples" and the appropriate sides of the container will be marked "This End Up" or with arrows accordingly. Place a proper address label on the outside of the package, no other labeling or shipping papers are required.

Hazardous Material Samples

Samples determined to be unknown hazardous materials will be classified through a process of professional judgement and elimination. Site background information, air monitoring equipment, and test strips will be used to classify samples of unknown materials to determine the proper hazard classification to be used during shipment.

Background ambient air and radiation readings will be taken for comparison purposes using the combustible gas indicator/oxygen meter (CGI), photoionization detector (PID) or flame ionization detector (FID), and Micro R radiation meter.

The samples will be screened for ionizing radiation by passing the Micro R meter over the sample material and noting the reading. This reading is then compared with that recorded during the ambient air background survey. Flammability will be determined by screening the headspace of the drum, container, or sample jar with the CGI and PID or FID, to determine if headspace readings are greater than background levels. Samples will also be checked for corrosivity and the presence of peroxides by testing the sample with pH and peroxide test strips.

Once radioactivity, flammability, corrosivity, and peroxides have been tested for, and professional judgement has been used to eliminate other hazard classification categories, the unknown samples will be classified and shipped as specified in the Roy F. Weston, Inc, Guidelines for Field Sample Shipments.

6.0 PROJECT ORGANIZATION AND RESPONSIBILITIES

U.S. EPA EPRB:

Dorothy Girten	Site Investigator

START Members:

David Gorden	Sample collection and documentation
Robert Kefalas	Quality Control Monitor Sample collection and documentation

The Quality Control Monitor will record quality assurance checks, any problems and corrective actions taken associated with the sampling and sampling plan. The Quality Control Monitor will also be responsible for completeness and accuracy of the chain-of-custody record.

7.0 QUALITY ASSURANCE REQUIREMENTS

Per OSWER Section 2.7, the following QA requirements apply.

7.1 Screening Quality Assurance

The on-site air monitoring activities will employ the following OSWER QA1 level requirements:

- Sample documentation.
- Instrument calibration/performance check.
- Determination of detection limit, if appropriate.

7.2 Sampling Quality Assurance

Sampling QA includes collecting one or more of the following quality control samples:

- Trip blanks for volatile organic analysis (VOA) if VOA samples are collected.

7.3 Laboratory Quality Assurance

The samples designated for analysis by EPA Standard Methods are generally those samples anticipated to contain only low levels of the pollutant analytes of interest. Full protocol according to the established method will be utilized. Analytes will be definitively identified and quantitated. This will include multiple standards, matrix spike and matrix spike duplicates to determine precision and accuracy, and a laboratory blank.

The samples designated for Screening are generally those samples anticipated to contain high levels of the pollutant analytes of interest and require analytical results within a few days. These samples will be analyzed to determine semi-quantitation of high levels of target specific compounds, which will indicate their presence or absence above a threshold value. Identification of target specific compounds is based on a known standard. Protocols for Screening analysis include a one point standard and a laboratory blank.

8.0 DATA VALIDATION

A data quality review of the sample analyses will be conducted by NERL personnel according to *Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan and Data Validation Procedures,* OSWER Directive 9360.4-01, April 1990 - Interim Final, EPA/540/G-90/004 or by NERL intralaboratory data review procedures.

QA1 level screening data will be evaluated for calibration and detection limits, if appropriate.

9.0 REFERENCES

Roy F. Weston, Inc. March 1992. *Technical Assistance Team Sampling Protocols* (Draft). Technical Assistance Team, Burlington, MA.

Roy F. Weston, Inc. May 1993. *Standard Operating Procedures for Preparing Site Sampling Plans for Site Investigations in Region I.* Technical Assistance Team, Burlington, MA.

TRC Companies, Inc. January 1995. *Site Inspection Report, Angelillo Property Site, Southington, Connecticut.*

U.S. Environmental Protection Agency. September 1994. *Region I Removal Program Branch Quality Assurance Project Plan.* New England Regional Laboratory, Lexington, MA.

U.S. Environmental Protection Agency. April 1990. *Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan and Data Validation Procedures* (Interim Final). Office of Emergency and Remedial Response, Washington, D.C. EPA/540/G-901004. OSWER Directive 9360.4-01.

U.S. Environmental Protection Agency. January 1991. *Compendium of ERT Soil Sampling and Surface Geophysics Procedures* (Interim Final). OSWER Directive 9360.4-02.

U.S. Environmental Protection Agency. January 1991. *Compendium of ERT Surface Water and Sediment Sampling Procedures* (Interim Final). Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9360.4-03.

U.S. Environmental Protection Agency. January 1991. *Compendium of ERT Waste Sampling Procedures* (Interim Final). OSWER Directive 9360.4-07.

U.S. Environmental Protection Agency. November 1991. *Removal Program Representative Sampling Guidance, Volume 1: Soil* (Interim Final). OSWER Directive 9360.4-10.

U.S. Geological Survey, 1968. Southington, CT Quadrangle. 7.5 minute series (Topographical) Photorevised 1984.

ATTACHMENT I

CHAIN-OF-CUSTODY DOCUMENTATION

ENVIRONMENTAL PROTECTION AGENCY

REGION 1

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME
	ANGELLILO PROPERTY SOUTHINGTON, CT

SAMPLERS: *(Signature)* Dorothy R. Girten [illegible]

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CON-TAINERS	PCB- REGION I MTHD.	XRF - SCREENING	VOC - SCREENING				REMARKS
001	9.7.95	1425		X	FURTHEST OPEN AREA	2	X	X					04298 1X40ml 1X8oz SOIL
002	9.7.95	1430		X	NEAR DRUMS	2	X	X					62751 1x40ml 1x8oz SOIL
003	9.7.95	1435		X	LARGE OPEN AREA BACK	2	X	X					62752 1x40ml 1x8oz SOIL
004	9.7.95	1440		X	LARGE OPEN AREA RIGHT	2	X	X					65909 1x40ml 1x8oz SOIL
005	9.7.95	1445		X	LARGE OPEN AREA LEFT	2	X	X					65945 1x40ml 1x8oz SOIL
006	9.7.95	1450		X	DRUM	3	X	X	X				81064 3X40ml DRUM

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*

Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)*	Date / Time	Remarks
				RESULTS TO SI GIRTEN

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

1-6914

U.S. ENVIRONMENTAL PROTECTION AGENCY REGION I

LAB CODE № 65945

SOURCE ANGELILLO PROPERTY PERMIT NO —

PROJECT # --1/187

CITY SOUTHINGTON, CT COLLECTOR KEFALAS

STATION # ---065

WEATHER: CLEAR, RAIN, SNOW (CIRCLE ONE)

SAMPLE TYPE: GRAB, ___T___V___

AIR TEMP (°C): < 0°, 0°-10°, 11°-20°, > 21° 90°F

COLLECTION DATE

	YYMMDD START	YYMMDD END
COLLECTION DATE	950907	950907
COLLECTION TIME	1445	1445

SAMPLE LOCATION: SUPPLY WATER, WASTEWATER: RAW, TREATED (Circle One) Other Soil

PARAMETERS (CHECK APPROPRIATE)

							METALS	Tot.	Diss.
Bacti	[ ]	NH3	[ ]	Phenol	[ ]				
BOD	[ ]	NO2+3	[ ]	COD	[ ]		Cd		[ ]
TSS	[ ]	TKN	[ ]	PCB	[X]		Cu		[ ]
Turb	[ ]	T P	[ ]	X-Ray	[ ]		Cr (T)		[ ]
Organics	[ ]	O&G	[ ]	Other			*Cr (+6)		[ ]
VOA's	[ ]	CN	[ ]				Fe		[ ]

FLOW MEASUREMENT
- None [ ]
- Magmeter [ ]
- Venturi [ ]
- Parshall [ ]
- V-Notch [ ]
- Rectangular [ ]
- Other ______

SIZE [ ][ ] Inches/Degrees

Metals (continued): Hg [ ], Mn [ ], Ni [ ], Pb [ ], Sn [ ], Zn [ ], Other XRF

*Unpreserved sample

SAMPLE TEMP (°C) [ ][ ]

pH (SU) [ ][ ].[ ]

TOT Cl_2 (mg/l) [ ][ ][ ]

SETTLEABLE SOLIDS (ml/l) [ ][ ][ ][ ]

FLOW METER TOTALIZER	EPA	SOURCE
START		
END		
MULTIPLIER		

EPA RI-7500-31

U.S. ENVIRONMENTAL PROTECTION AGENCY REGION I

LAB CODE № 81064

PROJECT ANGELILLO PROPERTY STATE SOUTHINGTON, CT

PROJECT # --1/187

COLLECTOR ~~KEFALAS~~ DG GIRTEN

STATION # ---006

FIELD OBSERVATIONS: CLEAR, OVERCAST, RAIN, SNOW, FOG PARTIAL CLOUDS (CIRCLE ONE)

DATE (YYMMDD) 950907

AIR TEMP °C 90°F TIDE: HIGH, EBB, LOW, FLOOD DRUM

COLLECTION TIME 1450

PARAMETERS (CHECK APPROPRIATE)

Bacti	[ ]	NH3	[ ]	COD	[ ]
BOD	[ ]	NO2+3	[ ]	PCB	[X]
TSS	[ ]	TKN	[ ]	X-Ray	[ ]
Turb	[ ]	T-P	[ ]	Other	
Organics	[ ]	O&G	[ ]		
VOA's	[X]				

METALS Total Dissolved

Cd	[ ]	Fe	[ ]	Pb	[ ]
Cu	[ ]	Hg	[ ]	Sn	[ ]
Cr (T)	[ ]	Mn	[ ]	Zn	[ ]
Cr (+6)	[ ]	Ni	[ ]	Other	XRF

*Unpreserved Sample

SAMPLE TEMP °C [ ][ ]

PROBE-D.O. (mg/l) [ ].[ ]

pH - S.U. [ ][ ].[ ]

CONDUCTIVITY (micromhos/cm) [ ][ ].[ ]

SALINITY (0/00) [ ][ ].[ ]

TOTAL DEPTH (ft) [ ][ ]

SAMPLING DEPTH (ft) [ ][ ].[ ]

EPA R-1 7500-30

U.S. ENVIRONMENTAL PROTECTION AGENCY REGION I

SOURCE ANGELILLO PROPERTY PERMIT NO —

CITY SOUTHINGTON, CT COLLECTOR KEFALAS

WEATHER: CLEAR, RAIN, SNOW (CIRCLE ONE)

AIR TEMP (°C): < 0°, 0°-10°, 11°-20°, > 21° 90°F

SAMPLE LOCATION: SUPPLY WATER, WASTEWATER: RAW, TREATED (Circle One) Other SOIL

LAB CODE Nº 62752

PROJECT # - - 1 1 8 7

STATION # - - - 0 0 3

SAMPLE TYPE: GRAB T V

COLLECTION DATE

Y Y M M D D	Y Y M M D D
9 5 0 9 0 7	9 5 0 9 0 7
START	END

COLLECTION TIME

1 4 3 5	1 4 3 5
START	END

PARAMETERS (CHECK APPROPRIATE)

Bacti		NH_3		Phenol	
BOD		NO_2+3		COD	
TSS		TKN		PCB	X
Turb		T P		X-Ray	
Organics		O&G		Other	
VOA's		CN			

METALS

Tot.	Diss.
Cd	
Cu	
Cr (T)	
*Cr (+6)	
Fe	
Hg	
Mn	
Ni	
Pb	
Sn	
Zn	
Other XRF	

*Unpreserved sample

FLOW MEASUREMENT

None
Magmeter
Venturi
Parshall
V-Notch
Rectangular
Other

SIZE

Inches/Degrees

SAMPLE TEMP (°C)

pH (SU) .

TOT Cl_2 (mg/l)

SETTLEABLE SOLIDS (ml/l)

FLOW METER TOTALIZER	EPA	SOURCE
START		
END		
MULTIPLIER		

EPA RI-7500-31

U.S. ENVIRONMENTAL PROTECTION AGENCY REGION I

SOURCE ANGELILLO PROPERTY PERMIT NO —

CITY SOUTHINGTON, CT COLLECTOR KEFALAS

WEATHER: CLEAR, RAIN, SNOW (CIRCLE ONE)

AIR TEMP (°C): < 0°, 0°-10°, 11°-20°, > 21° 90°F

SAMPLE LOCATION: SUPPLY WATER, WASTEWATER: RAW, TREATED (Circle One) Other SOIL

LAB CODE Nº 65909

PROJECT # - - 1 1 8 7

STATION # - - - 0 0 4

SAMPLE TYPE: GRAB T V

COLLECTION DATE

Y Y M M D D	Y Y M M D D
9 5 0 9 0 7	9 5 0 9 0 7
START	END

COLLECTION TIME

1 4 4 0	1 4 4 0
START	END

PARAMETERS (CHECK APPROPRIATE)

Bacti		NH_3		Phenol	
BOD		NO_2+3		COD	
TSS		TKN		PCB	X
Turb		T P		X-Ray	
Organics		O&G		Other	
VOA's		CN			

METALS

Tot.	Diss.
Cd	
Cu	
Cr (T)	
*Cr (+6)	
Fe	
Hg	
Mn	
Ni	
Pb	
Sn	
Zn	
Other XRF	

*Unpreserved sample

FLOW MEASUREMENT

None
Magmeter
Venturi
Parshall
V-Notch
Rectangular
Other

SIZE

Inches/Degrees

SAMPLE TEMP (°C)

pH (SU) .

TOT Cl_2 (mg/l)

SETTLEABLE SOLIDS (ml/l)

FLOW METER TOTALIZER	EPA	SOURCE
START		
END		
MULTIPLIER		

EPA RI-7500-31

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION I

PROJECT ANGELLO PROPERTY STATE SOUTHINGTON, CT

COLLECTOR KEFALAS

FIELD OBSERVATIONS: CLEAR, OVERCAST, RAIN, SNOW, FOG
PARTIAL CLOUDS (CIRCLE ONE)

AIR TEMP °C 90F TIDE: HIGH, EBB, LOW, FLOOD SOIL

PARAMETERS (CHECK APPROPRIATE)

Bacti	☐	NH_3	☐	COD	☐
BOD	☐	NO_{2+3}	☐	PCB	☒
TSS	☐	TKN	☐	X-Ray	☐
Turb	☐	T-P	☐	Other	
Organics	☐	O&G	☐		
VOA's	☐				

METALS

	Total		Dissolved	
Cd	☐	Fe	☐	Pb ☐
Cu	☐	Hg	☐	Sn ☐
Cr (T)	☐	Mn	☐	Zn ☐
Cr (+6)	☐	Ni	☐	Other XRF

EPA R-1 7500-30

*Unpreserved Sample

LAB CODE Nº 04298

PROJECT # - - 1 1 8 7

STATION # - - - 0 0 1

Y Y M M D D

DATE 9 5 0 9 0 7

COLLECTION TIME 1 4 2 5

SAMPLE TEMP °C ☐☐

PROBE-D.O. (mg/l) ☐.☐

pH - S.U. ☐☐.☐

CONDUCTIVITY (micromhos/cm) ☐☐.☐

SALINITY (0/00) ☐☐.☐

TOTAL DEPTH (ft) ☐☐

SAMPLING DEPTH (ft) ☐☐.☐

U.S. ENVIRONMENTAL PROTECTION AGENCY REGION I

SOURCE ANGELLO PROPERTY PERMIT NO SOUTHINGTON, CT

CITY — COLLECTOR KEFALAS

WEATHER: CLEAR, RAIN, SNOW (CIRCLE ONE)

AIR TEMP (°C): < 0°, 0°-10°, 11°-20°, > 21° 90°F

SAMPLE LOCATION: SUPPLY WATER, WASTEWATER: RAW, TREATED
(Circle One) Other SOIL

PARAMETERS (CHECK APPROPRIATE)

Bacti	☐	NH_3	☐	Phenol	☐
BOD	☐	NO_{2+3}	☐	COD	☐
TSS	☐	TKN	☐	PCB	☒
Turb	☐	T P	☐	X-Ray	☐
Organics	☐	O&G	☐	Other	
VOA's	☐	CN	☐		

FLOW MEASUREMENT

None	☐
Magmeter	☐
Venturi	☐
Parshall	☐
V-Notch	☐
Rectangular	☐
Other	

SIZE ☐☐ Inches/Degrees

METALS

	Tot.	Diss.
Cd	☐	☐
Cu	☐	☐
Cr (T)	☐	☐
*Cr (+6)	☐	☐
Fe	☐	☐
Hg	☐	☐
Mn	☐	☐
Ni	☐	☐
Pb	☐	☐
Sn	☐	☐
Zn	☐	☐
Other XRF	☐	☐

*Unpreserved sample

EPA RI-7500-31

LAB CODE Nº 62751

PROJECT # - - 1 1 8 7

STATION # - - - 0 0 2

SAMPLE TYPE: GRAB, ___T ___V

COLLECTION DATE

Y Y M M D D	Y Y M M D D
9 5 0 9 0 7	9 5 0 9 0 7
START	END

COLLECTION TIME

1 4 3 0	1 4 3 0
START	END

SAMPLE TEMP (°C) ☐☐

pH (SU) ☐.☐

TOT Cl_2 (mg/l) ☐☐☐

SETTLEABLE SOLIDS (ml/l) ☐☐☐☐

FLOW METER TOTALIZER	EPA	SOURCE
START		
END		
MULTIPLIER		

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

CHAIN OF CUSTODY RECORD

REGION
JFK Federal Building, Rm. 2203
Boston, Massachusetts 02203

PROJ. NO.	PROJECT NAME
96015	ANGELINO PROPERTY SOUTHINGTON, CT

SAMPLERS: (Signature) Joseph Ren / Paula Kolada

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	PCN	PUB/PEST	METALS	BNA	XRF (SCREENING)	REMARKS
01	10/31/95	1230		✓	PRODUCT	2	✓	✓		✓		05582 2x40z.
02		1405		✓	SURFACE SOIL	2		✓	✓			05583 1x40z, 1x40ml
03		1411		✓		2		✓	✓			05584 1x40z, 1x40ml
04		1413		✓		2		✓	✓			05585 1x40z, 1x40ml
05		1415		✓		2		✓	✓			05586 1x40z, 1x40ml
06		1420		✓		2		✓	✓			05587 1x40z, 1x40ml
07	↓	1430		✓		2		✓	✓			05588 1x40z, 1x40ml

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Robert Kolada	11/1/95 11:25				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		Kathy Juck	11/1/95 11:25AM	QSC: GARDNER	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

1-4782

COLLECTOR PESCA / KEFALAS

FIELD OBSERVATIONS: CLEAR, OVERCAST, RAIN, SNOW, FOG
PARTIAL CLOUDS (CIRCLE ONE)

AIR TEMP °C TIDE: HIGH, EBB, LOW, FLOOD

PARAMETERS (CHECK APPROPRIATE)

Bacti	☐	NH_3	☐	COD	☐
BOD	☐	NO_{2+3}	☐	PCB	☒ PEST
TSS	☐	TKN	☐	X-Ray	☐
Turb	☐	T-P	☐	Other	PCN
Organics	☐	O&G	☐		BNA
VOA's	☐				

METALS		Total		Dissolved	
Cd	☐	Fe	☐	Pb	☐
Cu	☐	Hg	☐	Sn	☐
Cr (T)	☐	Mn	☐	Zn	☐
Cr (+6)	☐	Ni	☐	Other	

EPA R-1 7500-30 *Unpreserved Sample

STATION # 001

DATE (Y Y M M D D) 951031

COLLECTION TIME 1230

SAMPLE TEMP °C

PROBE-D.O. (mg/l)

pH - S.U.

CONDUCTIVITY (micromhos/cm)

SALINITY (0/00)

TOTAL DEPTH (ft)

SAMPLING DEPTH (ft)

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION I

PROJECT ANGELICO STATE CT

COLLECTOR PESCA / KEFALAS

FIELD OBSERVATIONS: CLEAR, OVERCAST, RAIN, SNOW, FOG
PARTIAL CLOUDS (CIRCLE ONE)

AIR TEMP °C TIDE: HIGH, EBB, LOW, FLOOD

PARAMETERS (CHECK APPROPRIATE)

Bacti	☐	NH_3	☐	COD	☐
BOD	☐	NO_{2+3}	☐	PCB	☒ PEST
TSS	☐	TKN	☐	X-Ray	☐
Turb	☐	T-P	☐	Other	
Organics	☐	O&G	☐		
VOA's	☐				

METALS		Total		Dissolved	
Cd	☐	Fe	☐	Pb	☐
Cu	☐	Hg	☐	Sn	☐
Cr (T)	☐	Mn	☐	Zn	☐
Cr (+6)	☐	Ni	☐	Other	

EPA R-1 7500-30 *Unpreserved Sample

LAB CODE Nº 05583

PROJECT # 1240

STATION # 002

DATE (Y Y M M D D) 951031

COLLECTION TIME 1905

SAMPLE TEMP °C

PROBE-D.O. (mg/l)

pH - S.U.

CONDUCTIVITY (micromhos/cm)

SALINITY (0/00)

TOTAL DEPTH (ft)

SAMPLING DEPTH (ft)

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION I

PROJECT ANGELICO STATE CT

COLLECTOR RESCA / KEFALAS

FIELD OBSERVATIONS: CLEAR, OVERCAST, RAIN, SNOW, FOG
PARTIAL CLOUDS (CIRCLE ONE)

AIR TEMP °C TIDE: HIGH, EBB, LOW, FLOOD

PARAMETERS (CHECK APPROPRIATE)

Bacti	☐	NH_3	☐	COD	☐
BOD	☐	NO_{2+3}	☐	PCB	☒ PEST
TSS	☐	TKN	☐	X-Ray	☐
Turb	☐	T-P	☐	Other	____
Organics	☐	O&G	☐		
VOA's	☐				

METALS	Total		Dissolved	
Cd	☐	Fe	☐	Pb ☐
Cu	☐	Hg	☐	Sn ☐
Cr (T)	☐	Mn	☐	Zn ☐
Cr (+6)	☐	Ni	☐	Other ____

EPA R-1 7500-30

*Unpreserved Sample

LAB CODE Nº 05585

PROJECT # 1240

STATION # 009

Y Y M M D D

DATE 95/03/1

COLLECTION TIME 1413

SAMPLE TEMP °C ☐☐

PROBE-D.O. (mg/l) ☐.☐

pH - S.U. ☐☐.☐

CONDUCTIVITY (micromhos/cm) ☐☐.☐

SALINITY (0/00) ☐☐.☐

TOTAL DEPTH (ft) ☐☐

SAMPLING DEPTH (ft) ☐☐.☐

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION I

PROJECT ANGELICO STATE CT

COLLECTOR RESCA / KEFALAS

FIELD OBSERVATIONS: CLEAR, OVERCAST, RAIN, SNOW, FOG
PARTIAL CLOUDS (CIRCLE ONE)

AIR TEMP °C TIDE: HIGH, EBB, LOW, FLOOD

PARAMETERS (CHECK APPROPRIATE)

Bacti	☐	NH_3	☐	COD	☐
BOD	☐	NO_{2+3}	☐	PCB	☒ PEST
TSS	☐	TKN	☐	X-Ray	☐
Turb	☐	T-P	☐	Other	____
Organics	☐	O&G	☐		
VOA's	☐				

METALS	Total		Dissolved	
Cd	☐	Fe	☐	Pb ☐
Cu	☐	Hg	☐	Sn ☐
Cr (T)	☐	Mn	☐	Zn ☐
Cr (+6)	☐	Ni	☐	Other ____

EPA R-1 7500-30

*Unpreserved Sample

LAB CODE Nº 05584

PROJECT # 1240

STATION # 003

Y Y M M D D

DATE 95/03/1

COLLECTION TIME 1411

SAMPLE TEMP °C ☐☐

PROBE-D.O. (mg/l) ☐.☐

pH - S.U. ☐☐.☐

CONDUCTIVITY (micromhos/cm) ☐☐.☐

SALINITY (0/00) ☐☐.☐

TOTAL DEPTH (ft) ☐☐

SAMPLING DEPTH (ft) ☐☐.☐

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION I

LAB CODE № 05587

PROJECT Angelilo STATE CT

COLLECTOR Pesca / Keteacas

PROJECT # 1270

STATION # 006

FIELD OBSERVATIONS: CLEAR, OVERCAST, RAIN, SNOW, FOG
PARTIAL CLOUDS (CIRCLE ONE)

YYMMDD

DATE 950301

AIR TEMP °C TIDE: HIGH, EBB, LOW, FLOOD

COLLECTION TIME 1420

PARAMETERS (CHECK APPROPRIATE)

SAMPLE TEMP °C

Bacti	☐	NH3	☐	COD	☐
BOD	☐	NO2+3	☐	PCB	☒ Pest
TSS	☐	TKN	☐	X-Ray	☐
Turb	☐	T-P	☐	Other	
Organics	☐	O&G	☐		
VOA's	☐				

PROBE-D.O. (mg/l) ☐.☐

pH - S.U. ☐☐.☐

CONDUCTIVITY (micromhos/cm) ☐☐.☐

METALS Total Dissolved

Cd	☐	Fe	☐	Pb	☐
Cu	☐	Hg	☐	Sn	☐
Cr (T)	☐	Mn	☐	Zn	☐
*Cr (+6)	☐	Ni	☐	Other	

SALINITY (0/00) ☐☐.☐

TOTAL DEPTH (ft) ☐☐

SAMPLING DEPTH (ft) ☐☐.☐

EPA R-1 7500-30

*Unpreserved Sample

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION I

LAB CODE № 05586

PROJECT Angelilo STATE CT

COLLECTOR Pesca / Ketealac

PROJECT # 1240

STATION # 005

FIELD OBSERVATIONS: CLEAR, OVERCAST, RAIN, SNOW, FOG
PARTIAL CLOUDS (CIRCLE ONE)

YYMMDD

DATE 950301

AIR TEMP °C TIDE: HIGH, EBB, LOW, FLOOD

COLLECTION TIME 1415

PARAMETERS (CHECK APPROPRIATE)

SAMPLE TEMP °C

Bacti	☐	NH3	☐	COD	☐
BOD	☐	NO2+3	☐	PCB	☒ Pest
TSS	☐	TKN	☐	X-Ray	☐
Turb	☐	T-P	☐	Other	
Organics	☐	O&G	☐		
VOA's	☐				

PROBE-D.O. (mg/l) ☐.☐

pH - S.U. ☐☐.☐

CONDUCTIVITY (micromhos/cm) ☐☐.☐

METALS Total Dissolved

Cd	☐	Fe	☐	Pb	☐
Cu	☐	Hg	☐	Sn	☐
Cr (T)	☐	Mn	☐	Zn	☐
*Cr (+6)	☐	Ni	☐	Other	

SALINITY (0/00) ☐☐.☐

TOTAL DEPTH (ft) ☐☐

SAMPLING DEPTH (ft) ☐☐.☐

EPA R-1 7500-30

*Unpreserved Sample

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION I

PROJECT ANSONIA STATE CT

COLLECTOR ROSCA/KEFALAS

FIELD OBSERVATIONS: CLEAR, OVERCAST, RAIN, SNOW, FOG
PARTIAL CLOUDS (CIRCLE ONE)

AIR TEMP °C TIDE: HIGH, EBB, LOW, FLOOD

PARAMETERS (CHECK APPROPRIATE)

Bacti	☐	NH_3	☐	COD	☐
BOD	☐	NO_{2+3}	☐	PCB	☒ REST
TSS	☐	TKN	☐	X-Ray	☐
Turb	☐	T-P	☐	Other ____	
Organics	☐	O&G	☐		
VOA's	☐				

METALS		Total		Dissolved	
Cd	☐	Fe	☐	Pb	☐
Cu	☐	Hg	☐	Sn	☐
Cr (T)	☐	Mn	☐	Zn	☐
*Cr (+6)	☐	Ni	☐	Other ____	

EPA R-1 7500-30

*Unpreserved Sample

LAB CODE Nº 05588

PROJECT # 11240

STATION # 007

Y Y M M D D

DATE 910130

COLLECTION TIME 1430

SAMPLE TEMP °C ☐☐

PROBE-D.O. (mg/l) ☐.☐

pH - S.U. ☐☐.☐

CONDUCTIVITY (micromhos/cm) ☐☐.☐

SALINITY (0/00) ☐☐.☐

TOTAL DEPTH (ft) ☐☐

SAMPLING DEPTH (ft) ☐☐.☐

ATTACHMENT II

MODIFICATIONS TO THE SAMPLING QUALITY ASSURANCE/ QUALITY CONTROL PLAN PRACTICES

The following modification to this sampling quality assurance/quality control plan was made during the initial sampling survey conducted on September 7, 1995.

One drum sample was collected by SI Girten for PCB standard method analysis as well as metals and VOC screening analyses which was performed at EPA NERL.

The following modification to this sampling quality assurance/quality control plan were required to incorporate the additional tasks which will be performed during the second sampling survey scheduled to be conducted on October 30 and 31, 1995.

5.3 Soil Vapor Survey

A soil vapor survey will be conducted to determine the presence of subsurface volatile organic compounds (VOCs) using the AMS Retract-A-tip and Gas Vapor Probe System. Sample points will be located around the perimeter of anomalous areas identified during a previous subsurface geophysical survey which incorporated the use of a Geonics Limited EM31-D non-contacting terrain conductivity meter (EM31-D) and a EG&G Geometrics Proton Precession Portable Magnetometer. The subsurface survey was performed at the site on 7 September 1995 by Region I START personnel.

At each sample point, 5/8-inch outside diameter (O.D.) solid extensions with a lead tile tip will be advanced using a manual piston slam bar and/or power hammer to approximately 48 to 56 inches below the surface of the ground. After the extensions and probe is advanced, they will be carefully withdrawn to prevent the collapse of the created hole walls. A modified manual jack may be used to extract the solid extensions and probe if needed. Hollow 5/8 inch O.D. stainless steel soil vapor extensions equipped with teflon tubing inside connected to the AMS Retract-A-Tip screened adapter will then be inserted to the full depth of the hole. The extensions are then retracted approximately two to three inches to expose the screen portion of the tip adapter. The top of the sample hole should then be sealed at the surface to prevent ambient air infiltration by using modeling clay and/or native soil molded around the extensions.

The bore volume of the extension will be evacuated prior to sample collection. A Gillian pump adjusted to a rate of approximately 3 liters/minute (l/m) will be connected to the teflon tubing which runs form the screened tip adapter through the hollow extensions. The pump is then turned on and the soil vapors are allowed to evacuate through the tubing for fifteen seconds. After evacuation, the soil pore space shall be monitored for the presence of organic vapors by attaching the teflon tubing to a photoionization detector (PID). At sample points which indicate PID readings above ambient background levels, soil vapor samples will be collected using the Gillian pump to draw the vapors into a 0.5 or one liter Tedlar sample bag. Samples will then be analyzed on-site for the presence of VOCs on a portable Photovac Gas Chromatograph (GC)

Soil gas probe contamination will be checked between each sample point by drawing ambient air through the extracted extension probe and tubing via the Gillian pump and checking the response with the PID.

If PID readings are higher than ambient air background levels, replacement or decontamination of the teflon tubing, retract-a-tip, and/or probe extensions maybe required. The tubing and extract-a-tip can be decontaminated by drawing ambient air through the items using the Gillian pump until the PID reading is equal to or below background levels. Persistent contamination shall be removed by decontaminating the retract-a-tip, and probe extensions if needed, using a methanol wash, deionized water, followed by air drying.

The teflon tubing will be changed and/or replace immediately if visible contamination is drawn into the extension probes. When sampling highly contaminated areas, the tubing shall be purged with ambient air for approximately thirty seconds between each sample. After purging, the tubing will then be check using the PID to establish the cleanliness of the tubing.

5.4 Photovac Gas Chromatograph Screening Analysis

The Photovac Gas Chromatograph (GC) screening analysis will be performed with the GC set up at a fixed location to increase the number of samples that can be analyzed, to provide more consistent screening results, to provide more accurate and timely QA analysis and to reduce the wear and tear on the GC caused during field screening.

The following procedures will be used: *Standard Operating Procedures for 10S Series Photovac Portable Gas Chromatography Instruments*. Roy F. Weston, Inc. Technical Assistance Team, Burlington, MA. May 1992.

5.5 Collection of Excavation Soil Samples

Soil samples will be collected from the perimeter, walls and the floor of the excavation for Region I Method Polychlorinated biphenyls (PCB)/Pesticides and VOCs analyses as well as metals screening analysis to be conducted at the EPA New England Region Laboratory (NERL). The samples will be containerized, preserved, and analyzed in accordance with Table 2. Samples collected from within the excavation (walls and floor) will be done so using remote sampling equipment. At no time will personnel be allowed to enter the excavation. The number of perimeter, wall and floor samples to be collected will be determined by the OSC. A progressive approach should be used to prevent the collection of samples from areas which have been previously been identified as containing contaminated material.

To increase data reliability and reproducibility, it is desirable to manually homogenize the soil sample area prior to sample collection (except when collecting samples for VOC analysis). A dedicated sampling spatula will be used to collect the sample material and place it into the appropriate, prelabeled sample container (preferably a wide-mouth container). Dedicated spatulas are used to prevent the possibility of cross-contamination between sample stations as well as eliminating the need for any decontamination procedures. The container cap will then be secured and the sample will be preserved by immediately placing the container in a cooler with ice.

Sample containers will be placed in separate resealable plastic bags after the sample is collected to avoid cross contamination.

TABLE 2
ANGELILLO PROPERTY SITE, SOUTHINGTON, CT
SAMPLING SUMMARY, ANALYTICAL METHODS, AND QA/QC SAMPLES
30 AND 31 OCTOBER 1995

MATRIX	*SUBTOTAL #SAMPLES*	*ANALYTICAL PARAMETER*	*VOLUME*	*CONTAINER*	*PRESERVATIVE*	*METHOD*	*QA/QC SAMPLES (type, volume, container)*	*TOTAL # SAMPLES*
Soil	6	PCB/Pest	40 ml	Glass vial	Ice to 4°C	Region I Method	No additional volume required	6
Soil	6	Metals	2 oz	4 oz glass jar (half full)	Ice to 4°C	Screening	No additional volume required	6
Soil	6	VOC	40 ml	Glass vial	Ice to 4°C	Region I Method	1 trip blank – 3 x 40 ml glass vials *	7
Drum	6	PCB/Pest	40 ml	Glass vial	Ice to 4°C	Region I Method	No additional volume required	6
Drum	6	VOC	40 ml	Glass vial	Ice to 4°C	Region I Method	1 trip blank – 3 x 40 ml glass vials *	6

oz – onces
PCB/Pest – Polychlorinated biphenyls/Pesticides
VOC – Volatile organic compound
ml – milliliter
* – Only one set of trip blanks will be required.

- VOC Sampling: The proper collection of a sample for VOC analysis requires minimal disturbance of the sample and minimal headspace in the sample container to minimize volatilization and prevent loss of volatiles from the sample. Samples collected for VOC analysis will **not** be homogenized due to the potential loss of the target compounds. Soil will be placed directly into the appropriate sample container. The sample container will be filled completely and the soil packed well to minimize air space in the container. The cap will be secured tightly and the sample will be preserved by immediately placing the container in a cooler with ice.

  One trip blank sample consisting of three 40-ml VOC vials of organic-free water will be collected from NERL prior to sampling. The vials used for the trip blank sample will be from the same lot as the corresponding sample vials. Each bottle of the trip blank sample will be preserved with hydrochloric acid (HCl) to pH < 2 and handled in the same fashion as the samples collected in the field. The trip blank sample will be transported to the field with the empty vials and returned to the laboratory in the same cooler as the samples.

- PCB/Pesticides Sampling: Soil samples will be collected using a dedicated sampling spatula as described above and placed directly into the appropriate labelled containers. The sample will then be preserved by placing the sample container in a cooler with ice.

- Metals Sampling: Soil samples will be collected using a dedicated sampling spatula as described above and placed directly into the appropriate labelled containers. The sample will then be preserved by placing the sample container in a cooler with ice.

5.6 Drum Sampling

Drums will be sampled after monitoring for potential radiation, organic vapors and combustible gases in the vicinity. Drum samples will be collected for Region I Method PCB/Pesticides and VOCs analyses to be conducted NERL. The samples will be containerized, preserved, and analyzed in accordance with Table 2. The number of samples and the drums to be sampled will be determined by the OSC. Drums will be visually inspected for signs of leakage, rust and corrosion deterioration, bulging and markings which may help determine the contents of the drum. Drums deemed unsafe based upon the inspection will not be sampled. If it is decided that drum sampling will proceed and access to the drum(s) is not restricted, the drums will be opened with a non-sparking bung wrench.

After the drum has been opened and the head space gases monitored for combustible gases and organic vapors, a dedicated glass sample rod (drum thief) will be used to collect the sample. The sample rod will be inserted into the drum and the drums contents allowed to fill the sample rod. The sample rod will then be removed from the drum and the contents of the sample rod will be transferred to an appropriate, prelabeled sample container. Samples will be preserved by immediately placing containers in a cooler with ice. If the drum contains sludge or a sludge layer, the drum waste may form a plug in the bottom of the sample rod. The plug can be gently removed and placed into the sample container by the use of a stainless steel lab spoon/spatula.

If the drum contains solids only, samples may be taken with a dedicated sampling spatula. The spatula will be used to retrieve the sample from the container and then transferred the material into the appropriate sample container.

Sample containers will be placed in separate resealable plastic bags after the sample is collected to avoid cross contamination.

- VOC Sampling: The proper collection of a sample for VOC analysis requires minimal disturbance of the sample and minimal headspace (only fill the sample container 2/3 full when collecting suspected VOCs) in the sample container to minimize volatilization and prevent loss of volatiles from the sample. Liquid samples will be collected using a dedicated glass sampling rod as described above and placed into the appropriate size container. The samples will then be preserved by placing the sample container in a cooler with ice. Solid samples will be collected using a dedicated sampling spatula, placed into the appropriate size sample container, and preserved by placing the sample in a cooler with ice.

- PCB/Pesticide Sampling: Liquid samples will be collected using a dedicated glass sample rod as described above and placed into the appropriate size sample container. The samples will then be preserved by placing the sample container in a cooler with ice. Solid samples will be collected using dedicated sampling spatula, placed into the appropriate size sample containers, and preserved by placing the sample container in a cooler with ice

Glass sample rods must be disposed of in a proper fashion. Glass sample rods will be disposed of in the following manner: wipe any residual material from the exterior of the rod with an absorbent pad or paper towel, wrap the rod in 4-mil polyethylene and secure the entire package with duct tape. The package will then be labeled to indicate the site name, date, and START member(s) name. The package shall then be transported to the EPA New England Region Laboratory (NERL) for disposal by the NERL Hazardous Waste Manager. Dedicated plastic spatulas will be place into a polyethylene bag along with any personal protective equipment to be disposed. These materials will then be transported to EPA NERL for proper disposal by the Hazardous Waste Manager.

6.0. PROJECT ORGANIZATION AND RESPONSIBILITIES

U.S. EPA EPRB:

Frank Gardner	On Site Coordinator

START Members:

Joseph Resca	Sample Collection and Documentation
Robert Kefalas	Quality Control Monitor/Sample Collection and Documentation

Daniel Keefe Photovac Gas Chromatograph Operator

The Quality Control Monitor will record quality assurance checks, any problems and corrective actions taken associated with the sampling and sampling plan. The Quality Control Monitor will also be responsible for completeness and accuracy of the chain-of-custody record.

7.1 Screening Quality Assurance

QA2 level field screening will be conducted on site utilizing the following QA2 level requirements:

- Sample documentation.
- Sample collection and analysis dates.
- Initial and continuing instrument calibration data.
- Blanks.
- A minimum of 10% of the samples screened in the field will be verified by an EPA-approved method different from the screening method.
- A performance evaluation sample.
- Determination of the detection limit, if appropriate.

APPENDIX E

EM31-D/Magnetometer Survey Documentation

MEMORANDUM

TO: Angelillo Property Site File

FROM: Robert Kefalas, Roy F. Weston, Superfund Technical Assessment and Response Team.

DATE: October 12, 1995

SUBJECT: Subsurface Geophysical Survey Results Memorandum
TDD No. 95-08-1016, PCS No. 1190, DC No. R-207

On September 7, 1995, at the request of U.S. Environmental Protection Agency (EPA) Site Investigator (SI) Dorothy Girten, Roy F. Weston, Inc., Superfund Technical Assessment and Response Team (START) members Robert Kefalas and David Gorden conducted a geophysical survey at the Angellilo Property Site (the Site) located at 650 Old Turnpike Road in Southington, Hartford County, Connecticut.

The survey incorporated the use of the Geonics Limited EM31-D non-contacting terrain conductivity meter (EM31-D) and a EG&G Geometrics Proton Precession Portable Magnetometer. The EM31-D identified areas of potential subsurface anomalies by identifying variations (negative meter reflections) in conductivity. After conducting functional tests which indicated that the EM31-D was working properly, the survey team began their geophysical investigation. Seven anomalous areas were identified within the site boundaries by traversing the site five times in a northern-southern direction, and five times in a eastern-western direction. The anomalous areas are depicted in Figure 1 - EM31-D & Magnetometer Survey Diagram. The Site, an abandoned landfill, contained many possible EM31-D surface interferences including automotive parts, scrap metal, 55-gallon drums, and monitoring well casings which extended below the ground surface.

A magnetometer survey was conducted in the anomalous areas identified with the EM31-D. A Geometric G-856 Proton Precision Magnetometer was used for the magnetometer survey. This instrument allows discrete measurements of the total magnetic field strength in units of gammas. The presence of any buried steel drums will result in anomalous (positive or negative) deviations from the earth's magnetic field. Small discrete objects (e.g. drums) at hazardous waste sites typically have anomalies ranging from one to several hundred gammas. Massive concentrations of buried drums or other large metal objects will produce anomalies ranging from 100 to over 1,000 gammas (Benson et al., 1982).

Benson, R.C., Glaccum, R.A., and Noel, M.R., 1982, *Geophysical Techniques for Sensing Buried Wastes and Waste Migration*, prepared by TECHNOS, Inc. for the Environmental Monitoring Systems Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Las Vegas, Nevada.

The G-856 magnetometer is sensitive to one gamma; however, its response may be affected by diurnal variations in the earth's magnetic field, spatial variations caused by magnetic minerals in the soil or bedrock, geologic structures, and manmade structures.

Prior to conducting the magnetic survey, the instrument was tuned. Background readings were obtained and an average of 54,147 gamma were calculated. Readings were taken in areas adjacent to metal objects on the surface and in areas which appeared to be free of any ferrous metal objects in order to check the instrument's response. The instrument was also tested for repeatability in these areas.

The magnetometer was operated in the survey mode and readings were taken at random points in previously identified anomalous areas. Repeatability of the instrument was also checked at some stations to ensure the instrument was operating properly. Repeatability was checked by taking consecutive readings at a sample point without moving the sensor head. Readings obtained by repeatability differed by a few tens of gammas.

The magnetometer data (see Table 1 - Magnetometer Survey Data) was then compiled and evaluated. Positive and negative anomalies were identified with the magnetometer in the anomalous areas previously identified with the EM31-D. Magnetometer readings at the site ranged from 50,851 to 55,988 gammas. Table 1 shows the difference, above or below, between the background readings and readings obtained at the anomalies.

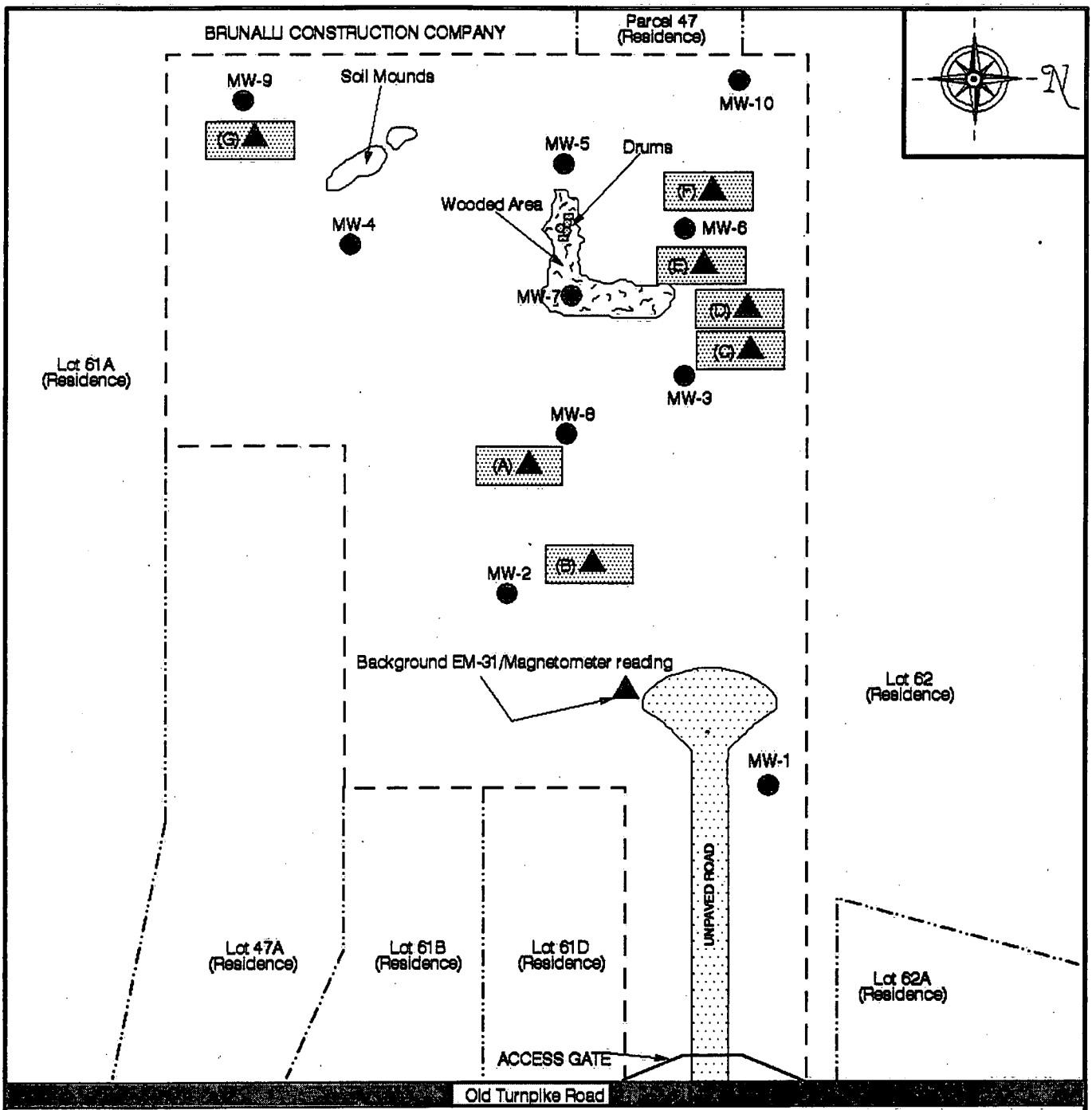
Based on these results, it appears that buried metallic objects may possibly exist in the subsurface at the site.

TABLE 1
Magnetometer Survey Data
Angelillo Property Site
Southington, Connecticut
Sepember 7, 1995

STATION	STATION READINGS *	DIFFERENCE **	NOTES
A	50,851	(–) 3,296	
B	52,382	(–) 1,765	Reading taken 2.5 feet west of station B.
B	52,744	(–) 1,403	Reading taken 2.5 feet east of station B.
C	53,741	(–) 406	
D	54,304	157	Reading taken 2 feet west of station D.
D	53,706	(–) 441	Reading taken 2 feet east of station D.
E	55,968	1,821	Repeatability test.
E	55,988	1,841	Repeatability test.
E	55,923	1,776	Repeatability test.
F	54,832	685	
G	54,916	769	

* = Units are reported in Gammas.

** = Difference between background (54,147) and station readings as reported in Gammas.



NOT TO SCALE

FIGURE 1

EM31-D & MAGNETOMETER SURVEY DIAGRAM
ANGELILLO PROPERTY
SOUTHINGTON, CONNECTICUT

WESTON® MANAGERS DESIGNERS/CONSULTANTS
SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM

DRAWN BY	DATE	PCS #
Kafalas	10/95	1187
APPROVED BY	DATE 10/95	TDD # 95-08-1016

APPENDIX F

Photodocumentation Log

PHOTOGRAPHY LOG SHEET
Angelillo Property Site • Southington, Connecticut

SCENE: View of potentially contaminated soil located in the southern portion of the site.
FRAME NUMBER: 0 **DATE:** September 7, 1995 **TIME:** 1334 **SKY CONDITION:** Clear
PHOTO BY: D. Girten **WITNESS(ES):** R. Kefalas and D. Gorden
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 46030

SCENE: View of potentially contaminant soil located in the southern portion of the site.
FRAME NUMBER: 1 **DATE:** September 7, 1995 **TIME:** 1334 **SKY CONDITION:** Clear
PHOTO BY: D. Girten **WITNESS(ES):** R. Kefalas and D. Gorden
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 46030

PHOTOGRAPHY LOG SHEET
Angelillo Property Site • Southington, Connecticut

SCENE: View of potentially contaminated soil located in the southern portion of the site.
FRAME NUMBER: 2 **DATE:** September 7, 1995 **TIME:** 1335 **SKY CONDITION:** Clear
PHOTO BY: D. Girten **WITNESS(ES):** R. Kefalas and D. Gorden
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 46030

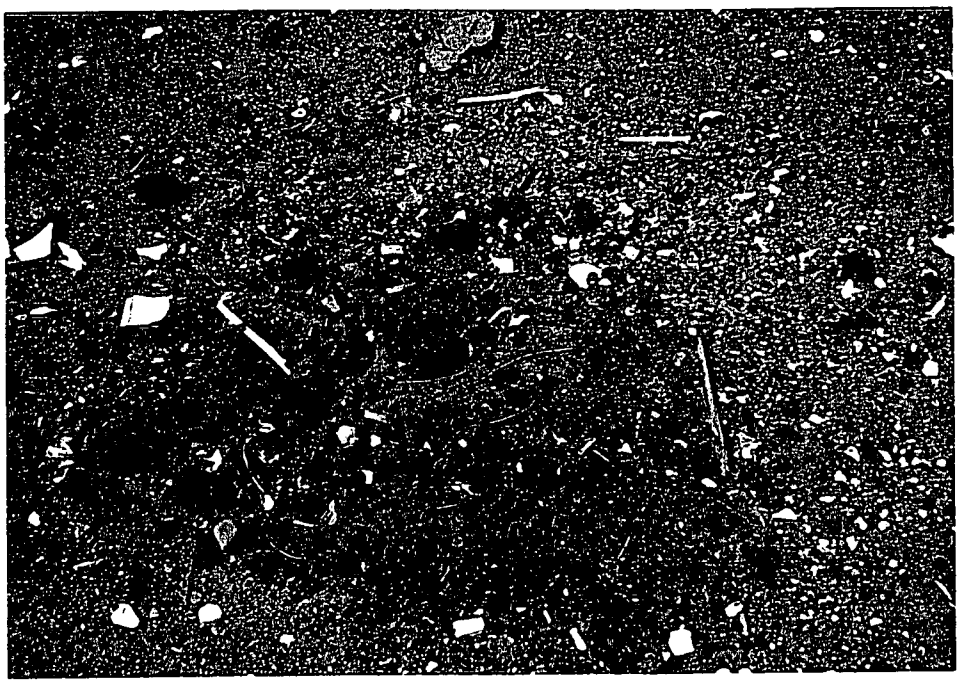
SCENE: View of potentially contaminated soil located in the southwest portion of the site.
FRAME NUMBER: 3 **DATE:** September 7, 1995 **TIME:** 1336 **SKY CONDITION:** Clear
PHOTO BY: D. Girten **WITNESS(ES):** R. Kefalas and D. Gorden
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 46030

PHOTOGRAPHY LOG SHEET
Angelillo Property Site • Southington, Connecticut

SCENE: View of the northern portion of the site.
FRAME NUMBER: 4 **DATE:** September 7, 1995 **TIME:** 1335 **SKY CONDITION:** Clear
PHOTO BY: D. Girten **WITNESS(ES):** R. Kefalas and D. Gorden
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 46030

SCENE: View of the northeast portion of the site.
FRAME NUMBER: 5 **DATE:** September 7, 1995 **TIME:** 1335 **SKY CONDITION:** Clear
PHOTO BY: D. Girten **WITNESS(ES):** R. Kefalas and D. Gorden
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 46030

PHOTOGRAPHY LOG SHEET
Angelillo Property Site • Southington, Connecticut



SCENE: View of potentially contaminated soil near monitoring well No. 8.
FRAME NUMBER: 6 **DATE:** September 7, 1995 **TIME:** 1336 **SKY CONDITION:** Clear
PHOTO BY: D. Girten **WITNESS(ES):** R. Kefalas and D. Gorden
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 46030

SCENE: View of debris located between monitoring well No. 3 and No. 8.
FRAME NUMBER: 7 **DATE:** September 7, 1995 **TIME:** 1336 **SKY CONDITION:** Clear
PHOTO BY: D. Girten **WITNESS(ES):** R. Kefalas and D. Gorden
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 46030

PHOTOGRAPHY LOG SHEET
Angelillo Property Site • Southington, Connecticut

SCENE: View of debris located between monitoring well No. 8 and No. 3.
FRAME NUMBER: 8 **DATE:** September 7, 1995 **TIME:** 1336 **SKY CONDITION:** Clear
PHOTO BY: D. Girten **WITNESS(ES):** R. Kefalas and D. Gorden
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 46030

SCENE: View of debris located between monitoring well No. 6 and No. 5.
FRAME NUMBER: 9 **DATE:** September 7, 1995 **TIME:** 1337 **SKY CONDITION:** Clear
PHOTO BY: D. Girten **WITNESS(ES):** R. Kefalas and D. Gorden
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 46030

PHOTOGRAPHY LOG SHEET
Angelillo Property Site • Southington, Connecticut

SCENE: View of drums located near monitoring well No. 7.
FRAME NUMBER: 10 **DATE:** September 7, 1995 **TIME:** 1337 **SKY CONDITION:** Clear
PHOTO BY: D. Girten **WITNESS(ES):** R. Kefalas and D. Gorden
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 46030

SCENE: View of drums located near monitoring well No. 7.
FRAME NUMBER: 11 **DATE:** September 7, 1995 **TIME:** 1337 **SKY CONDITION:** Clear
PHOTO BY: D. Girten **WITNESS(ES):** R. Kefalas and D. Gorden
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 46030

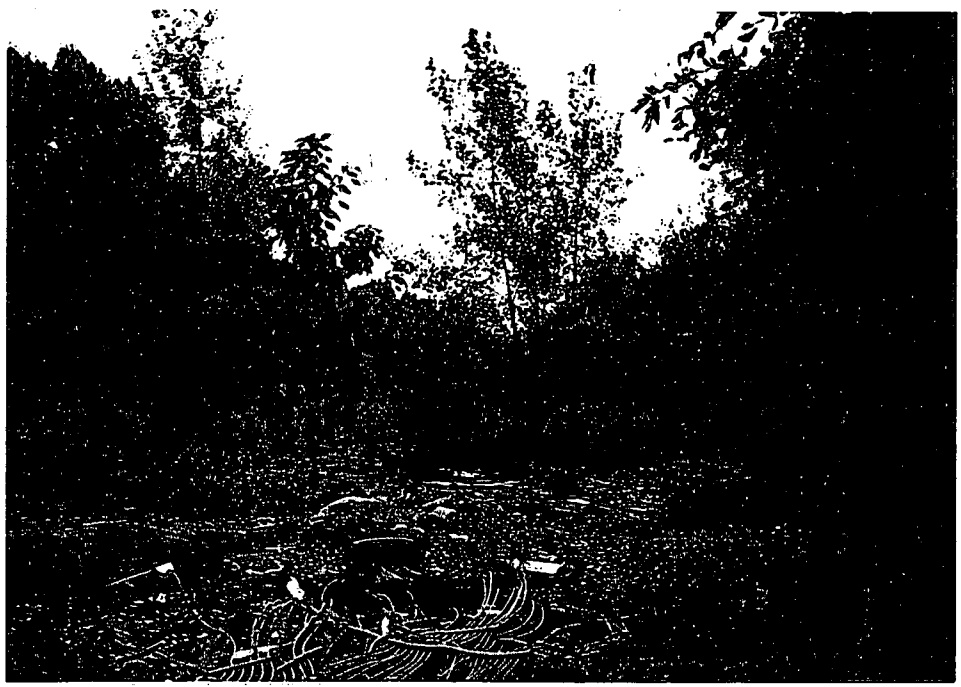
PHOTOGRAPHY LOG SHEET
Angelillo Property Site • Southington, Connecticut

SCENE: View of debris located between monitoring well No. 6 and No. 5.
FRAME NUMBER: 12 **DATE:** September 7, 1995 **TIME:** 1339 **SKY CONDITION:** Clear
PHOTO BY: D. Girten **WITNESS(ES):** R. Kefalas and D. Gorden
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 46030

SCENE: View of debris located in the western portion of the site.
FRAME NUMBER: 13 **DATE:** September 7, 1995 **TIME:** 1340 **SKY CONDITION:** Clear
PHOTO BY: D. Girten **WITNESS(ES):** R. Kefalas and D. Gorden
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 46030

PHOTOGRAPHY LOG SHEET
Angelillo Property Site • Southington, Connecticut

SCENE: View of damaged drum located in the western portion of the site.
FRAME NUMBER: 14 **DATE:** September 7, 1995 **TIME:** 1341 **SKY CONDITION:** Clear
PHOTO BY: D. Girten **WITNESS(ES):** R. Kefalas and D. Gorden
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 46030



SCENE: View of debris located in the western portion of the site.
FRAME NUMBER: 15 **DATE:** September 7, 1995 **TIME:** 1343 **SKY CONDITION:** Clear
PHOTO BY: D. Girten **WITNESS(ES):** R. Kefalas and D. Gorden
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 46030

PHOTOGRAPHY LOG SHEET
Angelillo Property Site • Southington, Connecticut

SCENE: View of crushed drum located near monitoring well No. 4.
FRAME NUMBER: 16 **DATE:** September 7, 1995 **TIME:** 1344 **SKY CONDITION:** Clear
PHOTO BY: D. Girten **WITNESS(ES):** R. Kefalas and D. Gorden
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 46030

SCENE: View of cylinder located near monitoring well No. 4.
FRAME NUMBER: 17 **DATE:** September 7, 1995 **TIME:** 1345 **SKY CONDITION:** Clear
PHOTO BY: D. Girten **WITNESS(ES):** R. Kefalas and D. Gorden
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 46030

PHOTOGRAPHY LOG SHEET
Angelillo Property Site • Southington, Connecticut

SCENE: View of cylinder located near monitoring well No. 4.
FRAME NUMBER: 18 **DATE:** September 7, 1995 **TIME:** 1347 **SKY CONDITION:** Clear
PHOTO BY: D. Girten **WITNESS(ES):** R. Kefalas and D. Gorden
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 46030

SCENE: View of potentially contaminated soil and wood pallets located between monitoring well No. 2 and No. 8.
FRAME NUMBER: 19 **DATE:** September 7, 1995 **TIME:** 1349 **SKY CONDITION:** Clear
PHOTO BY: D. Girten **WITNESS(ES):** R. Kefalas and D. Gorden
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 46030

PHOTOGRAPHY LOG SHEET
Angelillo Property Site • Southington, Connecticut

SCENE: View of suspected anomalous area A from monitoring well No. 8.
FRAME NUMBER: 1 **DATE:** October 31, 1995 **TIME:** 0734 **SKY CONDITION:** Partly Cloudy
PHOTO BY: R. Kefalas **WITNESS(ES):** J. Resca
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 62380

SCENE: View of suspected anomalous area B from monitoring well No. 3.
FRAME NUMBER: 2 **DATE:** October 31, 1995 **TIME:** 0734 **SKY CONDITION:** Partly Cloudy
PHOTO BY: R. Kefalas **WITNESS(ES):** J. Resca
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 62380

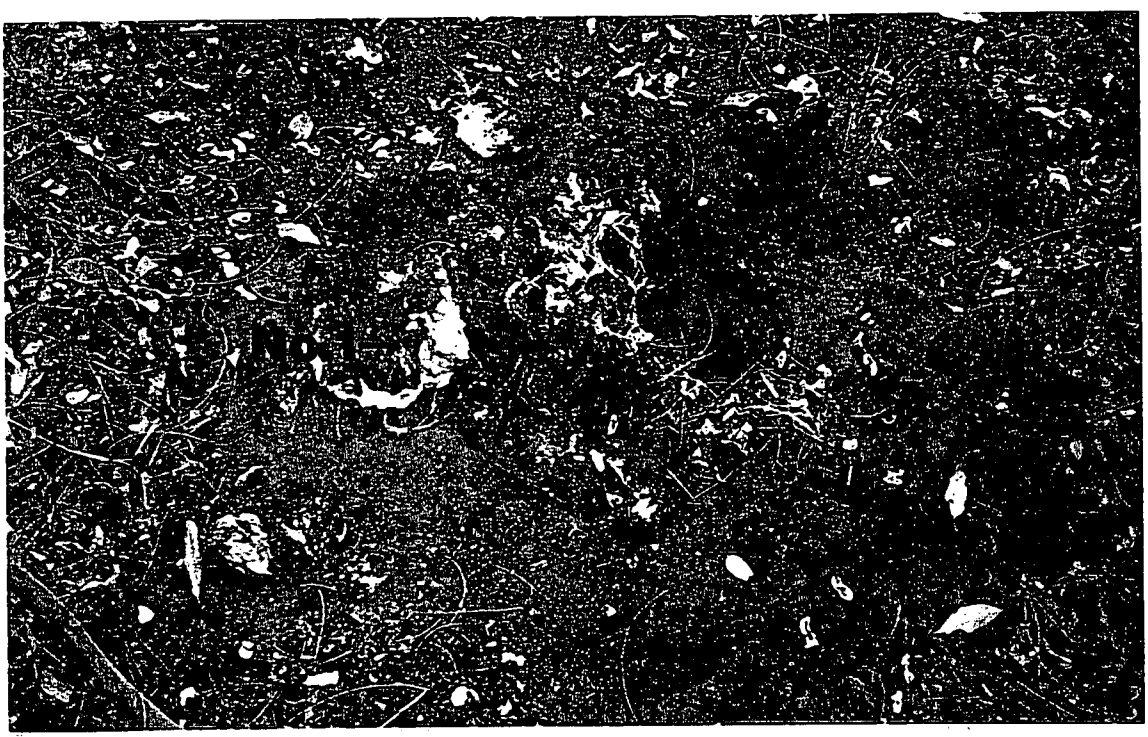
PHOTOGRAPHY LOG SHEET
Angelillo Property Site • Southington, Connecticut

SCENE: View of suspected anomalous areas C and D from monitoring well No. 3.
FRAME NUMBER: 3 **DATE:** October 31, 1995 **TIME:** 0734 **SKY CONDITION:** Partly Cloudy
PHOTO BY: R. Kefalas **WITNESS(ES):** J. Resca
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 62380

SCENE: View of suspected anomalous areas E and F and monitoring well No. 6.
FRAME NUMBER: 5 **DATE:** October 31, 1995 **TIME:** 0938 **SKY CONDITION:** Partly Cloud
PHOTO BY: R. Kefalas **WITNESS(ES):** J. Resca
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 62380

PHOTOGRAPHY LOG SHEET
Angelillo Property Site • Southington, Connecticut

SCENE: View of suspected anomalous area G and monitoring well No. 9.
FRAME NUMBER: 6 **DATE:** October 31, 1995 **TIME:** 0939 **SKY CONDITION:** Partly Cloud
PHOTO BY: R. Kefalas **WITNESS(ES):** J. Resca
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 62380



SCENE: View of sample station No. 1 located near monitoring well No. 7.
FRAME NUMBER: 7 **DATE:** October 31, 1995 **TIME:** 1134 **SKY CONDITION:** Partly Cloud
PHOTO BY: R. Kefalas **WITNESS(ES):** J. Resca
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 62380

PHOTOGRAPHY LOG SHEET
Angelillo Property Site • Southington, Connecticut

SCENE: View of sample station No. 2 from monitoring well No. 8.
FRAME NUMBER: 8 **DATE:** October 31, 1995 **TIME:** 1427 **SKY CONDITION:** Partly Cloud
PHOTO BY: R. Kefalas **WITNESS(ES):** J. Resca
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 62380

SCENE: View of sample station No. 3 and monitoring wells No. 6, No. 7 and No. 8.
FRAME NUMBER: 9 **DATE:** October 31, 1995 **TIME:** 1429 **SKY CONDITION:** Partly Cloud
PHOTO BY: R. Kefalas **WITNESS(ES):** J. Resca
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 62380

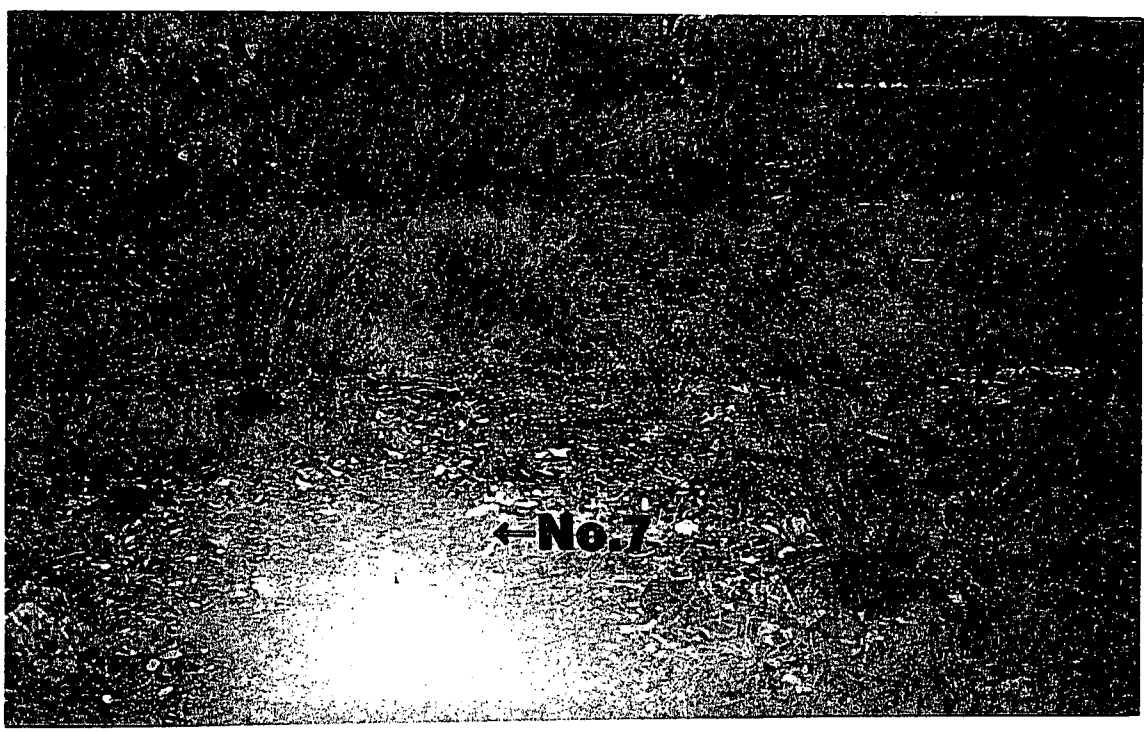
PHOTOGRAPHY LOG SHEET
Angelillo Property Site • Southington, Connecticut

SCENE: View of sample station No. 4 and monitoring well No. 5.
FRAME NUMBER: 10 **DATE:** October 31, 1995 **TIME:** 1430 **SKY CONDITION:** Partly Cloud
PHOTO BY: R. Kefalas **WITNESS(ES):** J. Resca
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 62380

SCENE: View of sample station No. 5 and monitoring well No. 9.
FRAME NUMBER: 11 **DATE:** October 31, 1995 **TIME:** 1430 **SKY CONDITION:** Partly Cloud
PHOTO BY: R. Kefalas **WITNESS(ES):** J. Resca
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 62380

PHOTOGRAPHY LOG SHEET
Angelillo Property Site • Southington, Connecticut

SCENE: View of sample station No. 6 and monitoring well No. 9.
FRAME NUMBER: 12 **DATE:** October 31, 1995 **TIME:** 1431 **SKY CONDITION:** Partly Cloud
PHOTO BY: R. Kefalas **WITNESS(ES):** J. Resca
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 62380



SCENE: View of sample station No. 7 and monitoring well No. 11.
FRAME NUMBER: 13 **DATE:** October 31, 1995 **TIME:** 1432 **SKY CONDITION:** Partly Cloud
PHOTO BY: R. Kefalas **WITNESS(ES):** J. Resca
CAMERA: Olympus **SETTING:** Automatic **FILM TYPE:** 35 mm **FILM ROLL:** 62380

PHOTOGRAPHY LOG SHEET
Angelillo Property Site • Southington, Connecticut

Roy F. Weston, Inc.
217 Middlesex Turnpike
Burlington, Massachusetts 01803-3308

SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM
EPA CONTRACT 68-W5-0009

NEGATIVES

APPENDIX G

Volatile Organic Compounds Screening Data Documentation

MEMORANDUM

TO: Angelillo Property Site File

FROM: Daniel J. Keefe, Superfund Technical Assessment and Response Team

DATE: 29 November 1995

RE: Volatile Organic Compounds Screening Data
TDD No. 95-08-1016B, PCS No. 1268
DC No. R-291

Two soil gas samples were collected on 30 October 1995 by Frank Gardner, On-Scene Coordinator (OSC), and Superfund Technical Assessment and Response Team (START) members Joseph Resca and Robert Kefalas during a site investigation at the Angelillo Property site, located in Southington, Hartford County, Connecticut. These samples were screened on site for the presence of volatile organic compounds (VOCs) utilizing the Photovac 10S70 Portable Gas Chromatograph/Photoionization Detector (GC/PID).

At each sample point, a manual piston slam bar was used to advance a hole down approximately 30 to 36 inches below the ground's surface. After the hole was made, the slam bar and solid extension were carefully withdrawn to prevent the collapse of the walls of the hole. A hollow, 5/8-inch O.D. stainless steel soil vapor extension, equipped with teflon tubing inside, connected to the AMS Retract-A-Tip screened adapter was then inserted to the full depth of the hole. The extension was then retracted approximately 2 to 3 inches to expose the screen portion of the tip adapter. The top of the sample hole was sealed at the surface to prevent ambient air infiltration using native soil.

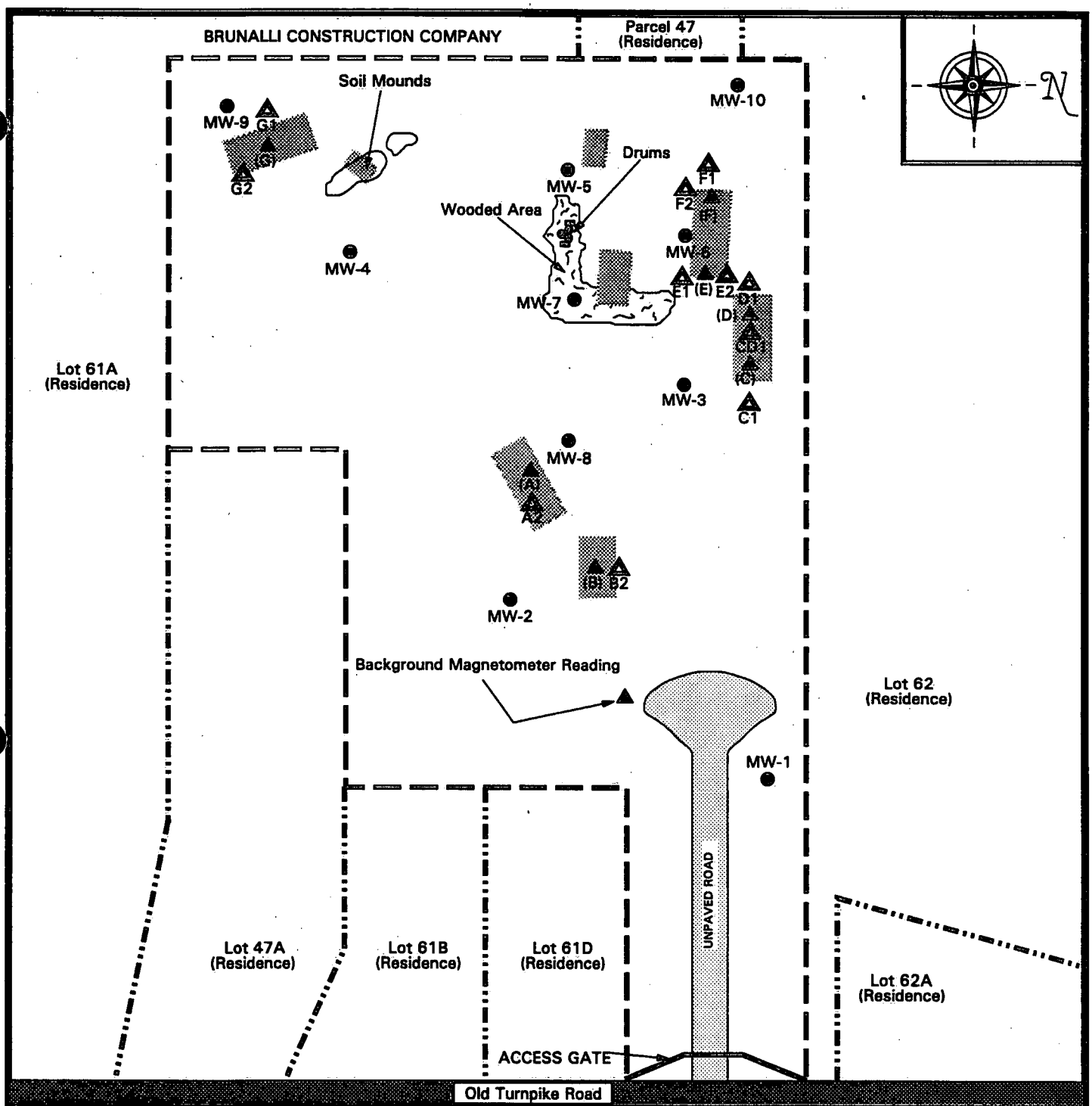
An HNU photoionization detector (HNU) was used to screen each of the twelve sample locations (See Figure 1) by placing the HNU probe into the Tygon tubing which was connected to the soil gas probe. The bore volume of the sample probe was evacuated prior to sampling. Of the twelve sample locations screened with the HNU, Station nos. A1 and E1 exhibited elevated organic vapor readings ($\sim$100 and $\sim$15 PID units, respectively). At these two sample stations, a sample was collected into a 1-liter Tedlar™ bag, using the exhaust port of the HNU. The samples were given to the GC/PID operator for on-site VOC screening.

The samples were collected as stated above, and screened on the GC/PID using the START *Standard Operating Procedure for 10S Series Photovac Portable GC Instruments*. A 200 μL sample was injected into the GC/PID, equipped with a CPSil5CB heated capillary column, to determine to presence of VOCs at the different locations.

As shown in Table 1, toluene and 1,2-dichloroethene were detected in both sample stations. In addition, Sample No. E1 also contained 1,1-dichloroethene, trichloroethene (TCE) and tetrachloroethene (PCE). One other peak was observed on both sample chromatograms, however, this peak's retention time did not match any of the calibration standards. As directed by OSC Gardner, no laboratory samples were collected.

Screening on the Photovac 10S Series GC/PIDs is used for tentative identification and estimation of the concentration of certain VOCs in samples. This screening is not meant to substitute for the Contract Laboratory Program VOCs protocols. The results are estimates of the concentrations of VOCs found in soil gas at the time the sample was collected.

See Figure 1 for the soil gas sample stations, and Table 1 for the volatile organic screening summary for the soil gas samples. Also attached is Appendix A - START Photovac Daily Field QA/QC Form.



LEGEND:

- Soil Gas Sample Station
- Magnetometer recording station
- Monitoring Well (MW)
- Approximate Site Boundary
- Approximate Property Boundaries
- Approximate Excavated Areas

NOT TO SCALE

FIGURE 1

MAGNETOMETER AND SOIL GAS STATION/
EXCAVATION AREA DIAGRAM
ANGELILLO PROPERTY
SOUTHINGTON, CONNECTICUT

WESTON®
MANAGERS DESIGNERS/CONSULTANTS
SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM

DRAWN BY: Kefalas	DATE: 11/95	PCS #: 1268
APPROVED BY:	DATE: 11/95	TDD #: 95-08-1016B

TABLE 1

Volatile Organic Screening Summary

TABLE 1
VOLATILE ORGANIC SCREENING SUMMARY
SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM
ANGELILLO PROPERTY SITE, SOUTHINGTON, CONNETICUT

OCTOBER 30, 1995

SOIL GAS SAMPLE RESULTS (ppb/v)

Tentatively Identified Compound	Detection Limits*	Sample Station				
		STA-A1	STA-E1			
1,1-Dichloroethene	HIT(1)	HIT	--			
trans-1,2-Dichloroethene	HIT(1)	HIT	HIT			
Benzene	75	750 U	--			
Trichloroethene	70	700 U	800 F			
Toluene	80	5,100 F	54 JF			
Tetrachloroethene	100	1,000 U	1,100 EF			
Chlorobenzene	130	1,300 U	--			
Ethylbenzene	130	1,300 U	--			
meta and para Xylene	100	1,000 U	--			
ortho Xylene	91	910 U	--			
Other Unidentified Peaks	--	1	1			

INSTRUMENT : PHOTOVAC 10S70 PORTABLE GAS CHROMATOGRAPH, START #2

(1) – The conversion factors from the aqueous standards have not been determined for these compounds. Therefore, positive results for these compounds will only be reported as HITs.

*Detection limits as determined EPA NERL, and by daily instrument performance.

LEGEND	
ppb/v	parts per billion (volume/volume)
"--"	The compound was analyzed for but not detected.
U	The compound was analyzed for but not detected. The associated numerical value is the adjusted instrument detection limit.
F	Data have been generated using a field screening method. Analytes are tentatively identified and concentrations are estimates.
J	The value is estimated becuase the result is less than the instrument detection limit.
E	The sample concentration exceeds 2 times the concentration in the standard.

Reference: Region I Ambient Air Grab Sample Analysis for Volatile Organic Compounds.

APPENDIX A

TAT Photovac Daily Field QA/QC Form.

TAT Photovac Daily Field QA/QC Form

Site Name: Angelillo Property
TDD#: 95-08-1016

Date: 10/30/95
PCS#: 1240 (.268)

Analyst: Dan Keefe
TAT Region I

QA Level: (QA1) no confirmation analysis or QA2 - laboratory confirmation

Photovac 10S series, photoionization detector: 10S50 or (10S70)
Column used: CPSil5CB capillarySE-30 _inches other ________

CALIBRATION

1. Standards preparation documented in the preparation logbook? (yes) no
2. Continuing calibration performed once every 10 samples or once every 2 hours, whichever is more frequent? (yes) no

BLANKS

1. Was initial syringe blank analyzed for every syringe used? (yes) no
2. Was reagent blank analyzed? (yes) no
3. Were syringe blanks run appropriately after high level samples to check for carry-over contamination? (yes) no

ACCURACY

1. Was the PE sample analyzed once a day? (QA2) (yes) no

Compounds	Conc. Found	True Value	% Recovery
1,1-DCE	8.6	7.5	115%
Benzene	8.1	↓	108%
TCE	8.5	↓	~~108%~~ 113%
Toluene	8.5	↓	113%
Cl-Benzene	8.6	↓	115%

MINIMUM DETECTION LIMIT

1. Was the minimum detection limit demonstrated? (QA2) yes (no)

Made assumption (after looking @ DATA) ① Could see ½ the 10ppb STD for 1,1-DCE, 1,2-DCE, Benzene, TCE + Toluene, PCE
② Used the 10ppb STD as the Det. Limit for the rest (Chlorobenz, Ethyl benzene, m/p xylene, o-xylene) (DF)

PRECISION

1. Were field duplicates analyzed at least once or at the frequency of one per 10 samples analyzed? (yes) no

Sample #	Compounds	Sample Conc. (Run# 33)	Dupl. Conc. (Run# 36)	% Difference
STA-002 ~~(HIT)~~ (DF)	~~1,1-DCE~~	~~HIT~~ .85 mV	~~HIT~~ .91 mV	~~N/A~~ ~~7%~~ okay (PF) — 1,1 DCE no detected
	t-1,2-DCE	~~HIT~~	~~HIT~~	~~N/A~~
	Toluene	54.4	54.3	0%
	TCE	798	842 E	5%
	PCE	1099 E	1055 E	4%

Analyst's Comments:

Reviewer: Paul Kellen Date: Nov 20, 1995