DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

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

Current Human Exposures Under Control

RDMS DocID 00100106

Facility Name: Thomas G. Faria Corporation
Facility Address: 385 Norwich - New London Turnpike, Uncasville, CT 06382-0983
Facility EPA ID #: CTD043038744

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?

__x__ 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).

2. 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)?

	Yes	No	?	Rationale / Key Contaminants
Groundwater	_x_	___	___	tetrachloroethene, trichloroethene, 1,1,1-trichloroethane, 1,1-dichloroethane, 1,1-dichloroethene, total 1,2-dichloroethene, vinyl chloride
Air (indoors)[2]	_x_	___	___	tetrachloroethene, trichloroethene
Surface Soil (e.g., <2 ft)	_x_	___	___	arsenic, chromium, polycyclic aromatic hydrocarbons
Surface Water	___	_x_	___	
Sediment	_x_	___	___	polycyclic aromatic hydrocarbons, arsenic, cadmium, chromium, lead, zinc, vinyl chloride
Subsurf. Soil (e.g., >2 ft)	_x_	___	___	methylene chloride, total 1,2 - dichloroethene, tetrachloroethene, trichloroethene, 1,1,1-trichloroethane, xylene, polycyclic aromatic hydrocarbons
Air (outdoors)	___	_x_	___	

_____ 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): The contaminants listed above are based on existing data, as found in the references listed on the last page of this checklist, compared to the Connecticut Remediation Standard Regulation (CT RSR) Direct Exposure Criteria (DEC) and GA/GAA Groundwater Protection Criteria (GWPC), the Connecticut Target Indoor Air Criteria, and the Occupational Safety and Health Administration (OSHA) 8-hour time-weighted Permissible Exposure Limits.

Groundwater: Chlorinated solvents are present in groundwater on the facility property at elevated concentrations. Faria operates a groundwater recovery and treatment system designed to control the groundwater plume. To monitor the system, groundwater elevations are measured monthly and groundwater samples are collected and analyzed quarterly for VOCs in eleven monitoring wells on-site and three dug wells (formerly for private, residential uses) off-site. The most recent analytical results reported to EPA, for March 2003, show on-site concentrations of tetrachloroethene up to 1600 µg/L; trichloroethene up to 88 µg/L; 1,1,1- trichloroethane up to 4.5 µg/L; 1,1-dichloroethane up to 5 µg/L; 1,1-dichloroethene up to 4.4 µg/L; cis-1,2-dichloroethene up to 7.5 µg/L. March 2003 analytical results show off-site concentrations of tetrachloroethene up to 20 µg/L; trichloroethene up to 2.8 µg/L; 1,1,1-trichloroethane up to 1.5 µg/L; and cis-1,2-dichloroethene up to 0.7 µg/L. (March 2003 System Monitoring Report Interim Measure Groundwater Recovery and Treatment System, dated July 3, 2003, prepared by Woodard & Curran, Inc. for Thomas G. Faria Corporation). CT RSR groundwater protection criteria for these constituents are as follows: 5 µg/L for tetrachloroethene and trichloroethene, 200 µg/L for 1,1,1-trichloroethane, 70 µg/L for 1,1-dichloroethane, 7 µg/L for 1,1-dichloroethene, and 70 µg/L for cis-1,2-dichloroethene.

Indoor Air: Due to the presence of VOCs in groundwater, Faria performed four rounds of indoor air sampling (each designed to represent a different season of the year) in five homes immediately downgradient of its facility to evaluate the vapor intrusion pathway. The indoor air sampling included, for each home, collection and analysis of: a groundwater sample (from the former private well, if still accessible), a soil gas sample, and indoor air samples collected in the basement and on the first floor. Sample results for one of the homes showed VOC levels consistently below EPA risk ranges and thresholds. Risks calculated based on VOCs detected in the four remaining homes were within EPA's cancer risk range of 1 in 1,000,000 to 1 in 10,000. To reduce concentrations of VOCs in the four remaining homes, Faria installed sub-slab depressurization systems in these homes on August 28, 2003 to prevent sub-surface vapors from entering the homes. To evaluate the effectiveness of the sub-slab depressurization systems, Faria collected indoor air samples in the basement of each home over a 24-hour period and analyzed for VOCs. Radon concentrations were measured over the same period in the basements of the homes and average concentrations over the 24-hour period were calculated. Following system installation, Faria again measured radon concentrations in the basements of the homes. Using the ratio of the radon concentrations before system installation to those following system installation, along with the VOC concentrations before system installation, Faria calculated VOC concentrations for the basements following system installation (Draft Work Plan for Vapor Intrusion Mitigation System in Target Residences, dated May 28, 2003, prepared by Woodard & Curran, Inc. for Thomas G. Faria Corporation; Addendum to Work Plan for Vapor Intrusion Mitigation System in Target Residences dated 8/12/2003). All calculated VOC concentrations (for VOCs related to subsurface contamination from Faria) were below the analytical method detection limits for the respective compound and would correspond to a hazard index well below 1 and a cancer risk at the base of EPA's cancer risk range, using conservative exposure scenarios (Draft Summary Report on Confirmation Monitoring Associated with Vapor Intrusion Mitigation Systems in Target Residences, dated September 2003, prepared by Woodard & Curran, Inc. for Thomas G. Faria Corporation).

To evaluate concentrations of VOCs in indoor air in its facility buildings, Faria collected indoor air samples on July 10, 2003 over an 8-hour period which corresponded to the daily shift during which they have the most employees working. Samples were collected in six locations in Faria facility buildings on the first floor and in unfinished basement areas. Sample locations were designed to represent areas where vapor intrusion appears most likely (e.g., unfinished basement areas and areas overlying areas where soil or groundwater are known to contain VOCs); areas with relatively high densities of employees; and areas with ongoing activities that could release VOCs to air. Trichloroethene and tetrachloroethene were detected in some of the indoor air samples at concentrations exceeding the March 2003 Proposed Revisions to the Connecticut Industrial/Commercial Target Indoor Air Criteria. However, maximum concentrations of these VOCs were three orders of magnitude below the corresponding OSHA 8-hr time weighted average Permissible Exposure Limit (PEL) (see Attachment 1).

Surface Soils: A surface soil sample collected between building M-6 and M-11 in December 1999 (sample SS-9) detected arsenic at 21.2 mg/kg (above the CT RSR industrial/commercial and residential DEC of 10 mg/kg) and total chromium at 104 mg/kg (above the CT RSR industrial/commercial and residential DEC for hexavalent chromium of 100 mg/kg). Surface soil sampling was also conducted at Faria in an area known as AOC 10 (see Attachment 2) to evaluate whether releases from former aboveground gasoline and kerosene storage tanks had occurred. Three surface soil samples collected in November 1998 (AGT-SS-1,-2, and -3) were analyzed for VOCs and total petroleum hydrocarbons (TPH). In these samples, TPH was detected at concentrations of 329, 201 and 24 mg/kg, respectively (below the CT RSR industrial/commercial DEC of 2500 mg/kg). Subsequent samples in AOC 10 collected in December 1999 (SS-10, -11, -12, and -13) were analyzed for polycyclic aromatic hydrocarbons (PAHs) and detected several PAHs (including benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene) above CT RSR industrial/commercial Direct Exposure Criteria (DEC) (RCRA Facility Investigation Report (2 volumes), dated June 16, 2000, prepared by Woodard & Curran with transmittal letter dated June 16, 2000 from Gerald Fordham, Woodard & Curran to Stephanie Carr, EPA). The source of the PAHs in this area is uncertain, as PAHs are not a likely component of gasoline or kerosene. One hypothesis has been that the PAHs may have resulted from snow melt and surface water run-off. The area is in a drainage pathway

between the employee parking area and the Oxoboxo Brook. When snow is plowed from the parking area, it is deposited in this area and meltwater drains into the Oxoboxo Brook. Therefore, in November 2002 Faria collected six additional surface soil samples from 0-1' and 1-2' below ground surface in three locations in the upgradient sections of this drainage pathway. These samples were analyzed for PAHs. PAHs were detected in samples AOC-10-SS-16A which was at 0-1' depth in the location nearest to the parking lot, but concentrations were below CT RSR industrial/commercial DEC. At samples located further downgradient in the drainage pathway, PAHs (including benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene were detected above CT RSR industrial/commercial DEC (see Attachment 3). Presence of PAHs in the upper sections of the drainage pathway suggests that the compounds are not likely present due to releases from the former above ground storage tanks, as the storage tanks are downgradient of this location. It is possible that presence of PAHs is due to snow melt and run-off from the employee parking area. In addition, a visual inspection of the AOC 10 area by EPA in August 2003 found other potential sources of PAHs including fragments of asphalt roofing tile most likely from building M-14, which has a roof sloping toward the AOC 10 area and no gutters or down spouts; occasional drops of a tar-like substance which appeared to have been used to seal openings near the eaves of building M-14 where electrical wires enter the building; and occasional small pieces of boiler slag.

Surface Water: Faria operated a pump and treat groundwater "aeration" system, from 1985 to 2001. This system pumped groundwater from three 2-inch monitoring wells (MW-3D, MW-4D, and MW-5) into two fountain aerators located in an impoundment. Aerated water was then discharged from the impoundment to Oxoboxo Brook under a CT DEP NPDES permit. During this time, surface water samples were collected in the brook, immediately downstream from the point of discharge (which is also immediately downstream of the area where VOC concentrations in groundwater are typically most concentrated), on a monthly basis and analyzed for VOCs. From January 2000 through August 2001, no VOCs were detected in the brook, except 1,1,1-trichloroethane detected at 9.2 µg/L in August 2001 (laboratory reports generated by Environmental Science Corporation for Thomas G. Faria Corporation and Phoenix Environmental Laboratories). In September 2001, Faria replaced the former system with a recovery and treatment system that uses a single pumping well (RW-101) and treats the pumped groundwater with an air stripper. Air emissions are then filtered using two activated carbon strippers in series. Treated groundwater is discharged to Oxoboxo Brook under a CT DEP NPDES permit. The discharge is monitored for 1,1,1-trichloroethane, tetrachloroethene, trichloroethene, arsenic, copper, iron, and zinc in accordance with the permit requirements. Faria's discharge monitoring reports show that results for all parameters have been below CT RSR Surface Water Protection Criteria (SWPC) for the past year (State of Connecticut, Department of Environmental Protection, Bureau of Water Management Discharge Monitoring Reports).

Sediment: In December 1999, eight sediment samples were collected in areas of the Oxoboxo Brook, adjacent to and downstream of the Faria facility and analyzed for VOCs, semi-volatile organic compounds (SVOCs), and metals. Results showed PAHs (including benzo(a)anthracene, benzo(b)fluoranthene) at levels above the CT RSR residential DEC in samples SD-5 and SD-8C. In addition, in sample SD-6C, arsenic was detected at 10.5 mg/kg, cadmium was detected at 2900 mg/kg, lead was detected at 5100 mg/kg, and zinc was detected at 29400 mg/kg and in sample SD-7N, chromium was detected at 204 mg/kg (above CT RSR residential DECs of 10 mg/kg for arsenic, 34 for cadmium, 500 for lead, 20000 for zinc, and 100 for hexavalent chromium). As sections of the brook immediately upstream of the Faria facility are rocky and fast-moving, it was not possible to collect an upstream sample to provide information on background influences on contaminant levels in sediment(RCRA Facility Investigation Report (2 volumes), dated June 16, 2000, prepared by Woodard & Curran with transmittal letter dated June 16, 2000 from Gerald Fordham, Woodard & Curran to Stephanie Carr, EPA).

Subsurface Soil: An outdoor storage area, reportedly used to store a 500-gallon waste tetrachloroethene tank and several 55-gallon drums containing waste solvents was located on the north side of the facility until 1983, when the area was closed and soil above the water table was excavated. Subsurface soil samples collected in this area in December 1999 detected VOCs, including methylene chloride, total 1,2-dichloroethene, tetrachloroethene, trichloroethene, and xylene, at elevated levels, but below CT RSR

industrial/commercial DEC. Subsurface soil samples were also collected to the west of this area in December 1999, to investigate the former boiler room storage. This storage area was reportedly used for temporary storage of metal hydroxide sludge and solvents used in degreasing from April 1981 to February 1982. Subsurface soil samples near this area also detected tetrachloroethene up to 300 mg/kg (above the CT RSR industrial/commercial DEC of 110 mg/kg). Some subsurface soil samples collected in other areas of the facility property in December 1999 detected VOCs (including methylene chloride, tetrachloroethene, trichloroethene, 1,1,1-trichloroethane) which appear to be associated with a silt layer which has been encountered in soil borings installed throughout the southern portion of the facility property. However, concentrations of these VOCs were below the corresponding CT RSR industrial/commercial DEC(RCRA Facility Investigation Report (2 volumes), dated June 16, 2000, prepared by Woodard & Curran with transmittal letter dated June 16, 2000 from Gerald Fordham, Woodard & Curran to Stephanie Carr, EPA).

Ambient Air: Ambient air samples collected both upwind and downwind of the Faria facility as part of the 4 rounds of indoor air sampling conducted at the five residences located immediately downgradient of Faria did not detect any of the VOCs associated with releases from the Faria facility.

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).

[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	no	no	no	yes			no
Air (indoors)	no	yes	no				
Soil (surface, e.g., <2 ft)	no	yes	no	yes	yes	no	no
~~Surface Water~~	___	___			___	___	___
Sediment	yes	no			yes	no	no
Soil (subsurface e.g., >2 ft)				yes			no
~~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

Rationale and Reference(s):
Groundwater:
Residents: Faria has performed a comprehensive search for private wells within a 1/4 mile radius of its facility by comparing property maps cross-referenced with water billing records to determine whether properties were connected to public water and conducting follow-up interviews with owners of properties for which no associated water billing records were found. Through this search, twelve properties were found where a public water connection could not be verified. (Off-site Groundwater Usage Evaluation Summary dated September 2000 prepared by Woodard & Curran; letter dated December 19, 2000 from Gerald Fordham, Woodard & Curran to Stephanie Carr, EPA re: Off-Site Groundwater Characterization Work Plan Implementation). Faria collected samples from wells on nine of these properties between April

11 and 16, 2001. (The remaining three properties, where property owners either did not respond to attempts through mail, telephone, and in-person to contact them or refused to have their well sampled, were located upgradient of the Faria property.) Samples were analyzed for VOCs by SW-846 Method 8260. Sample results showed tetrachloroethene at levels up to 4.8µg/L (below the CT RSR GWPC of 5 µg/L) at 3 of the 9 properties sampled (parcels 70-72, 71-5, and 70-105) (Residential Groundwater Data Validation Report prepared by Woodard & Curran with transmittal letter dated July 19, 2001 from Alex Bako, Woodard & Curran to Stephanie Carr, EPA).

In August 2001, Faria offered to provide public water supply connections to four property-owners, including owners of the three properties where tetrachloroethene was detected and one property (parcel 70-108) in close proximity to a home (parcel 70-105) where tetrachloroethene was detected in groundwater. Parcel 70-105 accepted the public water supply connection offer, but parcels 70-72 and 71-5 refused to connect to the public water supply. Parcel 70-108 had connected to the public water supply during the time that Faria was collecting and reporting the data. An owner of another parcel (70-46) also located in close proximity to a parcel (70-105) where tetrachloroethene was detected in groundwater was unable to meet with Faria in August 2001 and therefore was not connected to public water.

Because parcels 70-72, 70-46 and 71-5 did not connect to the public water supply, Faria collected and analyzed water samples from their wells again in March 2002. Results showed a tetrachloroethene concentration of 5.2 µg/L at parcel 70-72 (above the CT RSR GWPC of 5 µg/L) and 1.9 µg/L at parcel 71-5. Tetrachloroethene was not detected at parcel 70-46. Results of the most recent round of samples collected in December 2002 showed a tetrachloroethene concentration of 0.5 µg/L in the well at parcel 70-72 and 1 µg/L at parcel 71-5. No well water sample was collected from parcel 70-46 in December 2002, as the owner of this parcel did not respond to Faria's request to sample their well.Due to the fact that concentrations of tetrachloroethene were detected above the CT RSR GWPC in March 2002 at parcel 70-72, Faria has confirmed that the residents of the property are using bottled water for drinking and cooking and has offered again to pay for a connection to the public water supply and added the offer to pay the water bill for the property (letter from Chris Conradi, Thomas G. Faria Corporation dated August 21, 2003). The Connecticut Department of Environmental Protection has also, verbally, reiterated Faria's offer to pay for a connection to the public water supply for parcel 71-5. EPA has requested that Faria provide a written offer for a public water connection to the owners of parcels 71-5 and 70-46 and that Faria perform quarterly well sampling at all three properties until a permanent solution is agreed upon (e.g., either public water hook-up or filtration)(letter dated September 30, 2003 from Stephanie Carr, EPA to Chris Conradi, Faria).

The determination that there is not a complete exposure pathway between residents and contaminated groundwater at parcels 70-72, 70-46 and 71-5 is based on the most recent round of well samples from these parcels, which show tetrachloroethene levels below the CT RSR GWPC, and the fact that the owners of parcel 70-72 use bottled water for drinking and cooking. An additional consideration in this determination is the fact that Faria has made the homeowners aware of the results of samples collected from their wells and has offered to pay for connections to the public water supply. This determination could change based on the results of subsequent rounds of groundwater sampling. This environmental indicator evaluation should be revisited if subsequent rounds of groundwater sampling show tetrachloroethene levels above the CT RSR GWPC in these wells.

Workers: Faria operates a groundwater recovery and treatment system to control the chlorinated solvent plume at their facility. Prior to undergoing treatment, the pumped groundwater passes through a heat exchanger which provides cooling water to production machines. (Design Basis Memorandum (30%) for Groundwater Recovery and Treatment System dated November 2000 prepared by Woodard & Curran for Faria). Water for other uses at the facility is provided by public water.

Day-Care: There is no day-care at the facility.

Construction: Construction workers could contact contaminated groundwater at the facility in excavations which extend below the water table.

Food: Through its private well search and private well sampling, Faria has confirmed that contaminated groundwater in the vicinity of the facility is not used for raising food.

Indoor Air:
Residents: Following the installation and monitoring of sub-slab depressurization systems in August and September 2003, contaminants present in indoor air in residences due to vapor intrusion from Faria-related subsurface contamination are no longer considered to be present at levels above risk-based criteria. This determination could change based on monitoring to be performed by Faria during the winter (which is likely to be the period of greatest advective influence on soil vapor) or based on any future system operation or maintenance problems.

Workers: Workers are exposed to contaminants in indoor air in the Faria facility buildings.

Daycare: There is no day-care at the facility.

Surficial Soil:
Residents: Surface soil sampling has not been conducted on residential properties because there is no historical information on facility operations that suggests that waste disposal occurred on residential properties. Contaminants found in surface soil at Faria are relatively low in concentration, limited in scope, and do not abut residential properties. Therefore, exposure to residents via migration of airborne soil particles would not be expected to be a complete exposure pathway.

Workers: A surface soil sample collected between building M-6 and M-11(sample SS-9) is located under pavement, so workers would not be exposed to this soil. Workers could be exposed to PAHs in surface soil at AOC 10.

Daycare: There is no day-care at the facility.

Construction: Construction workers could be exposed to PAHs in surface soil at AOC 10.

Trespassers: Trespassers could be exposed to PAHs in surface soil at AOC 10.

Recreation: None of the areas where surface soil contamination has been found at Faria are recreational areas and there is no reason to suspect that surface soil in off-site areas in the vicinity of Faria would be contaminated as a result of Faria's activities.

Food: None of the areas where surface soil contamination has been found at Faria are used for growing food and there is no reason to suspect that surface soil in off-site areas in the vicinity of Faria would be contaminated as a result of Faria's activities.

Sediment:
Residents: The Oxoboxo Brook passes adjacent to a residential property immediately downstream from the Faria facility. If residents waded in the stream, they could contact contaminants in the sediments.

Workers: Exposure to workers from contaminants in sediments is unlikely, as workers would not likely have any reason to wade in the brook.

Trespassers: It is possible, though unlikely, that trespassers would wade in the Oxoboxo Brook on the Faria property.

Recreation: The Oxoboxo Brook is very narrow, rocky and shallow. Therefore, it would not likely be used for recreational activities.

Food: The Oxoboxo Brook discharges into the Thames River. Fishing may occur in the Thames River. However, none of the contaminants detected in sediments in the Oxoboxo Brook would likely bioaccumulate in fish tissue.

Subsurface Soil:
Construction Worker: It is possible that construction workers may be exposed to contaminants in subsurface soil.

Food: None of the areas where subsurface soil contamination has been found at Faria are used for growing food.

[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)?

__x__ 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:

Construction: Faria has procedures in-place to ensure that construction workers performing work in any areas where they could be exposed to contaminated groundwater will wear the appropriate personal protective equipment. Therefore, exposures from this pathway cannot be reasonably expected to be significant.

Indoor Air:

Workers: Maximum concentrations of tetrachloroethene and trichloroethene detected in the Faria facility indoor air were three orders of magnitude below the corresponding OSHA 8-hr time weighted average Permissible Exposure Limit (PEL). Therefore, exposures from this pathway cannot be reasonably expected to be significant.

Surface Soil:

Workers: The AOC 10 area, where PAHs are found in surface soil, is not frequently used by employees. There are no picnic areas there and the area is located adjacent to the spray painting areas, so the odors from the paint would likely deter workers from spending much time in the area. According to Faria, workers would have no reason to enter this area unless they are walking from building M-10-4 to building M-14, which is the powerhouse for the facility. Faria estimates that the same employee would cross between these two buildings no more than once or twice per month. Given this exposure frequency and the levels of PAHs in this area, exposures from this pathway cannot be reasonably expected to be significant.

Construction: Faria has procedures in-place to ensure that construction workers performing work in any areas where they could be exposed to contaminated soil will wear the appropriate personal protective equipment. Therefore, exposures from this pathway cannot be reasonably expected to be significant.

Trespassers: There is nothing in the AOC 10 area that would appear attractive to trespassers. Therefore, frequent trespassing in this area is unlikely and exposures from this pathway cannot be reasonably expected to be significant.

Sediment:

Residents: The four sediment samples closest to the residential property along the section of Oxoboxo Brook immediately downstream of the Faria facility show levels of benzo(a)anthracene, benzo(b)fluoranthene within 0.3 mg/kg above the CT RSR residential DEC of 1 mg/kg (sample SD-8C) and a total chromium concentration of 204 mg/kg, exceeding the CT RSR residential DEC of 100 mg/kg for hexavalent chromium (sample SD-7N). These exceedances are relatively close to the CT RSR residential DEC. In addition, the contaminants that exceed the CT RSR residential DEC were each detected in only one of the four samples. Based on the concentrations, the frequency of detection, and the fact that the CT RSR residential DEC is a conservative screening level for looking at human exposures to sediment (since it is designed for residential soil exposure, which is likely to be more frequent that exposure to sediment), exposures from this pathway cannot be reasonably expected to be significant.

Trespassers: The location where trespassing in the Oxoboxo brook appears most likely is the downstream section near Pink Row. For the reasons discussed above, trespasser exposure to sediments in this section is not likely to be significant. Of the four upstream samples, sample SD-6C has the contaminant concentrations of greatest concern. However, this sample point is located between the two sections of the Faria facility building that cross the brook. The building bridges extend from one bank of the brook to the other. Therefore, it would not be possible for trespassers to enter the brook in the stretch between the building without climbing over the roof of the building or wading into the stretch, under the building bridges, from either the upstream or downstream direction in the brook. Due to the difficulty in accessing this area, frequent trespassing would be unlikely. Benzo(a)anthracene and Benzo(b)fluoranthene were detected at 3.7 mg/kg and 3.1 mg/kg respectively, above the CT RSR residential DEC of 1 mg/kg. These contaminants were detected in two of the eight sediment samples in the Oxoboxo Brook. Based on the frequency of detection, the concentrations detected, and the fact that the CT RSR residential DEC is a conservative screening level for looking at trespasser exposure to sediment (since it is designed for residential soil exposure, which is likely to be more frequent than exposure to sediment), trespasser exposure to contaminants in sediment in this area cannot be reasonably expected to be significant.

Subsurface Soil:

Construction Worker: Faria has procedures in-place to ensure that construction workers performing work in any areas where they could be exposed to contaminated subsurface soil will wear the appropriate personal protective equipment. Therefore, construction worker exposure to contaminants in subsurface soil cannot be reasonably expected to be 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.

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 Thomas G. Faria facility, EPA ID #CTD043038744, located at 385 Norwich - New London Turnpike, Uncasville, CT 06382-0983 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.

Completed by (signature) Stephanie Carr Date 9/30/03
(print) Stephanie Carr
(title) RCRA Facility Manager

Supervisor (signature) Matthew Hoagland Date 9/30/03
(print) Matthew Hoagland
(title)Chief, RCRA Corrective Action Section
(EPA Region or State) EPA Region I

Locations where References may be found:

EPA - New England
1 Congress Street - Suite 1100
Boston, MA 02114-2023

Contact telephone and e-mail numbers

(name) Stephanie Carr
(phone #) 508/541-1001
(e-mail) carr.stephanie@epa.gov

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.

Attachment 1

Table 1

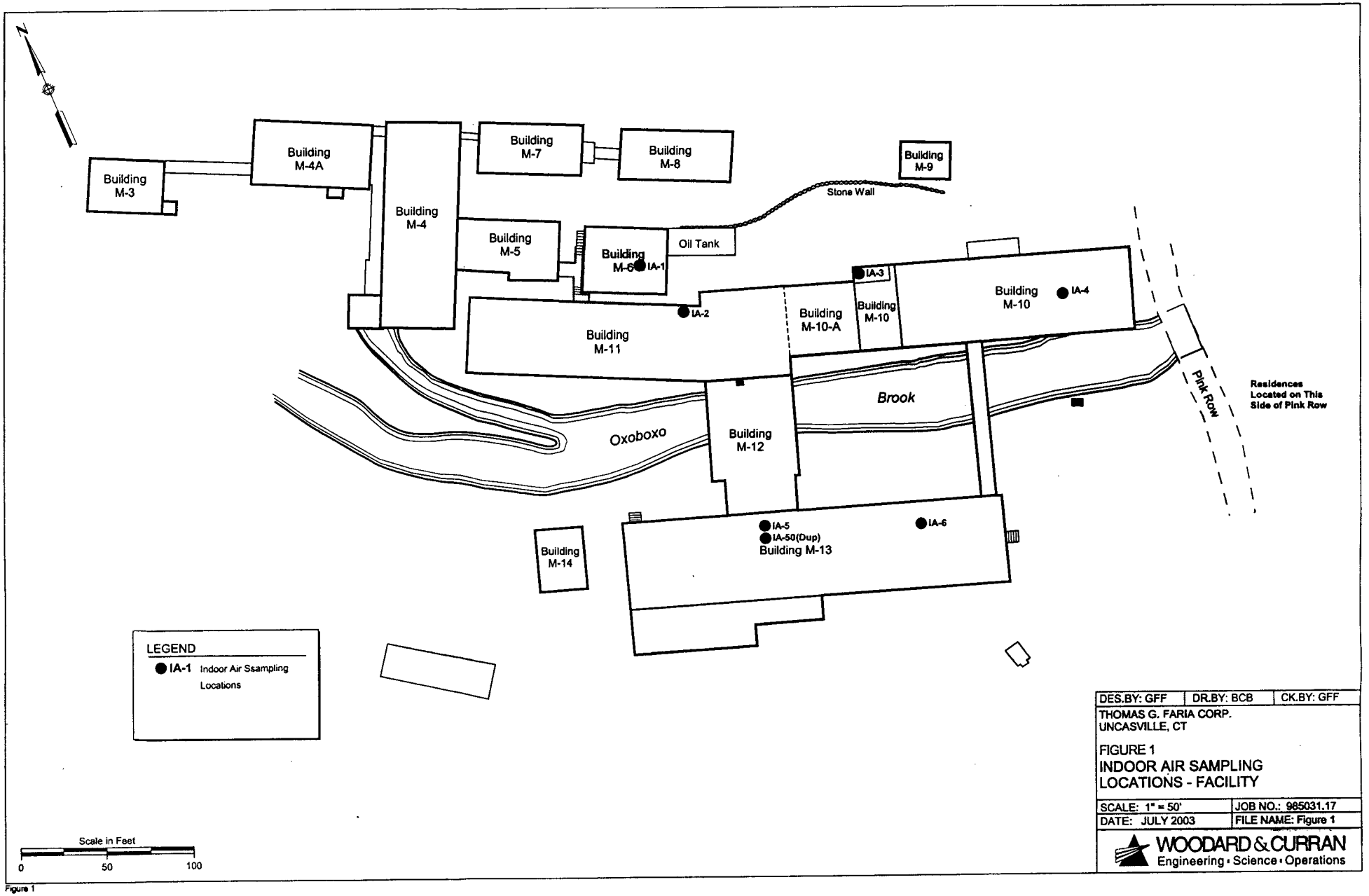
Summary of Volatile Organic Constituents Detected in Facility Indoor Air

July 10, 2003
T. G. Faria Corporation

Parameter[1]	Indoor Air Sample Results (ppb$_v$)							
Sample Location	Building M-6	Building M-11	Building M-10 (West)	Building M-10 (East)	Building M-13 (Basement West)	Building M-13 (Duplicate IA-05)	Building M-13 (Basement East)	OSHA PEL[2]
Sample Identifier	IA-01	IA-02	IA-03	IA-04	IA-05	IA-60	IA-06	ppb
Vinyl Chloride	<0.16	<0.16	<0.39	<0.73	<0.27	<0.33	<0.88	1,000
Chloroethane	<0.16	<0.16	<0.39	<0.73	<0.27	<0.33	<0.88	1,000,000
1,1-Dichloroethene	<0.16	<0.16	<0.39	<0.73	<0.27	<0.33	<0.88	1,000
1,1-Dichloroethane	<0.16	<0.16	<0.39	<0.73	<0.27	<0.33	**0.20**	100,000
cis-1,2-Dichloroethene	<0.16	<0.16	<0.39	<0.73	<0.27	<0.33	**0.22**	200,000[3]
1,1,1-Trichloroethane	**0.41**	<0.16	<0.39	<0.73	<0.27	<0.33	**1.1**	350,000
1,2-Dichloroethane	<0.16	<0.16	<0.39	<0.73	<0.27	<0.33	<0.88	50,000
Trichloroethene	**35**	**0.38**	<0.39	<0.73	<0.27	<0.33	**0.33**	100,000
Tetrachloroethene	**1.6**	**15**	**130**	**280**	**2.4**	**2.5**	**22**	100,000
trans-1,2-Dichloroethene	<0.82	<0.80	<1.9	<3.7	<1.4	<1.6	<1.8	200,000[3]

Notes:

[1] Parameters indicate constituents of concern (COCs) at the Site.
[2] OSHA PELs from the website U.S. Department of Labor Occupational Health & Safety Administration http://www.osha.gov, Regulation Standards - 29 CFR, 1910.1000 Table Z-1 and Table Z-2.
[3] OSHA PEL for 1,2 -Dichloroethylene used for cis-1,2-Dichloroethene and trans-1,2-Dichloroethene
ppb$_v$ = part per billion per volume
OSHA = Occupational Safety & Health Administration
PEL = Permissible Exposure Limit
Samples collected over an 8 hour time period



DES.BY: GFF	DR.BY: BCB	CK.BY: GFF

THOMAS G. FARIA CORP.
UNCASVILLE, CT

FIGURE 1
INDOOR AIR SAMPLING
LOCATIONS - FACILITY

SCALE: 1" = 50'	JOB NO.: 985031.17
DATE: JULY 2003	FILE NAME: Figure 1

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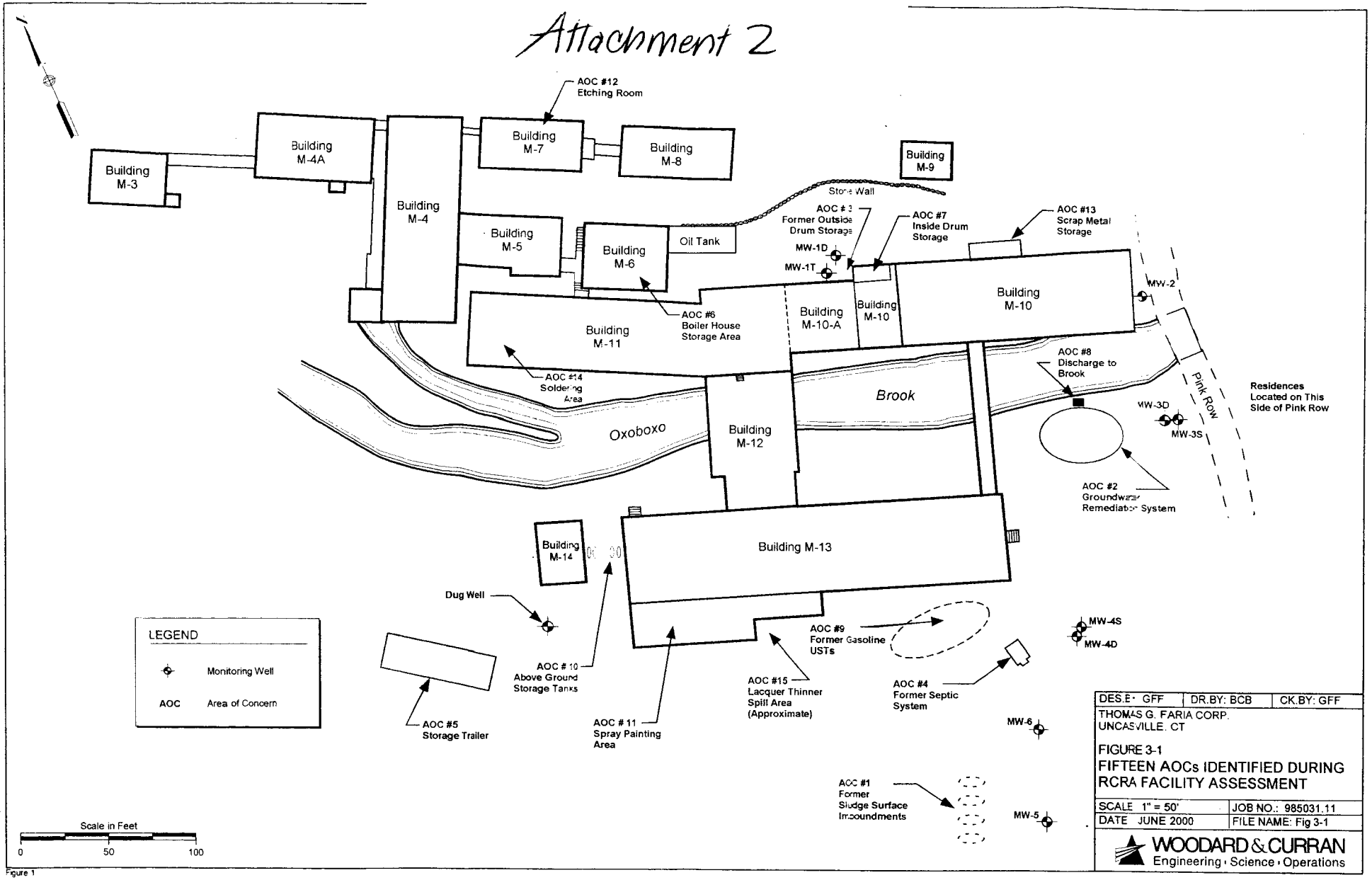
Figure 1

Attachment 2



DES.BY: GFF	DR.BY: BCB	CK.BY: GFF

THOMAS G. FARIA CORP.
UNCASVILLE, CT

FIGURE 3-1
FIFTEEN AOCs IDENTIFIED DURING RCRA FACILITY ASSESSMENT

SCALE 1" = 50'	JOB NO.: 985031.11
DATE JUNE 2000	FILE NAME: Fig 3-1

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Figure 1

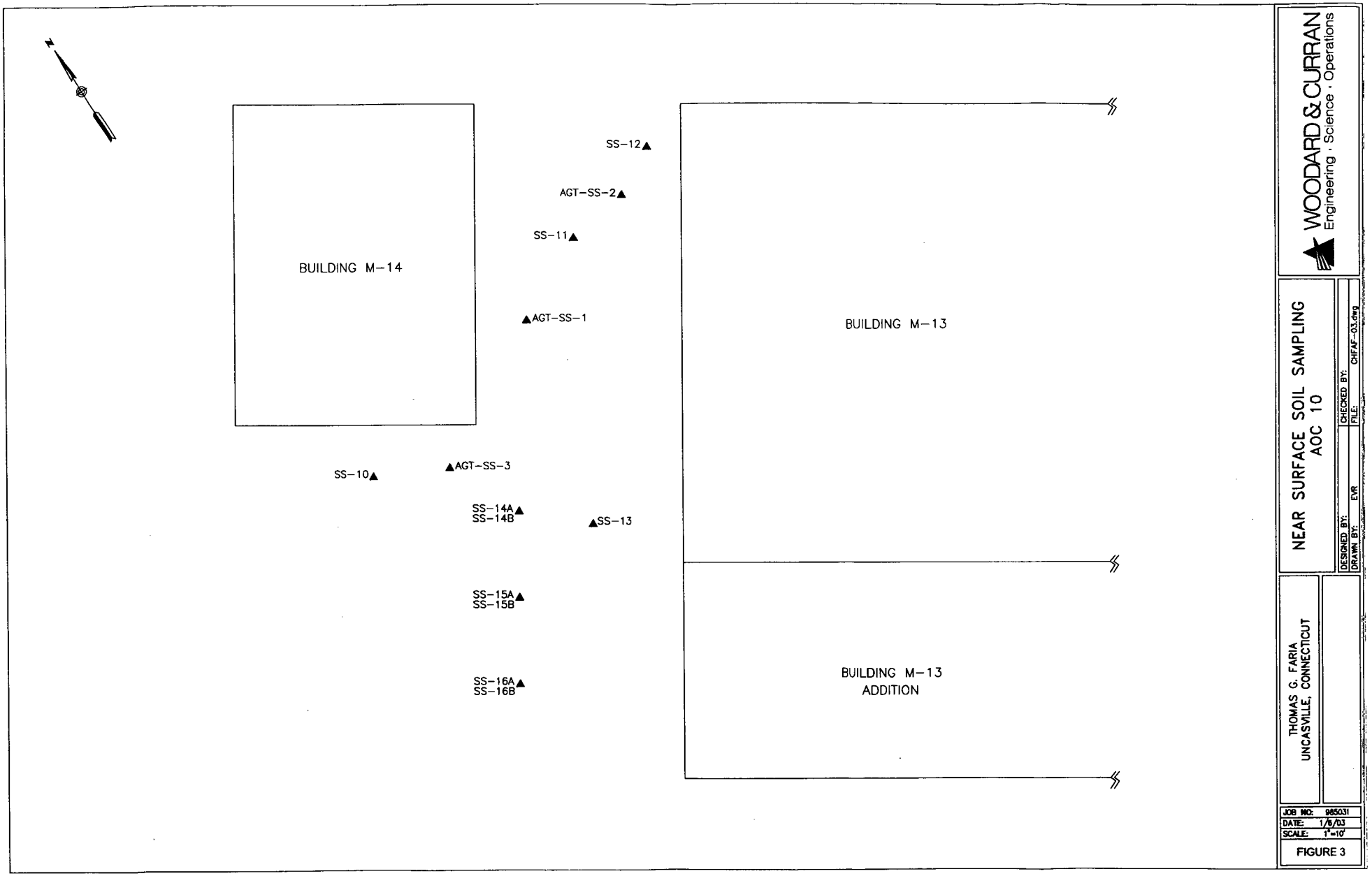
Attachment 3

Table 3
Near Surface Soil Sampling
Analytical Detections
AOC 10

ANALYSIS	AOC10-SS-14A 11/20/2002 0-1 ft bgs µg/kg	AOC10-SS-14B 11/20/2002 1-2 ft bgs µg/kg	AOC10-SS-15A 11/20/2002 0-1 ft bgs µg/kg	AOC10-SS-15B 11/20/2002 1-2 ft bgs µg/kg	AOC10-SS-16A 11/20/2002 0-1 ft bgs µg/kg	AOC10-SS-16B 11/20/2002 1-2 ft bgs µg/kg	R-DEC[1] µg/kg	I/C-DEC[2] µg/kg
2-Methylnaphthalene	ND	ND	ND	340	ND	ND	474,000	2,500,000
Acenaphthene	7,000	ND	ND	1,600	ND	ND	1,000,000	2,500,000
Acenaphthylene	ND	ND	ND	350	ND	ND	1,000,000	2,500,000
Anthracene	ND	5,100	11,000	4,700	ND	ND	1,000,000	2,500,000
Benz(a)anthracene	9,500	7,800	14,000	6,100	410	ND	1,000	7,800
Benzo(a)pyrene	8,600	7,100	11,000	5,200	520	ND	1,000	1,000
Benzo(b)fluoranthene	8,300	4,500	8,800	4,500	440	ND	1,000	7,800
Benzo(ghi)perylene	3,700	ND	4,700	2,400	ND	ND	1,000,000	2,500,000
Benzo(k)fluoranthene	5,700	5,000	9,500	4,100	ND	ND	8,400	78,000
Chrysene	11,000	7,500	13,000	5,900	590	ND	84,000	780,000
Dibenz(a,h)anthracene	ND	ND	ND	860	ND	ND	1,000[3]	1,000[3]
Fluoranthene	28,000	17,000	31,000	17,000	1,100	ND	1,000,000	2,500,000
Fluorene	ND	ND	3,900	1,800	ND	ND	1,000,000	2,500,000
Indeno(1,2,3-cd)pyrene	3,900	ND	4,700	2,200	ND	ND	1,000[3]	7,800
Naphthalene	ND	ND	ND	690	ND	ND	1,000,000	2,500,000
Phenanthrene	36,000	20,000	38,000	17,000	760	ND	1,000,000	2,500,000
Pyrene	21,000	12,000	22,000	14,000	990	ND	1,000,000	2,500,000

1. R-DEC = Residential Direct Exposure Criteria established in CTDEP Remediation Standard Regulation
2. I/C-DEC = Industrial/Commercial Direct Exposure Criteria established in CTDEP Remediation Standard Regulation
3. Criteria based on detection limits

Shaded analytical results exceeded the R-DEC for that constituent. Shaded analytical results, which are also bold exceed the I/C-DEC.



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NEAR SURFACE SOIL SAMPLING
AOC 10

DESIGNED BY:
DRAWN BY: EVR
CHECKED BY:
FILE: CHFAF-03.dwg

THOMAS G. FARIA
UNCASVILLE, CONNECTICUT

JOB NO: 985031
DATE: 1/6/03
SCALE: 1"=10'

FIGURE 3