



**STABILIZATION DEMONSTRATION
ENVIRONMENTAL INDICATORS
RCRIS CODE CA725
DONHAM CRAFT, INC.
EAST WATERBURY ROAD
NAUGATUCK, CONNECTICUT**

PREPARED FOR:
Donham Craft, Inc.
East Waterbury Road
Naugatuck, CT 06770

PREPARED BY:
GZA GeoEnvironmental, Inc.
27 Naek Road
Vernon, CT 06066

September 1999
File No. 41569

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September 29, 1999
File No. 41838



USEPA
Office of Site Remediation and Restoration
1 Congress Street
Suite 1100
Boston, MA 02114-2023

Attention: Mr. Juan Perez

27 Naek Road
Vernon
Connecticut 06066
860-875-7655
FAX 860-872-2416
<http://www.gza.net>

Dear Mr. Perez:

By this letter we are transmitting a "Stabilization Demonstration" for the Donham Craft, Inc. Site (CTD 001450006) located on East Waterbury Road in Naugatuck, Connecticut. Based on the information presented in this Demonstration we conclude that the Environmental Indicator, Current Human Exposures Under Control (CA 725) has been met and the Donham Craft, Inc. facility should be listed as Stabilized with regard to human exposures controlled.

Specifically, this Demonstration consists of this Transmittal letter, a completed copy of the February 5, 1999 CA 725 worksheet, and, as referenced in the Rationale and References sections of the worksheets, appended materials providing documentation of the results of recent investigations on which we used to substantiate that the Site met the human exposures under control stabilization criteria.

At this time there is little precedent for the format of a Stabilization Demonstration. We have tried to provide all of the documentation needed in as concise a manner as possible using the February 5, 1999 worksheet as the base document. We also note that, where the worksheets refer to "appropriately protective risk-based levels" to determine the significance of constituents in the environment, we have relied upon those portions of Connecticut DEP's 1996 Remediation Standard Regulations (RSRs) that are relevant to the Donham Craft Site setting. Specifically, that groundwater is not used for potable water on the Site and that the Site is in use as an industrial operation.

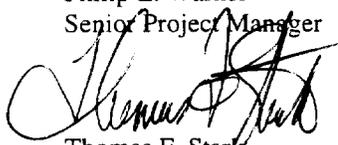
A Subsidiary of GZA
GeoEnvironmental
Technologies, Inc.

We hope that this format makes your review easy and that all of the support information you need, extracted from over 15 years of investigations at the Site, is appended. If you have any questions, please contact me at (860) 875-7655.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.


Philip E. Warner
Senior Project Manager


Thomas F. Stark
Principal

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DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

**RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)**

Current Human Exposures Under Control

Facility Name: Donham Craft, Inc.
Facility Address: East Waterbury Road, Naugatuck, CT
Facility EPA ID #: CTD001450006

1. Has all available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

If yes - check here and continue with #2 below.

If no - re-evaluate existing data, or

if data are not available skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

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Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be “contaminated”¹ above appropriately protective risk-based “levels” (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	<u>Yes</u>	<u>No</u>	<u>?</u>	<u>Rationale / Key Contaminants</u>
Groundwater	<u>X</u>	—	—	<u>See Note (a)</u>
Air (indoors) ²	—	<u>X</u>	—	<u>No RSR Volatilization Criteria Exceedances</u>
Surface Soil (e.g., <2 ft)	—	<u>X</u>	—	<u>See Note (b) and Appendices B and C</u>
Surface Water	—	<u>X</u>	—	<u>See Note (c)</u>
Sediment	—	<u>X</u>	—	<u>See Note (d) and Appendix A</u>
Subsurf. Soil (e.g., >2 ft)	—	<u>X</u>	—	<u>See Note (b) and Appendices B and C</u>
Air (outdoors)	—	<u>X</u>	—	<u>See Note (e)</u>

_____ If no (for all media) - skip to #6, and enter “YE,” status code after providing or citing appropriate “levels,” and referencing sufficient supporting documentation demonstrating that these “levels” are not exceeded.

X If yes (for any media) - continue after identifying key contaminants in each “contaminated” medium, citing appropriate “levels” (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

_____ If unknown (for any media) - skip to #6 and enter “IN” status code.

Rationale and Reference(s):

- a. **Groundwater:** Although numeric Ground Water Protection Criteria for GA-classified groundwater have been exceeded, there are no potable uses of groundwater on the Site. Deep bedrock wells supply process water to the facility. Available analytical data indicate adjacent residential wells do not contain constituents of concern above reference standards (Appendix D).
- b. **Surface and Subsurface Soil:** As shown in Tables 2 and 3, laboratory testing of soils, including surface and subsurface soil samples, did not identify contaminants or metals at concentrations that exceed CTDEP direct exposure criteria for present conditions, except for chromium which exceeded the conservative hexavalent chromium standard. Hexavalent chromium is not likely to persist in soil. This area is also beneath four feet of clean fill and “inaccessible”. See Appendix B.
- c. **Surface Water:** There are not current discharges to surface water.
- d. **Sediment:** The adjacent surface water body, Fulling Mill Brook, is a shallow stream with a sandy and stony bottom. Recent analytical data indicate no exceedances with the conservative application of residential direct exposure criteria. See Appendix A.
- e. **Air (outdoors):** The existing operations at the facility which discharge to the atmosphere are permitted. Emissions are in compliance with regulatory framework.

Footnotes:

¹ “Contamination” and “contaminated” describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based “levels” (for the media, that identify risks within the acceptable risk range).

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² Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

3. Are there **complete pathways** between “contamination” and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

Potential **Human Receptors** (Under Current Conditions)

“Contaminated” Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food ³
Groundwater	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>			<u>No</u>
Air(indoors)	___	___	___	___			___
Soil (surface, e.g., <2 ft)	___	___	___	___	___	___	___
Surface Water	___	___	___	___	___	___	___
Sediment	___	___	___	___	___	___	___
Soil (subsurface e.g., >2 ft)	___	___	___	___	___	___	___
Air (outdoors)	___	___	___	___	___	___	___

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors’ spaces for Media which are not “contaminated”) as identified in #2 above.
2. enter “yes” or “no” for potential “completeness” under each “Contaminated” Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential “Contaminated” Media - Human Receptor combinations (Pathways) do not have check spaces (“___”). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

- ___ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter “YE” status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).
- X If yes (pathways are complete for any “Contaminated” Media - Human Receptor combination) - continue after providing supporting explanation.
- ___ If unknown (for any “Contaminated” Media - Human Receptor combination) - skip to #6 and enter “IN” status code

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Rationale and Reference(s): The property is currently used primarily for custom metal finishing. There are no residents, day care, or food exposures. The groundwater contamination is generally beneath and adjacent to the former sludge settling lagoon which has been closed and capped. There is no potable groundwater use on the Site, but groundwater is used for process water which is drawn from deep bedrock wells that have not been impacted based on available data.

³ Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **“significant”**⁴ (i.e., potentially “unacceptable” because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable “levels” (used to identify the “contamination”); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable “levels”) could result in greater than acceptable risks)?

If no (exposures can not be reasonably expected to be significant (i.e., potentially “unacceptable”) for any complete exposure pathway) - skip to #6 and enter “YE” status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”

If yes (exposures could be reasonably expected to be “significant” (i.e., potentially “unacceptable”) for any complete exposure pathway) - continue after providing a description (of each potentially “unacceptable” exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”

If unknown (for any complete pathway) - skip to #6 and enter “IN” status code.

Rationale and Reference(s):

Groundwater: Workers at the facility may come in contact with process water which comes from deep bedrock wells. Available data indicates that this water has not been impacted; as such, although an exposure pathway is complete, there is a very low potential for exposure. Most potential construction work on the site (e.g. utility repair/installation, construction of footings for building additions) is likely to occur within the upper 4 feet of the subsurface. Contaminated groundwater is present at depths of between 4 and 17 feet below ground surface (average of greater than 12 feet). Therefore, in our opinion, exposure of construction workers to contaminants in the groundwater can not be reasonably expected to be significant; there is a very low potential for human exposure to the contaminated groundwater. If encountered, the short duration of exposure to the groundwater with metals concentrations is believed to be not significant.

⁴ If there is any question on whether the identified exposures are “significant” (i.e., potentially “unacceptable”) consult a human health Risk Assessment specialist with appropriate education, training and experience.

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5. Can the "significant" exposures (identified in #4) be shown to be within acceptable limits?

_____ If yes (all "significant" exposures have been shown to be within acceptable limits) - continue and enter "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

_____ If no (there are current exposures that can be reasonably expected to be "unacceptable")- continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure.

_____ If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code

Rationale and Reference(s): _____

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

X YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the Donham Craft Inc. facility, EPA ID # CTD001450006, located on East Waterbury Road in Naugatuck, Connecticut under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

_____ NO - "Current Human Exposures" are NOT "Under Control."

_____ IN - More information is needed to make a determination.

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Completed by (signature)  Date 11/18/99
(print) JUAN A PEREZ
(title) Environmental Scientist

Supervisor (signature)  Date 4/18/99
(print) Matthew R. Hogland
(title) Section Chief
(EPA Region or State) Region I

Locations where References may be found:

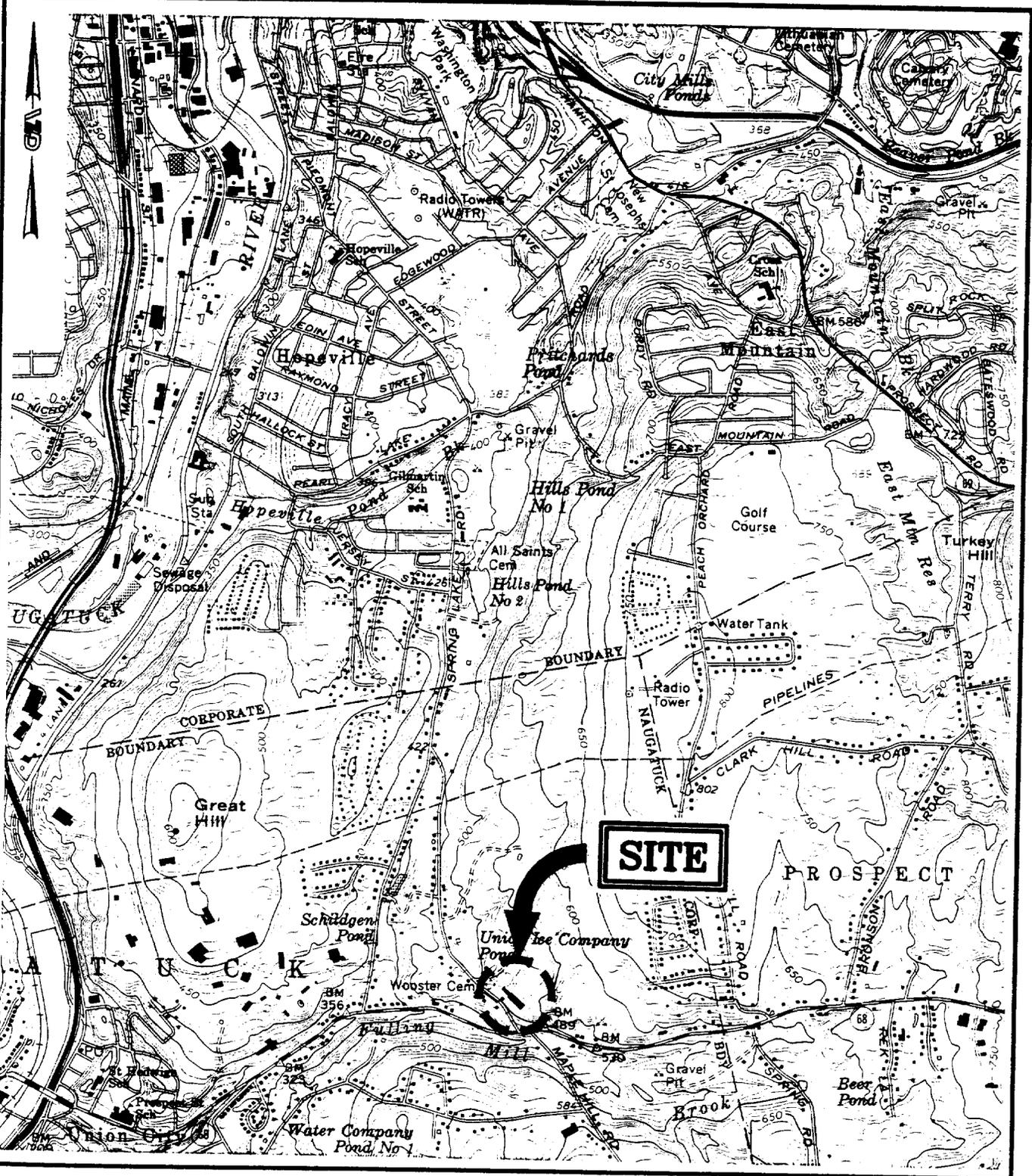
CDM-Federal Programs Corporation RCRA Facility Assessment - August 14, 1992
GZA's Post-Closure Part B Application - December 1991
GZA's RCRA Groundwater Monitoring Reports (1984 - 1999)
GZA's Environmental Indicators Evaluation - October 1997

Contact telephone and e-mail numbers

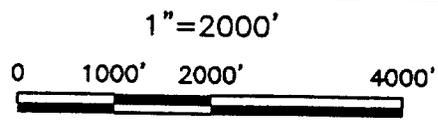
(name) David Niven
(phone #) (203) 729-8244
(e-mail) _____

FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.

FIGURES



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SOURCE: U.S.G.S. WATERBURY, CONNECTICUT QUADRANGLE MAP (1984)



DONHAM CRAFT

NAUGATUCK, CONNECTICUT

U.S.G.S. MAP

DEC., 1996

ATTACHMENT No. D

APPENDIX A

**RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)**

Current Human Exposures Under Control

Appendix A

Area of Concern No. 2 : The Former Wastewater Discharge Pipe

AOC No. 2 is the former wastewater discharge pipe which consisted of a 10-inch clay pipe that ran underground from the south end of the former sludge settling lagoons (AOC No. 1) discharging to the Prospect Street culvert. The Prospect Street culvert in turn discharged to Fulling Mill Brook. The former wastewater discharge pipe was used from October 1973 until May 1982. The pipe was removed along most of its length in August 1991 in accordance with a closure plan approved by the DEP. Based on low residual concentrations of compounds of concern, the steep grade of a portion of the pipe, and the satisfactory results of sub-pipe sampling below a portion of the pipe; it was determined that a 100-foot long section of the pipe did not pose a threat to human health or the environment and thus, was not removed.

On July 9, 1998, GZA collected three sediment samples, via a grab sampling collection method, from Fulling Mill Brook at the locations shown on Figure 2. GZA took one sample approximately 20 feet upstream of the former outfall, immediately downstream of the former outfall, and one further downstream (approximately 30 feet upstream of the Prospect Street culvert) of the former outfall. The samples were analyzed for cadmium, total chromium, lead, nickel, and total cyanide; the primary constituents of the formerly permitted discharge. Results of these samples are shown in Table A-1.

Since no numeric criteria exist for sediment soils, GZA used the Residential Direct Exposure Criteria (RES DEC) as a conservative approach to evaluate the analytical data. This is considered conservative since the RES DEC assumes daily exposure for five years; an exposure frequency that is not likely to occur in the brook. The results of laboratory analyses of the sediment samples collected from AOC No. 2 did not exceed the Residential Direct Exposure Criteria. Therefore, human exposures are controlled at this location.

TABLE A-1
SEDIMENT SAMPLE ANALYTICAL RESULTS - AOC No. 2
Donham Craft, Inc.
Naugatuck, Connecticut

Analyte	Remediation Standard Regulations (RSRs) Residential Direct Exposure Criteria (RES DEC)	Units	Sediment Sample Identification		
			DC-AOC2 SS-01	DC-AOC2 SS-02	DC-AOC2 SS-03
Cadmium	34	mg/kg	0.20	0.20	0.40
Total Chromium	NE [100 (Cr +6) ³]	mg/kg	4.8	5.2	7.4
Lead	500	mg/kg	4.6	7.0	12.4
Nickel	1400	mg/kg	3.8	4.0	4.2
Total Cyanide	1400	mg/kg	ND<0.50	ND<0.50	ND<0.50

Legend:

ND indicates Not Detected

NE indicates Not Established.

Cell indicates an exceedance of the Residential Direct Exposure Criteria (RES DEC)

Notes:

1. Laboratory analyses were performed by Milford Materials Testing Laboratory, Inc. of Milford, Connecticut
2. The Residential Direct Exposure Criteria (RES DEC) are taken from the Connecticut State Remediation Standard Regulations as updated in January 1996.
3. The Standard of 100 mg/kg has been used for chromium (Cr +6) because no standard has been established for Total Chromium.

APPENDIX B

**RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)**

Current Human Exposures Under Control

Appendix B

Area of Concern No. 5 : The Former Junkyard

AOC No. 5 is the former junkyard area encompassing approximately one acre. The area was used for the storage of scrap metal and appliances of mostly domestic origin, a bulldozer, and a few cars by Roberts Plating Company; a predecessor at the Site to Donham Craft. The first date of use of this area is unknown, however it was last used in the late 1970s when Donham Craft had the debris removed.

On December 7, 1998, GZA performed a subsurface soil investigation with a series of test pit excavations of this area. An initial grid, based on 30-foot centers, was staked out totaling 38 sample locations. GZA interviewed the former site owner's grandson David Roberts. Mr. Roberts indicated that the approximate location of former junkyard was in the south-west corner of the proposed sampling grid. The initial grid sample locations were reduced with field observations of subsurface investigations to 28 test pits. The reduction in sample locations was adequate to delineate the extent of historic use based on Mr. Roberts' first hand information.

In the test pit excavations performed, it was possible to visually delineate the soil materials deposited during site regrading operations from the former surface of the junkyard. The depths of surface materials ranged from 1 to 4 feet and consisted of fine-to-medium sand, coarse gravel, and cobbles. The former junkyard surface materials consisted of dark brown, fine-to-medium sand and some fine gravel, various debris consisting of wood, metal, concrete, and plastic. Grab samples were collected from the sidewalls of the test pit trenches and field screened for volatile organic compounds (VOCs) with a ThermoEnvironmental Organic Vapor Meter (OVM); no responses were noted. Soil samples were collected at depths which were considered the former surface of the junkyard and natural soils at a deeper horizon. A total of 35 samples were analyzed for Total Petroleum Hydrocarbons (TPH) and site specific metals: cadmium, chromium, lead, nickel, and cyanide. Specific analytical methods and laboratory analyses are shown on Table B-1.

The results of laboratory analyses of the soil samples collected from AOC No. 5 do not exceed Residential Direct Exposure Criteria (RES DEC) or Industrial/Commercial Direct Exposure Criteria (I/C DEC) except for two samples from grid locations E2-S1 and E2.5-S1 where chromium concentrations were found to be elevated. The chromium I/C DEC used was for hexavalent chromium at a concentration of 100 mg/kg. This criteria was used as a conservative approach to the evaluation of the data. It is unlikely that hexavalent chromium is present in the +6 valence state in soil and is most likely to be in the +3 valence state. The trivalent chromium RES DEC is 3,900 mg/kg and the I/C DEC is 51,000 mg/kg. The highest concentration detected is one order of magnitude less than the RES DEC and 100 times less than the I/C DEC. Cadmium exceeded the RES DEC but not the I/C DEC at location E2 - S1

**RCRA Corrective Action
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Current Human Exposures Under Control

Appendix B (cont.)

Area of Concern No. 5 : The Former Junkyard

(4.0' to 5.0') and G1 - S2 (7.5'). The highest concentration detected is one order of magnitude less than the I/C DEC.

The surface of the former junkyard is covered with a layer of sand and gravel at a thickness ranging from one to four feet. With a cover thickness of four feet, the underlying material meets the definition of an inaccessible soil as defined in the Connecticut Remediation Standard Regulations (RSRs). In this area, the underlying soil also meets the stabilization criteria with respect to Human Exposures Controlled.

TABLE B-1

SUMMARY OF SOIL RESULTS (12/7 - 8/98)
 DONHAM CRAFT, INC.
 NAUGATUCK, CONNECTICUT

Compound in mg/kg (ppm)	Residential Direct Exposure Criteria	Industrial/Commercial Direct Exposure Criteria	Sample Location						
			C1-S1 3.0' - 4.0' (Junkyard)	C2-S2 7.5' (Natural)	C3-S1 3.0' - 4.0' (Junkyard)	C4-S1 3.0' - 4.0' (Junkyard)	D1-S1 1.5' - 2.0' (Junkyard)	D2-S1 3.0' - 4.0' (Junkyard)	D3-S1 3.0' (Junkyard)
Cadmium	34	1,000	0.1	0.3	0.4	0.3	0.2	0.2	ND <0.1
Chromium	NE [100 (Cr +6) ³]	NE [100 (Cr +6) ³]	5.8	7.8	7.8	8.2	5	7.2	5.2
Lead	500	1,000	2.2	4.6	13.2	4.6	12.2	4.4	3.8
Nickel	1,400	7,500	7.2	9.2	20.2	9.2	7	6.8	5
Cyanide	1,400	41,000	ND <0.5	0.56	ND <0.5	0.92	ND <0.5	ND <0.5	ND <0.5
Total Petroleum Hydrocarbon (TPH)	500	2,500	20	8	24	20	52	16	24

Legend:

NE indicates standard Not Established.

ND indicates Not Detected.

NT indicates Not Tested.

Bold Cell indicates an exceedance of the Residential Direct Exposure Criteria (RES DEC)

Shaded Cell indicates an exceedance of the Industrial/Commercial Direct Exposure Criteria (I/C DEC)

Notes:

- Laboratory analyses were performed by Milford Materials Testing Laboratory, Inc. of Milford, Connecticut.
- The Residential Direct Exposure Criteria (RES DE) and the Industrial/Commercial Direct Exposure Criteria (I/C DE) are taken from the Connecticut State Remediation Standard Regulations as updated in January 1996.
- The Standard of 100 mg/kg has been used for chromium (Cr +6) because no standard has been established for Total Chromium.

TABLE B-1

SUMMARY OF SOIL RESULTS (12/7 - 8/98)
 DONHAM CRAFT, INC.
 NAUGATUCK, CONNECTICUT

Compound in mg/kg (ppm)	Residential Direct Exposure Criteria	Industrial/Commercial Direct Exposure Criteria	Sample Location						
			D4-S1 3.0' (Junkyard)	E1-S2 7.5' (Natural)	E2-S1 4.0 - 5.0' (Junkyard)	E2-S2 8.0' (Natural)	E2.5-S1 2.5' (Junkyard)	E2.5-S2 7.0' (Natural)	E2.5-S3 10.5' (Natural)
Cadmium	34	1,000	0.2	0.2	76	0.3	12.8	0.1	16.5
Chromium	NE [100 (Cr +6) ³]	NE [100 (Cr +6) ³]	6.2	10	474	19	126	5.6	97
Lead	500	1,000	4.4	4.2	17.2	5.2	55.8	2.4	43
Nickel	1,400	7,500	10	10.8	218	16.4	70.4	9.8	67.8
Cyanide	1,400	41,000	0.51	ND <0.5	1.6	ND <0.5	2.6	ND <0.5	2.8
Total Petroleum Hydrocarbon (TPH)	500	2,500	24	16	140	32	148	36	56

Legend:

NE indicates standard Not Established.

ND indicates Not Detected.

NT indicates Not Tested.

Bold Cell indicates an exceedance of the Residential Direct Exposure Criteria (RES DEC)

Shaded Cell indicates an exceedance of the Industrial/Commercial Direct Exposure Criteria (I/C DEC)

Notes:

- Laboratory analyses were performed by Milford Materials Testing Laboratory, Inc. of Milford, Connecticut.
- The Residential Direct Exposure Criteria (RES DE) and the Industrial/Commercial Direct Exposure Criteria (I/C DE) are taken from the Connecticut State Remediation Standard Regulations as updated in January 1996.
- The Standard of 100 mg/kg has been used for chromium (Cr +6) because no standard has been established for Total Chromium.

TABLE B-1

SUMMARY OF SOIL RESULTS (12/7 - 8/98)
 DONHAM CRAFT, INC.
 NAUGATUCK, CONNECTICUT

Compound in mg/kg (ppm)	Residential Direct Exposure Criteria	Industrial/Commercial Direct Exposure Criteria	Sample Location						
			E3-S1 2.5' (Junkyard)	E3-S2 6.5' (Natural)	E4-S1 3.5' (Junkyard)	E4-S2 7.5' (Natural)	F1-S1 1.0' (Junkyard)	F1-S2 7.5' (Natural)	F2-S1 2.0' (Junkyard)
Cadmium	34	1,000	32	0.1	0.4	0.2	1.2	0.8	3.8
Chromium	NE [100 (Cr +6) ³]	NE [100 (Cr +6) ³]	72	8	11.2	6.6	11.8	10.8	52.2
Lead	500	1,000	21	2.2	4.8	2.8	2.8	3.4	78.6
Nickel	1,400	7,500	80.4	6.6	7.6	3.6	10.4	8.4	47
Cyanide	1,400	41,000	ND <0.5	ND <0.5	ND <0.5	ND <0.5	ND <0.5	ND <0.5	ND <0.5
Total Petroleum Hydrocarbon (TPH)	500	2,500	20	21	44	40	48	16	32

Legend:

NE indicates standard Not Established.

ND indicates Not Detected.

NT indicates Not Tested.

Cell indicates an exceedance of the Residential Direct Exposure Criteria (RES DEC)

Cell indicates an exceedance of the Industrial/Commercial Direct Exposure Criteria (I/C DEC)

Notes:

- Laboratory analyses were performed by Milford Materials Testing Laboratory, Inc. of Milford, Connecticut.
- The Residential Direct Exposure Criteria (RES DE) and the Industrial/Commercial Direct Exposure Criteria (I/C DE) are taken from the Connecticut State Remediation Standard Regulations as updated in January 1996.
- The Standard of 100 mg/kg has been used for chromium (Cr +6) because no standard has been established for Total Chromium.

TABLE B-1

SUMMARY OF SOIL RESULTS (12/7 - 8/98)
 DONHAM CRAFT, INC.
 NAUGATUCK, CONNECTICUT

Compound in mg/kg (ppm)	Residential Direct Exposure Criteria	Industrial/Commercial Direct Exposure Criteria	Sample Location						
			F2-S2 10.5' (Natural)	F3-S1 5.5' (Junkyard)	F3-S2 12.5' (Natural)	F3.5-S1 2.5' (Junkyard)	F3.5-S2 8.5' (Natural)	G1-S1 4.0' (Junkyard)	G1-S2 7.5' (Natural)
Cadmium	34	1,000	1.8	3.8	0.2	1	0.3	4	110
Chromium	NE [100 (Cr +6) ³]	NE [100 (Cr +6) ³]	12	81.4	10.6	8.2	5.6	22.6	10.2
Lead	500	1,000	2.2	205	5	5	2.2	6.8	3.4
Nickel	1,400	7,500	10	66.8	7.4	12.2	6.4	18.2	5.6
Cyanide	1,400	41,000	ND <0.5	0.8	ND <0.1	0.52	ND <0.5	0.6	ND <0.5
Total Petroleum Hydrocarbon (TPH)	500	2,500	4	32	4	20	12	20	8

Legend:

NE indicates standard Not Established.

ND indicates Not Detected.

NT indicates Not Tested.

Bold Cell indicates an exceedance of the Residential Direct Exposure Criteria (RES DEC)

Shaded Cell indicates an exceedance of the Industrial/Commercial Direct Exposure Criteria (I/C DEC)

Notes:

- Laboratory analyses were performed by Milford Materials Testing Laboratory, Inc. of Milford, Connecticut.
- The Residential Direct Exposure Criteria (RES DEC) and the Industrial/Commercial Direct Exposure Criteria (I/C DEC) are taken from the Connecticut State Remediation Standard Regulations as updated in January 1996.
- The Standard of 100 mg/kg has been used for chromium (Cr +6) because no standard has been established for Total Chromium.

TABLE B-1

SUMMARY OF SOIL RESULTS (12/7 - 8/98)
 DONHAM CRAFT, INC.
 NAUGATUCK, CONNECTICUT

Compound in mg/kg (ppm)	Residential Direct Exposure Criteria	Industrial/Commercial Direct Exposure Criteria	Sample Location						
			G2-S1 3.5' (Junkyard)	G2-S2 8.0' (Natural)	G3-S1 3.0' (Junkyard)	G4-S1 2.5' (Junkyard)	G4-S2 6.0' (Natural)	G5-S1 3.0' (Junkyard)	G5-S2 6.0' (Natural)
Cadmium	34	1,000	7.8	ND <0.1	4.2	0.5	0.2	5.4	0.3
Chromium	NE [100 (Cr +6) ³]	NE [100 (Cr +6) ³]	62.2	7.6	21.8	25.2	7.6	41.2	4.2
Lead	500	1,000	21.8	2	6.4	7.6	2.2	8.6	1.6
Nickel	1,400	7,500	37.6	3.6	15.8	30.4	6.6	37.2	5.6
Cyanide	1,400	41,000	ND <0.5	ND <0.5	ND <0.5	ND <0.5	ND <0.5	1.2	ND <0.5
Total Petroleum Hydrocarbon (TPH)	500	2,500	40	72	20	32	16	20	32

Legend:

NE indicates standard Not Established.

ND indicates Not Detected.

NT indicates Not Tested.

Bold Cell indicates an exceedance of the Residential Direct Exposure Criteria (RES DEC)

Shaded Cell indicates an exceedance of the Industrial/Commercial Direct Exposure Criteria (I/C DEC)

Notes:

- Laboratory analyses were performed by Milford Materials Testing Laboratory, Inc. of Milford, Connecticut.
- The Residential Direct Exposure Criteria (RES DE) and the Industrial/Commercial Direct Exposure Criteria (I/C DE) are taken from the Connecticut State Remediation Standard Regulations as updated in January 1996.
- The Standard of 100 mg/kg has been used for chromium (Cr +6) because no standard has been established for Total Chromium.

APPENDIX C

**RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)**

Current Human Exposures Under Control

Appendix C

Area of Concern No. 21 : The Former Outdoor Plating Waste Accumulation Area

AOC No. 21 is the former Outdoor Plating Waste Accumulation Area which facility representatives identified in the area approximately as shown on Figure 2. Its size and period of use are unknown.

On July 15, 1998, GZA performed a series of four hand auger borings in the area of former plating waste storage area. The four locations were based on a 30-foot spacing between sample locations as shown on Figure 2. Samples were collected at three discrete depths of 0-12, 12-36, and 48-60 inches. Samples were collected using standard operating procedures. The equipment was decontaminated between each sample location using a water wash, Alconox soap wash, and a deionized water rinse. Samples were containerized and stored by standard protocol, for analyses of mass metals: cadmium, chromium, lead, nickel, and cyanide. The samples collected were submitted to Milford Materials Testing Laboratory, Inc. Specific analytical methods and the results of the laboratory analyses are shown on Table C-1. On December 8, 1998, GZA performed confirmation sampling for location S-2 (0"-12") for lead analyses due to an anomalous elevated reading.

The results of laboratory analyses of the soil samples collected from AOC No. 5 do not exceed Industrial/Commercial Direct Exposure Criteria (I/C DEC) except for the July samples from locations SB-2 (0 - 12), SB-2 (12 - 36), and SB-3 (0 - 12). The concentration of lead reported in sample SB-2 (0 - 12) in July, 1998 appeared anomalous (not representative of the general soil conditions) and was re-tested in December, 1998. Although the initial concentration detected exceeded the I/C DEC of 1,000 mg/kg, the re-test sample concentration was 129 mg/kg. At this concentration, the sample is an order of magnitude less than the standard.

Chromium concentrations were elevated at locations SB-2 (12 - 36) and SB-3 (0 - 12) which exceeded the chromium I/C DEC concentration of 100 mg/kg. The criteria used for hexavalent chromium was a conservative approach to the evaluation of the data. It is unlikely that hexavalent chromium is present in the +6 valence state in soil and is most likely to be in the +3 valence state. The trivalent chromium RES DEC is 3,900 mg/kg and the I/C DEC is 51,000 mg/kg. The highest concentration detected is one order of magnitude less than the RES DEC and 100 times less than the I/C DEC.

Based on all of the data from this area, we believe human exposures are controlled at this location.

TABLE C-1
SOIL SAMPLE ANALYTICAL RESULTS AOC No. 21

Donham Craft, Inc.
 Naugatuck, Connecticut

ANALYTE	REFERENCE STANDARDS		UNITS	SB-1	SB-1	SB-1	SB-2	SB-2B	SB-2	SB-2	SB-3	SB-3	SB-4	SB-4	SB-4
	RES DE	I/C DE		0-12	12-36	48-60	0-12	0-12	12-36	48-60	0-12	12-36	0-12	12-36	0-12
Sampling Date				9/1/97	9/1/97	9/1/97	9/1/97	9/1/97	9/1/97	9/1/97	9/1/97	9/1/97	9/1/97	9/1/97	9/1/97
Mass Metals															
Cadmium	34	1000	mg/kg	15.6	22.2	0.20	22.0	NT	64.0	1.4	13.4	12.0	27.6	4.0	4.2
Chromium, total	NE [100 (Cr +6) ³]	NE [100 (Cr +6) ³]	mg/kg	30.2	57.4	16.4	70.8	NT	336.0	16.4	224.0	32.0	38.4	21.4	22.0
Lead	500	1000	mg/kg	22.2	20.0	7.2	1756.0	129.0	39.4	19.8	556.0	34.0	58.0	16.6	16.2
Nickel	1400	7500	mg/kg	31.6	192.0	8.2	62.6	NT	1110.0	11.6	23.8	61.2	40.0	21.6	20.2
Cyanide, total	1400	41000	mg/kg	4.6	10.2	1.8	5.9	NT	450.0	1.0	12.0	8.9	10.8	6.5	NT

Legend:

NE indicates standard Not Established.

ND indicates Not Detected.

NT indicates Not Tested.

Bold Cell indicates an exceedance of the Residential Direct Exposure Criteria (RES DEC)

Shaded Cell indicates an exceedance of the Industrial/Commercial Direct Exposure Criteria (I/C DEC)

Notes:

- Laboratory analyses were performed by Milford Materials Testing Laboratory, Inc. of Milford, Connecticut.
- The Residential Direct Exposure Criteria (RES DE) and the Industrial/Commercial Direct Exposure Criteria (I/C DEC) are taken from the Connecticut State Remediation Standard Regulations as updated in January 1996.
- The Standard of 100 mg/kg has been used for chromium (Cr +6) because no standard has been established for Total Chromium.

APPENDIX D

TABLE D-1

DONHAM CRAFT, INC.

ANALYTICAL SUMMARY
OFF-SITE SUPPLY WELLS

Page 1 of 2

PARAMETERS	RW-5			RW-6			RW-7			FEDERAL STANDARDS	STATE STANDARDS
	6/89	6/90	6/91	6/89	6/90	6/91	6/89	6/90	6/91		
pH (Standard Units)	6.5	7.3	6.2	6.9	6.7	6.1	7.1	6.4	6.1	NS	NS
Specific Conductance (μ mhos)	175	106	143	125	108	131	150	138	133	NS	NS
Chromium (mg/l)	.002	.003	.003	.003	.006	.019	.005	.008	.013	0.10	0.05
Lead (mg/l)	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	0.05	0.02
Nickel (mg/l)	.008	<.001	<.001	.010	<.001	.013	.008	.017	.010	0.1 ⁽³⁾	0.35
Copper (mg/l)	.013	.015	.027	.019	.021	.050	.081	.095	.073	1.3 ⁽³⁾	1.0
Zinc (mg/l)	.36	.050	.031	.092	.049	.007	.093	.090	.022	5.0 ⁽¹⁾	5.0 ⁽²⁾

TABLE D-1

DONHAM CRAFT, INC.

ANALYTICAL SUMMARY
OFF-SITE SUPPLY WELLS

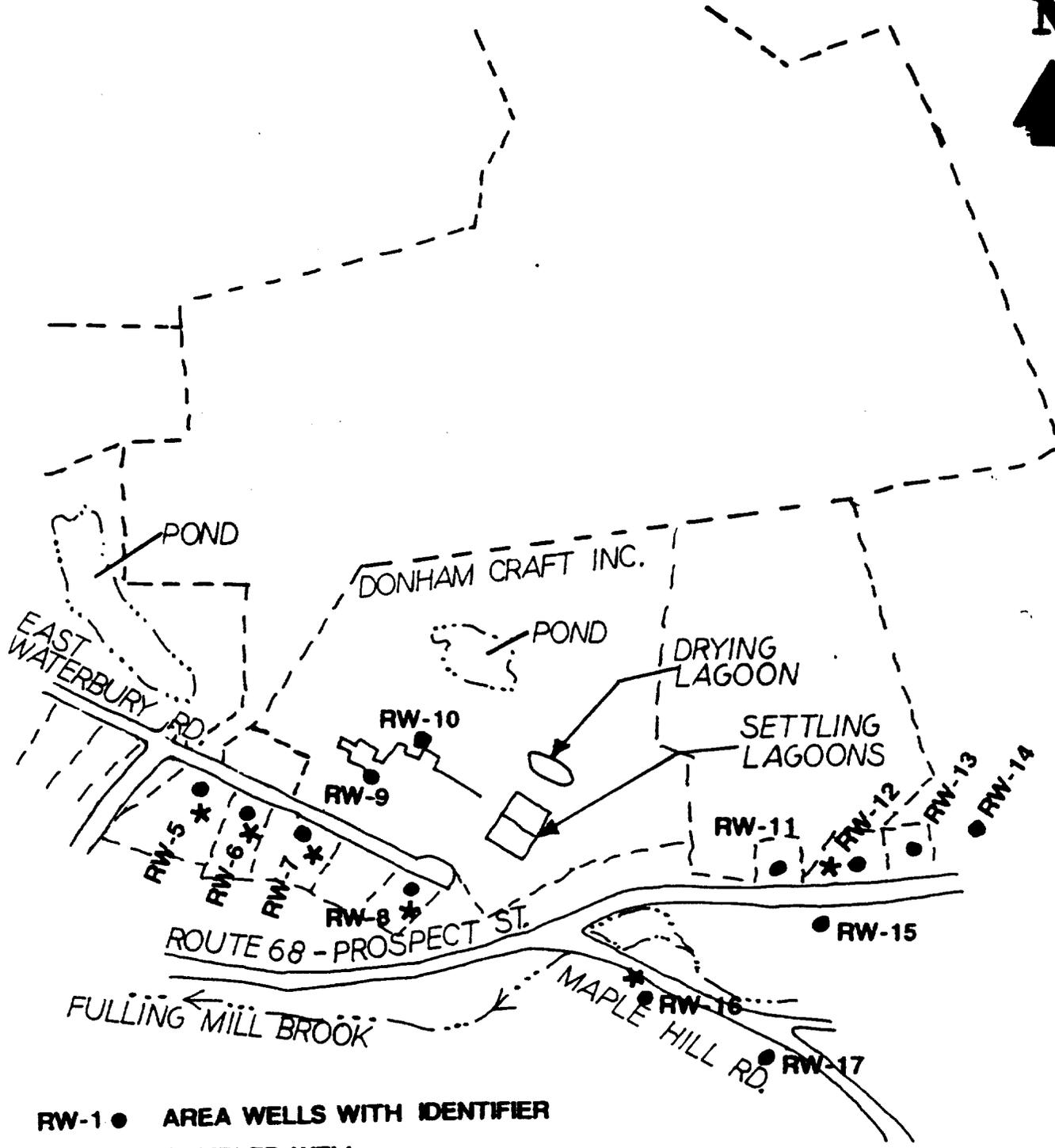
Page 2 of 2

PARAMETERS	RW-8			RW-12			RW-16			FEDERAL STANDARDS	STATE STANDARDS
	6/89	6/90	6/91	6/89	6/90	6/91	6/89	6/90	6/91		
pH (Standard Units)	7.9	8.0	6.6	6.4	6.0	5.6	7.5	6.9	6.1	NS	NS
Specific Conductance (μ hos)	140	147	145	85	75	119	65	61	86	NS	NS
Chromium (mg/l)	.002	.002	.004	.002	.006	<.001	.002	.002	.009	0.10	0.05
Lead (mg/l)	<.005	<.005	<.005	.010	.020	.009	<.005	<.005	<.005	0.05	0.02
Nickel (mg/l)	.004	.013	.005	.005	.016	<.001	.009	<.001	.017	0.1 ⁽³⁾	0.35
Copper (mg/l)	.008	.012	.018	.051	.22	.085	.025	.028	.050	1.3 ⁽³⁾	1.0
Zinc (mg/l)	.10	.038	.005	.053	.065	.007	.062	.018	.011	5.0 ⁽¹⁾	5.0 ⁽²⁾

NOTES:

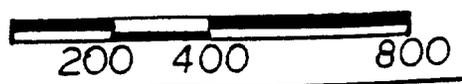
mg/l = milligrams per liter
 μ hos/cm = micromhos per centimeter
 NS = not standard

- (1) EPA Secondary MCL
 (2) State water quality guideline value used to evaluate potential contamination of potable water supplies.
 (3) EPA proposed MCL



- RW-1 ● AREA WELLS WITH IDENTIFIER
- * SAMPLED WELL
- APPROXIMATE PROPERTY LINE

NOTES: LOCATIONS OF WATER SUPPLY WELLS FROM UNTITLED TOWN MAP PROVIDED BY DONHAM CRAFT INC.



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DONHAM CRAFT INC.
NAUGATUCK, CT.

AREA WELLS

AUGUST, 1990

FIGURED-

**US EPA New England
RCRA Document Management System (RDMS)
Image Target Sheet**

RDMS Document ID# 773

Facility Name: Donham Craft Inc

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Document Title: Environmental Indicator (EI) Determination,
Current Human Exposures Under Control (CA 725 YE) - Donham
Craft Inc

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Purpose of Target Sheet:

Oversized

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Other (Please Provide Purpose
Below)

Comments:

Oversized Map of Site Plan with Locations of Monitoring Wells and
Sampling Locations

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