



April 1, 2002

Mr. Michael W. Lonergan, P.E.
Manager of Environmental Compliance
Bureau of Engineering and Highway Operations
State of Connecticut Department of Transportation
2800 Berlin Turnpike, P. O. Box 317546
Newington, CT 06131-7546

RE: SUBMISSION OF ENVIRONMENTAL CONDITION ASSESSMENT FORM

Site	Project #
Site #5, Congress Street, Fairfield	170-1877
Site #25, Candlewood Hill Road, Higganum	

Dear Mr. Lonergan:

Enclosed please find one copy of the above-captioned Environmental Condition Assessment Form (ECAF).

The report is submitted for your review and comment. Please contact me regarding questions or problems, which may be identified during your review.

We will be pleased to meet with you, at your convenience, to discuss the reports as necessary.

Thank you for the opportunity to be of service to the Department of Transportation.

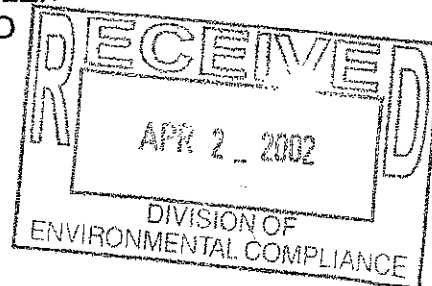
Very truly yours,

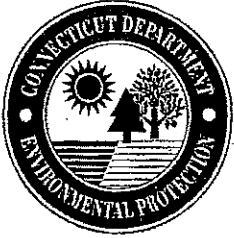
HRP ASSOCIATES, INC.


Robert H. Leach, LEA
Principal and COO

Attachments

cc: Piya Hawkes, ConnDOT
Files/RHL/DDT





STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER MANAGEMENT
PERMITTING, ENFORCEMENT & REMEDIATION DIVISION
79 ELM STREET, HARTFORD, CT 06106-5127

Environmental Condition Assessment Form (ECAF)

Please complete this form in accordance with the instructions (DEP-PERD-PTP-INS-200). Print or type unless otherwise noted. Use an addendum page if necessary.

- ☐ Please enter a check mark if this form is being submitted with a property transfer filing under Connecticut General Statutes (CGS) Section 22a-134a.
- ☒ Please enter a check mark if this form is being submitted pursuant to CGS Section 22a-133x
- ☒ Please enter a check mark if addendum sheets are attached.

DEP USE ONLY

Part I: Site Information

1. Name of Site: Higganum DOT Site # 25
Street Address: 11 Candlewood Hill Road

City/Town: Higganum

State: CT

Zip Code: 06441-4202

2. EPA ID#: CTD None

DEP-WPC #: None

3. Fill in the name of the business/person submitting this form:

Name: Connecticut Department of Transportation

Mailing Address: 2800 Berlin Turnpike, P.O. Box 3175

City/Town: Newington

State: CT

Zip Code: 06131-7546

Business Phone: 860-594-3336

ext.

Fax: 860-594-3372

Authorized Representative: Michael W. Lonergan

Title: Mgr. of Env. Comp.

4. Fill in the name of the person who will serve as primary contact for the CT DEP:

Firm Name: HRP Associates, Inc.

Mailing Address: 167 New Britain Avenue

City/Town: Plainville

State: CT

Zip Code: 06062-2011

Business Phone: 860-793-6899

ext.

Fax: 860-793-6871

Primary Contact: Daniel D. Titus

Title: Project Manager

5. Fill in the name of the owner of the parcel, if different from the name and address in item 3 above:

Name:

Mailing Address:

City/Town:

State:

Zip Code:

Business Phone:

ext.

Fax:

Contact Person:

Title:

Part I: Site Information (cont.)

6. If submitting this ECAF pursuant to CGS Section 22a-134a, the Licensed Environmental Professional (LEP) must sign below as supervising the completion of this ECAF. If submitting pursuant to CGS Section 22a-133x, fill in the name of the environmental consultant, or LEP employed or retained to assist in the completion of this form. If there is more than one, please attach an addendum with the requested information for each LEP or environmental consultant.

LEP or Environmental Consultant Name: **Robert H. Leach, L.E.P.**

Firm Name: **HRP Associates, Inc.**

Address: **167 New Britain Avenue**

City/Town: **Plainville**

State: **CT**

Zip Code: **06062-2011**

Business Phone: **860-793-6899**

ext.

Fax: **860-793-6871**

(See Addendum for list of other consultants that performed site investigations)

Signature of LEP or Environmental Consultant

Principle

Title (if applicable)

Part II: Site History, Waste Management History

1. Summary of industrial/commercial history of site (present and former use, including dates and SIC codes):

See Addendum

2. Hazardous substances or petroleum products presently or formerly handled at the site (list materials & management method):

See Addendum

3. RCRA Notifier Status: **None**

RCRA Permit Status: **None**

4. Has any enforcement action been taken by CT DEP or EPA regarding waste handling practices at the site, or requiring remediation at the site? ☐ Yes ☒ No

If yes, list action type, date, number, name of party, purpose & status:

5. Releases reported to CT DEP Oil & Chemical Spills? ☒ Yes ☐ No

If yes, list date, material released and quantity:

See Addendum

6. Previous Form filings with CT DEP Property Transfer Program? ☐ Yes ☒ No

If yes, list form & date:

7. CT DEP staff involved with assessment or remediation of the site:

See Addendum

Part II: Site History, Waste Management History (cont.)

8. a. List any release areas or potential release areas on the site, and for each describe the nature of the release, the date and estimated duration of the release, and an estimated volume of the release. For each release area or potential release area indicate whether the area has been investigated or remediated.

See addendum

- b. Specify which release areas are not included under the certification to remediate releases at the establishment being transferred, if applicable.

Not applicable

Part III: Environmental Setting

1. Ground Water

Ground-water classification: **GA**

- a. Is the ground water on the site used for:

☒ drinking water ☐ agricultural uses ☐ industrial purposes

- b. What is the distance from the site to the nearest off-site well, other than a monitoring well?

0.05 miles residential well adjacent to the east of the site

- c. Is the site within the zone of contribution of a public water supply well? ☐ Yes ☒ No

2. Surface Water

Surface-water classification: **A**

- a. Identify the nearest down-gradient surface-water body: **Candlewood Hill Brook**

- b. What is the distance from site to the nearest surface water: **Adjacent to the south**

3. Public Utilities

- a. Is public water provided to the site? ☐ Yes ☒ No

Is public water unavailable to any developed area surrounding the site? ☒ Yes ☐ No

- b. Is the site connected to municipal sewers? ☐ Yes ☒ No

- c. Are or have on-site septic system(s) been used at the site? ☒ Yes ☐ No

If yes, dates in use: **circa 1941 - present**

4. Describe the land use on the site and in the area surrounding the site. Identify any sensitive land uses within 2 mile of the site?

See addendum

Part III: Environmental Setting (cont.)

5. Provide a brief geologic and hydrogeologic summary of the site and surrounding area:

See Addendum

Part IV: Environmental Assessment

1. Field investigation/ Environmental Assessment:

a. Date(s) performed: Phase 1: 11/05/85 Phase 2: 06/25/87 Phase 3: / /
b. Potential release areas (#): Identified: 11 Tested: 5 Release detected: 3

2. Soil Investigation:

a. How many of soil samples were screened/analyzed?
Waste 1/1 Shallow soil 7/7 Soil > 2' deep 2/2

- b. What techniques were used to investigate soil?

☐ Soil gas survey Other surveys (specify): PID and GPR

Subsurface sampling techniques (specify): See Addendum

3. Ground Water Investigation:

a. How many samples of ground water and how many rounds of sampling were used in the investigation? See addendum

b. How many monitoring wells were used to investigate the ground water? See addendum
For each well list the well number, type of well, and geologic unit that the well is screened in or open to. Use an addendum sheet, if necessary. (Refer to instructions)

See addendum

c. How many other types of wells were used? Provide the type and address for each well.

See addendum

d. Is the extent of each ground-water plume resulting from releases at the site fully characterized?
☐ Yes ☒ No

- e. What techniques were used to investigate the ground water?

☒ Ground water quality testing ☐ Pump testing ☐ Geophysical logging

Other techniques (specify):

4. Indicate phases of environmental assessment completed to date:

☒ Investigation ☐ Remedial design ☐ Remediation ☐ Post-remedial Monitoring

Part V: Contaminants in the Environment

1. Contaminated Soil or Wastes on the Site - List the contaminant codes for substances detected in waste or soil on the site and for each contaminant the highest concentration detected: (Note where not applicable "NA" or not tested "NT")
 - a. Waste or waste residue: **See addendum**
 - b. Soil: **See addendum**
2. Contaminated Ground Water Resulting from Releases on the Site - List the contaminant codes for substances detected in ground water and for each contaminant the highest concentration detected: (Note where not applicable "NA" or not tested "NT")
 - a. Ground water in overburden on-site: **See addendum**
 - b. Ground water in overburden off-site: **See addendum**
 - c. Ground water in bedrock on site: **NT**
 - d. Ground water in bedrock off-site: **NT**
3. Contaminated Surface Water Resulting from Releases on the Site - List the number of surface water samples taken; contaminant codes for substances detected resulting from releases on the site; and for each contaminant the highest concentration detected.
See addendum
4. Non-Aqueous Phase Liquids (NAPL) - Describe whether NAPLs resulting from a release at the site are present or potentially present in the following settings:
 - a. Are NAPLs present in the unsaturated zone? ☐ Yes ☐ No ☒ Potentially
Product(s):
 - b. Are NAPLs present in unconsolidated material below the water table?
☐ Yes ☐ No ☒ Potentially
Product(s):
 - c. Are NAPLs present in the bedrock below the water table?
☐ Yes ☐ No ☒ Potentially
Product(s):
5. Briefly describe the extent and distribution of contaminated soil/waste, ground water, surface water and/or NAPLs resulting from releases on the site. If applicable, specify which contaminants are not subject to the certification to remediate releases at the establishment being transferred.
See addendum

Part V: Contaminants in the Environment (cont.)

6. List for each release area the codes for contaminants of concern, and for each contaminant the following: the number of samples in which the contaminant was detected; the maximum and typical concentrations of the contaminant; and depth at which the maximum concentration was detected: Enter a check if an addendum table is used. ☒

Provide site name, address and town from Part I, Item 1:

Name of site: **Higganum DOT Site # 25**

Street Address or Description of Location: **11 Candlewood Hill Road**

City/Town: **Higganum**

State: **CT**

Zip Code: **06411-4202**

Release Area	Contaminants of concern tested	Contaminants in soil/waste	Contaminants in ground water	Contaminants in surface water
See Addendum				

Part VI: Supporting Documents (see instructions for details)

1. ☒ Site Map attached Latitude & Longitude (d/m/s): N: 41/29/49 W: 72/33/39

2. Enter a check mark for features included on Site Plans: Number of sheets attached: 6

<input checked="" type="checkbox"/> structures/boundaries	<input checked="" type="checkbox"/> potential release areas	<input type="checkbox"/> areas remediated
<input type="checkbox"/> material management areas	<input checked="" type="checkbox"/> sampling locations	<input type="checkbox"/> water table elevations
<input type="checkbox"/> waste management areas	<input checked="" type="checkbox"/> monitoring wells	<input type="checkbox"/> limits of ground-water plume
<input checked="" type="checkbox"/> UST and AST locations	<input checked="" type="checkbox"/> release areas	<input type="checkbox"/> topography/drainage

3. Site Size: Acres: ~0.85 Acres undeveloped: ~0.30
% impervious: 80 Building sq. footage: ~5,000

4. This assessment is based on the following reports (title; date; consultant): *Make note of whether the report is on file with DEP - "***". Note by using "+" if report is attached.*

See addendum

Part VII: Certification

"I have personally examined and am familiar with the information submitted in this document and all attachments, and certify that based on reasonable investigation the submitted information is true and accurate to the best of my knowledge and belief. I certify that this form is complete and accurate as prescribed by the Commissioner without alteration of the text."

Authorized Signature (as specified in instructions) Date

Name of Authorized Representative (print or type) Title (if applicable)
Representing: **Connecticut Department of Transportation**

Mailing Address: **2800 Berlin Turnpike, P.O. Box 317546**

City/Town: **Newington** State: **CT** Zip Code: **06131-7546**

Phone: **860-594-3336**

STATE OF **Connecticut** }
 }
COUNTY OF **Hartford** } SS. **Newington**
 } (**Town**)

The foregoing was subscribed to and sworn to before me this _____ day of _____, 20____,
by
(Name of Signatory, Title and Company, if applicable)

who personally appeared, and that person, as such, satisfactorily proven to be authorized to do so,
executed the foregoing instrument for the purposes therein contained.

Signature of Notary/Commissioner of Superior Court Name of Notary/Commissioner of Superior Court
My commission expires / / (print or type)

Table 1: Contaminant Codes

Represent heavy metals and salts by using the abbreviations designated in the periodic table of elements.

Volatile Organics			
acetone	ACT	1,2-trans-dichloroethylene	TDCE
benzene	BZ	1,2-dichloropropane	DCPA
carbon tetrachloride	CTC	1,3-dichloropropene	DCPE
chlorobenzene	CBZ	1,3-dichloropropylene	DCPE
chloroethane	CEA	ethylbenzene	EBZ
2-chloroethylvinyl ether	CVE	methylene chloride	MC
chloroform	CFM	methyl ethyl ketone	MEK
1,2-dibromoethane	EDB	methyl isobutyl ketone	MIBK
1,2-dichlorobenzene	2DCB	methyl tert-butyl ether	MTBE
1,3-dichlorobenzene	3DCB	tetrachloroethylene	PCE
1,4-dichlorobenzene	4DCB	toluene	TL
dichlorodifluoromethane	DDM	1,1,1-trichloroethane	TCA
1,1-dichloroethane	11DCA	trichloroethylene TCE	
1,2-dichloroethane	12DCA	trichlorofluoromethane	TCFM
1,1-dichloroethylene	11DCE	vinyl chloride	VC
		xylene	XYL
Miscellaneous			
	cyanide	CN	
	total petroleum hydrocarbons	TPH	

Table 2: Towns required to establish Aquifer Protection Areas

Avon	Darien	Madison	Oxford	Stamford
Beacon Falls	Derby	Manchester	Plainfield	Stonington
Berlin	East Lyme	Mansfield	Plainville	Thomaston
Bethany	East Windsor	Meriden	Plymouth	Thompson
Bethel	Enfield	Middletown	Portland	Tolland
Bethlehem	Essex	Monroe	Prospect	Torrington
Bolton	Fairfield	Montville	Putnam	Vernon
Bozrah	Farmington	Naugatuck	Ridgefield	Wallingford
Bristol	Glastonbury	New Canaan	Rocky Hill	Watertown
Brooklyn	Granby	New Hartford	Salisbury	Westbrook
Burlington	Goshen	New Milford	Seymour	Weston
Canton	Griswold	Newtown	Shelton	Westport
Cheshire	Guilford	North Canaan	Simsbury	Willington
Clinton	Hamden	North Haven	Somers	Windsor
Colchester	Killingly	Norwalk	Southbury	Windsor Locks
Coventry	Killingworth	Norwich	Southington	Woodbury
Cromwell	Ledyard	Old Lyme	South Windsor	
Danbury	Litchfield	Old Saybrook	Stafford	

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Part I.6. - Other Consultants

<u>Name of Consultant</u>	<u>Service Provided</u>
1) Lisa DeMaio HRP Associates, Inc. 167 New Britain Avenue Plainville, Connecticut 06062 Phone: (860) 793-6899 Fax: (860) 793-6871	Environmental Condition Assessment Form
2) Metcalf & Eddy 860 North Main Street Wallingford, Connecticut 06492 Phone: (203) 269-7310 Fax: (203) 269-8788	Phase I Interim Report Preliminary Test Report Detailed Test Report
3) Fred C. Hart Associates, Inc. 40 Ames Avenue Meriden, Connecticut 06450	Phase II Report Field Investigation Work Plan and supplement Draft Field Investigation Report

Part II.1. - Summary of Industrial/Commercial History of the Site

The subject site includes a narrow strip of land south of Candlewood Hill Road, near the intersection of Routes 81 and 9A (Figures 1 & 2). The site was initially developed circa 1941 when two buildings, a repair garage and storage building, were constructed. The site activities included salt storage and handling (circa 1941 to circa 1973), road maintenance (circa 1941 to circa 1973), a repair garage (circa 1941 to present), and store (circa 1947 to present). Other activities include underground fuel storage (circa 1941 to present). The western portion of the site was formerly the Spar Mill Pond, which was used as a dumpsite for the DOT from circa 1941 till 1975. It is not known where the exact location of the pond was but it was reported to be in the western third of the property. Eight underground storage tanks (UST) for heating oil, waste oil, diesel fuel, and gasoline were installed between 1941 and 1968. Six of the eight were removed in 1989, the remaining two were reportedly removed but no supporting documents could be identified. Five USTs were installed in 1989 and stored the same material as the previous tanks.

The site activities are summarized below. A summary of UST locations can be seen in Figure 3 & 4.

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Site Activity	Dates (approximate)	SIC Code
Salt Storage and Handling	1941-1973	1611
Road Maintenance	1941-1973	1611
Repair Garage	1941- present	7538
Store	1947-present	5399
Fuel Storage	1941-present	
Landfill/dump site	1941-1975	

Part II.2. Hazardous Substances/Petroleum Products Used at Site

The primary hazardous substances disposed of at the site include approximately 4-5 drums of 2-4-D and 2-4-5-T, which were buried in the landfill area at the western end of the site, around 1975. It was reported that the drums were about ten feet below the surface. A metal detection survey was conducted in the landfill area and determined that the drums are no longer present on site. In the vicinity of the former pond, about 2,000 gallons of joint sealer were reportedly buried along the banks of the brook. This substance is known as MC 85-100, and reportedly bubbles through the surface in warm weather. This substance was buried at the site in the 1960's. Other activities that generate wastes include truck washing (soap, salt, sediment), cleaning engine parts (waste oils, solvents, antifreeze, savasol, hydraulic oil, transmission fluid,) and steam cleaning (solvent). Heating Oil, waste oil, gasoline, and diesel have historically been stored in underground storage tanks as follows.

Tank ID	Material Stored	Tank Type	Capacity (gallons)	Date Installed	Date Removed
H-1	Heating Oil #2	Steel	2,000	1941	1989
D-1	Diesel	Steel	550	1955	1989
R-1	Unleaded Gasoline	Steel	3,000	1960	1989
R-2	Unleaded Gasoline	Steel	3,000	1960	1989
H-2	Heating Oil #2	Steel	2,000	1962	1989
W-1	Waste Oil	Steel	1,000	1968	1989
R1-R1	Unleaded Gasoline	Fiberglass	4,000	1989	
D1-R1	Diesel	Fiberglass	4,000	1989	
H1-R1	Heating Oil #2	Fiberglass	2,000	1989	
H2-R1	Heating Oil #2	Fiberglass	2,000	1989	
W1-R1	Waste Oil	Fiberglass	550	1989	

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Two additional 1,000-gallon gasoline storage tanks were reported for the site but no documentation of these tanks could be identified.

Part II.5 Release reported to the CT DEP Oil and Chemical Spills

The reported release occurred on March 11, 1983 at 10:00am. The product released is listed as petroleum with an ongoing source. Fuel was observed to be seeping out of the ground and covered an area with a diameter of twenty-five feet. The spill report mentions a pump and may indicate the spill occurred near the gasoling pumps located between the repair garages. A visible sheen was documented running to the Candlewood Hill Brook and pond. It is not known what pond the incident report references. No containment measures were taken, the fuel was sampled but no sample results are attached to the incident report.

Part II.7 CT DEP staff involved with Site

Information was identified which stated that Maurice R. Hamel reviewed the reports for the site and made recommendations for changes to the reports. Information was also found that E. Patton and C. Fittings attended a meeting between the DOT, DEP and Metcalf and Eddy to discuss the Higganum site. Their specific involvement with the Higganum site is not known.

Part II.8.a Release Areas

The Potential Release Areas (PRA) and Release Areas (RA) at the site are presented below. Note that each area number on Figure 5 corresponds to the Release Area Number.

1. Release Area 1- Drum burial/ Landfill

The western portion of the site was once the Spar Mill Pond, a man made pond, which was converted to a landfill. The site reportedly had four to five drums of 2,4-D and 2,4,5-T, herbicides, buried in the western third of the site. After a geophysical survey of the landfill area it was determined that the drums are not present in the area of the landfill. A test pit (TP-25-1A) was installed in the area of the landfill and encountered a lens of tar-like material, a rusted 55 gallon drum which was coated in a white concrete-like substance, an empty one gallon paint can, several five-gallon can tops coated in the tar-like substance. Other fill material included wood beams, logs, large lenses of asphalt, pipes and scrap metal. Materials within the 55-gallon drum were sampled and analysis detected 4,4,-DDD at 19 parts per billion

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(ppb) and heptachlor epoxide at 3.3 ppb both detections are above the applicable RSR standards and are not characteristic or listed hazardous wastes in used form (Table 3).

2. Release Area 2- Tar Disposal

Approximately 2,000 gallons of an experimental joint sealer was disposed of in the fill area. This experimental joint sealer was called "MC 85 to 100." During a February 6, 1986 field inspection of the Higganum site, a test pit (TP-25-4) was installed and encountered the tar-like substance at grade to two feet below grade. It is assumed that more of the tar like substance was disposed of in this area. The soils excavated were removed and placed into five 85-gallon salvage drums. The inspectors on site determined there was too much material to be staged in drums and that further remediation would need to be conducted in the area. It was not reported how the drums were disposed of. The extent of the test pit was staked and backfilled. The vertical and horizontal extent of the tar-like mass was not determined, nor was further remediation performed.

3. Potential Release Area 3- Drum Storage Area

It was reported that the area to the north of the storage shed was previously used to store drums. It was not reported what type or amount of materials were stored in the drums, nor how many drums were stored in the area.

4. Potential Release Area 4- Solvent Odor

A solvent odor was detected in the area northwest of the southern garage. It was not reported when the odor was detected, nor the duration of the odor, but the odor indicates a potential spill in the area.

5. Potential Release Area 5- Steam Cleaning Area

The area between the southern garage and Candlewood Hill Brook was reportedly the steam cleaning area. It was not reported what was cleaned in this area but it was reported that engine parts were cleaned onsite and they may have been cleaned in this area. Steam cleaning solvents were used in this area and the cleaning fluids flowed overland to Candlewood Hill Brook.

6. Potential Release Area 6- Possible Solvent Storage Area

It was historically reported that a solvent storage area existed to the east of the southern garage. Due to conflicting locations on figures it is not known exactly where this storage area

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was located. It was not reported what types of solvents were stored, the amounts stored or how the solvents were stored.

7. Potential Release Area 7- Repair Garages

This PRA incorporates the repair garages and the areas in front of both of the repair garage doors. It is reported that vehicle maintenance occurred on site. Previous inspections did not identify any lifts used during vehicle maintenance and identified floor drains, which drain to Candlewood Hill Brook. The exact location of these floor drains was not identified. It is possible that spills occurred during the maintenance of vehicles. It was also reported that engine parts were cleaned on site. The exact location of which is unknown, but it was reported that waste products include waste oil, solvents, antifreeze, and savasol. The disposal of the wastes was reported to discharge to a "trough", and into a 1,000-gallon waste oil tank, which is centrally located to the north of the southern garage (Figure 2). A paved ditch is located to the north of the northern repair garage and discharges to a catch basin, which discharges to Candlewood Hill Brook.

8. Potential Release Area 8- Septic Tank

The septic tank is located to the southeast of the northern repair garage and comprises this PRA. The septic system may accept floor drain discharges from the repair garages. The leaching fields may be a potential area for releases.

9. Potential Release Area 9- Underground Storage Tanks (USTs)

Five (5) USTs are currently located on site; details for the tanks can be seen in Part II.2 of this Addendum, locations of the tanks can be seen in Figure 3. Three USTs are located to the east of the southern repair garage. Two tanks have a 4,000-gallon capacity and hold gasoline and diesel fuel, while the third UST holds 2,000-gallons of heating oil. A 550-gallon waste oil tank is centrally located along the northern edge of the southern repair garage. A 2,000-gallon heating oil tank is located along the northern edge of the northern repair garage. The tanks present a potential release area due to possible historical spills and overfills from replenishing the tanks.

10. Potential Release Area 10- Former Underground Storage Tanks (FUSTs)

Eight former underground storage tanks existed on site. Reportedly two 1,000-gallon gasoline tanks existed centrally along the northern edge of the southern repair garage. It was reported that these tanks were removed but no closure reports could be identified. Three FUSTs were located in the area between the two repair garages and stored waste oil and unleaded

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gasoline. Two FUSTs were located east of the northern repair garage and stored heating oil and diesel fuel.

11. Potential Release Area 11- Salt Storage

Historically, the site stored salt for distribution on the roads. The location of the salt storage is not known. Samples taken from on-site monitoring wells in 1985 and 1986 indicated high levels of sodium and chloride present in the groundwater (Table 9).

Part III.4. Environmental Setting- Land Use

The general land use in the area of the subject site is a mixture of residential and commercial. Candlewood Hill Brook abuts the site to the south and has a DEP Surface Water Quality Classification of "A" and is not known to be a source of public water in the area of the site. Natural features within a half-mile of the subject site include the Connecticut River to the east of the site. The Connecticut River is not known to be a source of public water in the area of the site, and has a DEP Surface Water Quality Classification of "B". Haddam Elementary School, located approximately 0.15 miles, and George Dudley Seymour State Park are located to the north of the site. Higganum Creek wetlands are located approximately 0.5 miles to the northeast of the subject site. Higganum Reservoir, located approximately 0.25 miles, Higganum Reservoir State Park and Cockaponset State Forest are located to the south of the subject site. Higganum Reservoir has a DEP Surface Water Quality Classification of "A". Bell Shop Pond and Black Shop Pond are located to the west of the subject site, and both have a DEP Surface Water Quality Classification of "A". Fun Pond and Recreation Pond are located to the southeast of the subject site. Both ponds have a DEP Surface Water Quality Classification of "A".

Part III.5 – Environmental Setting- Geology of Site Area

The site is located in the lower Connecticut River drainage basin. Overall the site slopes from the northwest to the southeast, towards the Candlewood Hill Brook. Site elevations range from 100 feet above mean sea level (MSL) along the northwestern portion of the site to approximately 80 feet MSL along the southeastern portion of the site. Soils are mapped as till for the area surrounding the subject site but are mapped as artificial fill for the subject site. During past surficial investigations it was determined that ten to twelve feet of fill existed on site. This fill was described as reddish-brown medium to fine sand with some gravel and minor amounts of asphalt, brick and other debris. The natural materials below the fill were described as fine to coarse sand and gravel with some cobbles and boulders. Small lenses of dark

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brown fine silt were present near the base of the fill. A small layer of brown, dense clay was intersected in the central northern portion of the site at thirty to thirty-one feet below grade.

The bedrock underlying the site is mapped as Monson Gneiss, which consists of light to dark, medium to coarse-grained gneiss. Historical investigations reported the bedrock to be highly fractured and weathered. The bedrock dips to the west below the site.

Depth to groundwater is approximately twelve to fourteen feet below grade (measured in September 1986). Historical reports indicate that groundwater generally flows east-southeast within the subject site. (Figure 5-3, Fred C. Hart Associates, Inc. attached)

Surface water runoff is expected to flow via overland flow and through the catch basin network to eventually discharge to Candlewood Hill Brook.

Part IV.1 Environmental Assessment

Salt Storage and Maintenance Facility Study prepared by Metcalf and Eddy in November 5, 1985. This report presents the information obtained from a site inspection and includes past uses of the site. It also provides a summary of the local environment of the site. No samples were obtained for this study but past samples were reported.

Preliminary Test Report Conn DOT Salt Storage and Maintenance Facility Study prepared by Metcalf and Eddy in 1985. Due to the site inspection and TCE (trichloroethylene) detections in several residential wells, Metcalf and Eddy selected the Higganum site for preliminary testing. Metcalf and Eddy determined elevated levels of sodium, chloride, and benzene were present in the groundwater. It was not reported how these samples were collected. This report recommends that a Phase II be performed to further characterize the presents of contaminants on site.

Field Investigation Work Plan for the Higganum Site #25 prepared by Fred C. Hart Associates, Inc. in November 26, 1985. This report summarized the historical operations conducted on site and the historical environmental setting of the site. A site inspection was performed and based on the findings Hart Associates conducted a geophysical survey (May 1985) and a grab sampling program (June 1985). One surface water sample was collected from Candlewood Hill Brook and analyzed for volatiles, hydrocarbon screening and pesticide/herbicide screening. No constituents were detected. Hart proposed to install test pits to determine the location of the buried drums. A Safety and Contingency Plan were developed for the installation of the test pits. A QA/QC plan is also attached to the report.

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Supplement to Field Investigation Work Plan for the Higganum Site # 25 prepared by Fred C. Hart Associates, Inc. in June 1986. This report proposes to perform a groundwater investigation plan for the site. This plan involves the installation of test borings and subsequent installation of four monitoring wells, up gradient and down gradient of the landfill area. No samples were taken as part of this report.

Draft Field Investigations Report for the Higganum Site # 25 prepared by Fred C. Hart Associates, Inc. in June 25, 1987. Hart conducted a Phase II investigation of the site. Field activities included test pit excavations, drilling test borings and installing five monitoring wells. Four soil samples along with up and down gradient ground water samples were collected and indicated the presence of pesticides and base/neutral and acid extractable compounds. The tar like substance was identified as the source of these constituents. Hart concluded that this tar like substance was adversely affecting the environmental quality in the study area. As such, Hart recommends the removal and proper disposal of the tar like material and semi-annual ground water monitoring be performed to determine if ground water quality improves subsequent to tar removal.

Detailed Test Report Conn DOT Salt Storage and Maintenance Facilities Study prepared by Metcalf and Eddy in 1987. This report summarizes past activities of the DOT site, the local environment, and includes a sampling plan for investigation. Monitoring wells, surface water and grab soil and groundwater samples were collected from the installation of test borings. Ground water samples indicated sodium and chloride are present in off site wells. Metcalf and Eddy recommended that ConnDOT supply bottled water to the properties affected by the sodium and chloride contamination, to have the garage drains discharge to a holding tank and contaminated soils near drain outlet and fill area be excavated and properly disposed of.

Part IV.2.a Environmental Assessment

Date Sampled	Soil Sample ID	Laboratory Tests
03/27/1986	TP-25-1A	EPA HSL Pesticides
07/31/1986	SB-25-2 (10-12'), SB-25-2 (16-18')	EPA HSL Volatiles, BNAs, Metals and Pesticides
04/02/1987	SB-25-4	EPA HSL Volatiles, BNAs, Metals and Pesticides
8/22-23/85	D-36-4-SL	HSL Volatile Organics, Hydrocarbons
09/02/1986	D-36-16-SL, D-36-19-SL,	NA, Cl
09/02/1986	D-36-17-SL, D-36-18-SL, D-36-20-SL, D-36-21-SL, D-36-22-SL	NA, Cl, EP toxicity (metals only), bulk petroleum hydrocarbons, petroleum hydrocarbons scan

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PartIV.2.b Environmental Assessment- Subsurface Sampling Techniques

To obtain soil samples and groundwater samples, a Mobile B53 truck-mounted rig using a 1/8 inch I.D. hollow-stem auger was used. The augers were used until the base of the fill material then six-inch casing was placed in the borehole and a four-inch steel casing equipped with a bit was placed inside the six-inch casing and drilled with wash water to the desired depth. If bedrock was encountered rock coring with an NX core barrel was utilized. Test pits were installed and samples collected from the base or edges of the test pits but exact techniques used were not identified in the Hart reports. The techniques used to collect surficial samples and groundwater samples were not reported for the Metcalf and Eddy samples obtained.

PartIV.3.a Environmental Assessment

Date Sampled	Ground Water Sample ID	Laboratory Tests
07/31/1986	WSW-25-DL-1**	EPA HSL Volatiles, BNAs, RCRA Metals and Pesticides
09/11/1986	W-25-1, W-25-1A, W-25-2, W-25-3	EPA HSL Volatiles, BNAs and Pesticides, EPA Primary Pollutant Metals
8/22-23/85	D-36-1-GW*	Na, Cl, HSL Volatile Organics, hydrocarbons, NIPDWR herbicides
8/22-23/85	D-36-2-GW, D-36-3-GW, D-36-7-GW**, D-36-8-GW, D-36-9-GW, D-36-23-GW*	Na, Cl, HSL Volatile Organics, hydrocarbons
08/29/1986	D-36-8-GW, D-36-23-GW*	Na, Cl, HSL Volatile Organics, hydrocarbons
09/02/1986	D-36-1-GW, D-36-3-GW, D-36-9-GW*	Na, Cl, HSL Volatile Organics, hydrocarbons
09/03/1986	D-36-7-GW*	Na, Cl, HSL Volatile Organics, hydrocarbons

* Samples D-36-#-GW are also referred to as P-36-#-GW and D-#

** Sample taken from the DOT Supply Well

A total of three sampling events occurred on site. Sampling events did not include all the wells present on site. Wells D-1 through D-23, which contain only five (5) wells, were sampled twice while the remaining wells were sampled during only one sampling event. A total of eighteen groundwater samples were collected for the site.

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Part IV.3.b Environmental Assessment

Well ID	Riser (ft)	Screen Interval (feet below grade)	Geologic Unit Well is Screened In	Ground Elevation (approx.)	Top of PVC Elevation	Typical Groundwater Elevation on 9/11/86
WD-25-1D	33.6	31.9-33.8	Sand; some gravel and cobbles	99.9	101.66	87.07
WD-25-1S	14.38	12-14	Coarse sand; little gravel	99.9	102.28	98.41
WD-25-2	15.83	13.5-18.5	Sand; little gravel and cobbles	98	100.33	85.83
WD-25-3	13.44	11-16	Cobbles and bedrock	90.6	93.04	80.2
WD-25-4	12.2	12.2-22.4	Coarse sand; little gravel	100.3	100.01	No data

Part IV.3.c Environmental Assessment- Offsite wells

Well Type	Name of Property/Well	Address	Town	State	Zip Code
Pvt. supply well	Rolumco, Inc.	Route 9A	Higganum	CT	06441
Pvt. supply well	Farmers & Mechanics Saving Bank	Route 9A	Higganum	CT	06441
Pvt. supply well	Country Market	Route 9A	Higganum	CT	06441
Pvt. supply well	Samuel and Paula Crum	Route 9A / 275 Saybrook Rd.	Higganum	CT	06441
Pvt. supply well	Elizabeth Allen et al	Candlewood Hill Road	Higganum	CT	06441
Pvt. supply well	Town of Haddam Fire House	Candlewood Hill Road	Higganum	CT	06441
Pvt. supply well	Town Garage	Depot Road	Higganum	CT	06441
Pvt. supply well	Haddam Elementary School	272 Saybrook Road	Higganum	CT	06441
Pvt. supply well	Norman Webber	227 Saybrook Road	Higganum	CT	06441
Pvt. supply well	Kovick	54 Killingworth Avenue	Higganum	CT	06441
Pvt. supply well	Marge Debold	372 Saybrook Road	Higganum	CT	06441
Pvt. supply well	Audrey Thompson	58 Killingworth Avenue	Higganum	CT	06441
Pvt. supply well	Unknown Residence	Christian Hill	Higganum	CT	06441
Pvt. supply well	Hickish	366 Saybrook Road	Higganum	CT	06441
Pvt. supply well	Aero Machine Inc.	363 Saybrook Road	Higganum	CT	06441
Pvt. supply well	Laskowski	359 Saybrook Road	Higganum	CT	06441
Pvt. supply well	Residence	378 Saybrook Road	Higganum	CT	06441
Pvt. supply well	Julier	392 Saybrook Road	Higganum	CT	06441
Pvt. supply well	Olver	267 Saybrook Road	Higganum	CT	06441
Pvt. supply well	Holden	365 Saybrook Road	Higganum	CT	06441
Pvt. supply well	Grenman	357 Saybrook Road	Higganum	CT	06441
Pvt. supply well	Brooks	8 Depot Road	Higganum	CT	06441
Pvt. supply well	Chadwick	346 Saybrook Road	Higganum	CT	06441
Pvt. supply well	Todaro	352 Saybrook Road	Higganum	CT	06441

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Well Type	Name of Property/Well	Address	Town	State	Zip Code
Pvt. supply well	Mark Stephens	33 Maple Avenue	Higganum	CT	06441
Pvt. supply well	Arabas	34 Maple Avenue	Higganum	CT	06441
Pvt. supply well	Moore	Parsonage Road	Higganum	CT	06441
Pvt. supply well	Faggione	9 Parsonage Road	Higganum	CT	06441
Pvt. supply well	Tully	2 Calliari Road	Higganum	CT	06441
Pvt. supply well	Rossi Pallet Shop	P.O. Box 769	Higganum	CT	06441
Pvt. supply well -	Patten	380 Saybrook Road	Higganum	CT	06441
Pvt. supply well	Neals' Cleaners	27 Killingworth Road	Higganum	CT	06441
Pvt. supply well	Heger	27 Boulder Dell Road	Higganum	CT	06441
Pvt. supply well	Knowles	15 Parsonage	Higganum	CT	06441
Pvt. supply well	John Nosal	195 Dublin Hill	Higganum	CT	06441
Pvt. supply well	Enright	373 Saybrook Road	Higganum	CT	06441
Pvt. supply well	Spitzmacher	4 Calliari Road	Higganum	CT	06441
Pvt. supply well	Leonard Nosal	60 Candlewood Hill Road	Higganum	CT	06441
Pvt. supply well	Ryer	6 Parsonage Road	Higganum	CT	06441
Pvt. supply well	Century 21	Saybrook Road	Higganum	CT	06441
Pvt. supply well	Fleming	255 Saybrook Road	Higganum	CT	06441
Pvt. supply well	Higganum Oil Co.	33 Candlewood Hill Road	Higganum	CT	06441
Pvt. supply well	Groundwater Inc.	265 Saybrook Road	Higganum	CT	06441
Pvt. supply well	Hartke	275 Saybrook Rd.	Higganum	CT	06441
Pvt. supply well and Borings	J.C. Wire Products	Route 154	Higganum	CT	06441
Pvt. supply well	DOT (onsite)	11 Candlewood Hill Road	Higganum	CT	06441
Pvt. supply well	Gendreau	4 Hull Avenue	Higganum	CT	06441
Pvt. supply well	Higganum Feed Store	Saybrook Road	Higganum	CT	06441
Pvt. supply well	SNET	7 Maple Avenue	Higganum	CT	06441
Pvt. supply well	Creative Marketing	Saybrook Road	Higganum	CT	06441
Pvt. supply well	Higganum Drug Center		Higganum	CT	06441
Pvt. supply well	Neal's Cleaners	27 Killingworth Road	Higganum	CT	06441
Pvt. supply well	Alberta Tuoy	Route 9A	Higganum	CT	06441
Pvt. supply well	Angelo Cubeta	Route 81	Higganum	CT	06441
Pvt. supply well	Blauvelt	Route 81	Higganum	CT	06441
Pvt. supply well	Elanor. Tomaszewski	Route 82	Higganum	CT	06441

All wells are assumed to be potable supply wells for the addresses they are located at.

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Part V.1.a Contaminants in the Environment: Highest Concentrations in On-Site Wastes

Constituent	Maximum Concentration	Identified In	Sampling Date	Release Area
4,4-DDD	19 mg/kg	TP-25-1A	12/15/1986	RA2
HE	3.3 mg/kg	TP-25-1A	12/15/1986	RA2
4,4-DDD = 4,4-DDD; HE: heptachlor epoxide				

Part V.1.b Contaminants in the Environment: Highest Concentrations in On-Site Soils

Constituent	Maximum Concentration	Identified In	Sampling Date	Release Area
ACT	593 ug/kg	D-22	09/02/1986	RA2
BZ	2 ug/kg	D-20, D-21	09/02/1986	RA2
CFM	6 ug/kg	SB-25-2	02/15/1986	RA2
MC	800 ug/kg	SB-25-4	04/14/1987	RA2
TCA	18 ug/kg	D-17	09/02/1986	RA2
TPH	10780 mg/kg	D-5	08/22/1985	PRA7
2-MN	19000 ug/kg	SB-25-2 (10-12)	12/15/1986	RA2
AN	15000 ug/kg	SB-25-2 (10-12)	12/15/1986	RA2
BAP	12000 ug/kg	SB-25-2 (10-12)	12/15/1986	RA2
BBF	10000 ug/kg	SB-25-2 (10-12)	12/15/1986	RA2
BGP	5600 ug/kg	SB-25-2 (10-12)	12/15/1986	RA2
BKF	3000 ug/kg	SB-25-2 (10-12)	12/15/1986	RA2
DBF	9000 ug/kg	SB-25-2 (10-12)	12/15/1986	RA2
FL	28000 ug/kg	SB-25-2 (10-12)	12/15/1986	RA2
IP	5300 ug/kg	SB-25-2 (10-12)	12/15/1986	RA2
CR	1100 ug/kg	SB-25-2 (10-12)	12/15/1986	RA2
NAP	17000 ug/kg	SB-25-2 (10-12)	12/15/1986	RA2
4,4-DDD	125 mg/kg	SB-25-2 (10-12)	12/15/1986	RA2
HE	85 mg/kg	SB-25-2 (10-12)	12/15/1986	RA2
2-MN: 2-Methylnaphthalene; AC: Acenaphthalene; BAP: Benzo(a)pyrene; BBF: benzo(b)fluoranthene; BGP: benzo(ghi)perylene; BKF: benzo(k)fluoranthene; DBF: dibenzofuran; FL: fluorene; IP: indeno(1,2,3-cd)pyrene; CR: m&p-cresols; NAP: naphthalene; HE: heptachlor epoxide				

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Part V.2.a Contaminants in the Environment: Highest Concentrations in On-Site Ground Water

Constituent	Maximum Concentration	Identified In	Sampling Date	Release Area
BZ	8 ug/L	W-25-1D*	07/30/1986	
MC	18 ug/L	D-2	08/29/1986	PRA7
TPH	ND			
2-MN	900 ug/L	W-25-2	02/13/1987	RA2
AN	3 ug/L	W-25-2	02/13/1987	RA2
BAP	5 ug/L	W-25-2	02/13/1987	RA2
BBF	3 ug/L	W-25-2	02/13/1987	RA2
BGP	ND	W-25-2	02/13/1987	RA2
BKF	5 ug/L	W-25-2	02/13/1987	RA2
CRY	7 ug/L	W-25-2	02/13/1987	RA2
DBF	440 ug/L	W-25-2	02/13/1987	RA2
DNO	180 ug/L	W-25-1A, W-25-1S*	2/13/87 & 7/25/86	
PAE	20 ug/L	W-25-2	02/13/1987	RA2

2-MN: 2-Methylnaphthalene; AC: Acenaphthalene; BAP: Benzo(a)pyrene; BBF: benzo(b)fluoranthene; BGP: benzo(ghi)perylene; BKF: benzo(k)fluoranthene; DBF: dibenzofuran; FL: fluorene; IP: indeno(1,2,3-cd)pyrene; CR: m&p-cresols; NAP: naphthalene; HE: heptachlor epoxide; CRY: chrysene; DNO: di-n-octylphthalate
 * = Upgradient Well

Part V.2.b Contaminants in the Environment: Highest Concentrations in Off-Site Ground Water

Constituent	Maximum Concentration	Identified In	Sampling Date
CFM	1.1 ug/L	Heger Apartments	11/07/1984
12DCA	1.3 ug/L	Heger Apartments	11/07/1984
PCE	149 ug/L	Neal's Cleaners	10/02/1985
TCA	7.2 ug/L	Royal Wire Products	01/20/1984
TCE	240 ug/L	Royal Wire Products	01/20/1984
XYL	2.0 ug/L	Neal's Cleaners	09/20/1984
THF	390 ug/L	Olver	09/01/1988
C2DCE	3.0 ug/L	J.C. Wire Products	06/01/1984

THF: tetrahydrofuran; C2DCE: cis-1,2-dichloroethylene

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Part V.3 Contaminants in the Environment: Highest Concentrations in Surface Water

Constituent	Maximum Concentration	Identified In	Sampling Date
ACT	2100 ug/L	D-15	08/01/1985
MIBK	>10 ug/L	D-15	08/01/85

Part V.5 Distribution and Extent of Soil and Ground Water Contamination

Release Area 1 is located in the western portion of the site where drums of herbicides were reportedly buried and the site was historically used as a landfill (Figure 5). A test pit (TP-25-1A) was installed in the area of the landfill and encountered a lens of tar-like material, a rusted 55 gallon drum which was coated in a white concrete-like substance, an empty one gallon paint can, several five-gallon can tops coated in the tar-like substance. Other fill material included wood beams, logs, large lenses of asphalt, pipes and scrap metal. Materials within the 55-gallon drum were sampled and analysis detected 4,4, DDD at 19 parts per billion (ppb) and heptachlor epoxide at 3.3 ppb both detections are above the applicable RSR standards, but are not characteristic or listed hazardous wastes in used form, only in virgin form would they qualify (Table 3). No samples of ground water were identified in this area. The degree and extent of soil and/or ground water contamination has not been determined.

Release Area 2 is along the southwestern portion of the facility. Previous reports reported the burial of an experimental joint sealer (MC-85 to 100) in this area. A test pit, TP-25-4, and 3 borings were installed in this area (Figure 5). The test pit excavation encountered a tar like substance at two feet below grade to grade. Herbicides, metals, SVOC and VOC detections were identified in this area above applicable RSR standards (Tables 1-5). The samples were not analyzed for TPH. Petroleum hydrocarbons are most likely to be present in this area. Soil boring, SB-25-2, and monitoring well, W-25-2, was installed in this release area (Figure 5). SVOCs were detected in this ground water sample at levels above the GWPC (Table 7). The horizontal and vertical extent of the tar like mass was never determined. No rounds of groundwater sampling were initiated to further investigate the presence and extent of SVOCs.

Potential Release Area 3 was reported to previously store drums. It was not reported what type or amount of materials were stored in the drums, nor how many drums were stored in the area. No investigation for this area was identified.

Potential Release Area 4 is located where a solvent odor was detected. It was not reported when the odor was detected, nor the duration of the odor, but the odor indicates a spill in the area. The soil in this area was never investigated but one monitoring well (D-1) was installed

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in this area. No detections were identified for VOCs and NIPDWR herbicides. Sodium was detected at 349 mg/L and 354 mg/L both above the Federal Secondary MCL, which is 20 mg/L. Chloride was detected at 523 mg/L and 442 mg/L both above the Federal Secondary MCL, which is 250 mg/L (Table 9).

Potential Release Area 5 is located between the southern repair garage and Candlewood Hill Brook. Steam cleaning solvents were used in this area and the disposals of the wastes were overland flow to Candlewood Hill Brook. No investigation was identified for this area.

Potential Release Area 6 includes the area historically reported as a solvent storage area, which existed to the east of the southern garage. Due to conflicting locations on historical figures it is not known exactly where this storage area was located. This area is also believed to be a point at which runoff leaves the site for Candlewood Hill Brook. Two samples were collected in this area. Sample D-2, groundwater, had benzene concentrations of 4 ug/L, and a methylene chloride concentration at 18 ug/L, both of which are greater than the GWPC. Sample D-20, sediment sample, had a lead concentration of 110 ug/L, which exceeds the GA PMC (Tables 1 & 8). The degree and extent of soil and/or ground water contamination has not been determined.

Potential Release Area 7 includes both repair garages and the areas in front of the repair garage doors. It is reported that vehicle maintenance and engine part cleaning occurred on site. It is possible that spills occurred during the maintenance of vehicles. The exact location of which is unknown, but it was reported that waste products include waste oil, solvents, antifreeze, and savasol. The disposal of the wastes was reported to discharge to a "trough", and into a 1,000-gallon waste oil tank. The waste oil UST is centrally located to the north of the southern garage. It was reported that floor drains from the repair garages discharge to Candlewood Hill Brook, and this outlet is a source of contamination. One ground water sample D-9 was collected from this area. No detections of VOCs were reported for this sample. Sodium and chloride were reported for this sample below the Federal Secondary MCLs. No soil samples were identified for this area. The degree and extent of soil and/or ground water contamination has not been determined.

Potential Release Area 8 includes the septic system located to the southeast of the northern repair garage. The septic system may accept the floor drain discharges from the repair garages and the leaching fields may be a potential area for releases. No investigation has been identified in this area.

Potential Release Area 9 includes the five USTs currently located on site; details for the tanks can be seen in Part II.2 of this Addendum and in Figure 3. Three USTs are located to the east of the southern repair garage. Two tanks have a 4,000-gallon capacity and hold gasoline and

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diesel fuel, while the third UST holds 2,000-gallons of heating oil. A 550-gallon waste oil tank is centrally located along the northern edge of the southern repair garage. A 2,000-gallon heating oil tank is located along the northern edge of the northern repair garage (Figure 3). The tanks present a potential release area due to the likeliness of spills and overfill from replenishing the tanks. No investigation has been identified in this area. Therefore the degree and extent of the soil and/or ground water contamination has not been determined.

Potential Release Area 10 includes eight former underground storage tanks, which existed on site (Figure 4). Reportedly two 1,000-gallon gasoline tanks existed centrally along the northern edge of the southern repair garage. It was reported that these tanks were removed but no closure reports could be identified. Three FUSTs were located in the area between the two repair garages and stored waste oil and unleaded gasoline. Two FUSTs were located east of the northern repair garage and stored heating oil and diesel fuel. No ground water investigation was identified in the vicinity of the former tanks. The degree and extent of soil and/or ground water contamination has not been determined.

Potential Release Area 11 includes historically stored salt for distribution on the roads. The location of the salt storage is not known. In August 1985 and September 1986, three on site monitoring wells were sampled and analyzed for sodium and chloride along with four grab groundwater samples. Six of the samples had sodium concentrations and three samples had chloride concentrations above the Federal Secondary MCL (Table 9).