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: Wyre Wynd Inc.
Facility Address: 77 Anthony Avenue Jewett City, CT
Facility EPA ID #: CTD002590461

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			See text below
Air (indoors)[2]		X		See text below
Surface Soil (e.g., <2 ft)	X			See text below
Surface Water		X		See text below
Sediment	X			See text below
Subsurf. Soil (e.g., >2 ft)	X			See text below
Air (outdoors)		X		See text below

_____ 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):

Facility Background

The Wyre Wynd, Inc. (Wyre Wynd) facility is located at 77 Anthony Street in a densely populated commercial and residential area in the borough of Jewett City, Connecticut. The original facility property, which occupied approximately 38 acres, consisted of a main manufacturing building, nine additional buildings, a hydroelectric plant, and a landfill. The facility property has been divided into three parcels, the 20-acre landfill, the 2-acre hydroelectric plant, and the 16-acre factory parcel. This environmental indicator (EI) evaluation focuses only on the factory parcel, as that is the parcel which is included on the Government Performance and Results Act (GPRA) baseline list. The factory parcel is bordered by the Quinebaug River to the north, west, and southwest; railroad tracks and the hydroelectric plant to the east; and Anthony Street, a cemetery, condominiums, and the landfill to the south and southwest.

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.

The Wyre Wynd facility was constructed in 1893 and originally was used as a textile mill. From the 1890s to the late 1950s, Aspinhook Company operated bleach, print, and dye works at the facility. The mill used two coal-fired boilers, which generated considerable quantities of coal combustion by-products, including fly ash, clinker, and slag. Coal combustion by-products potentially contain elevated levels of metals and other constituents such as semi-volatile organic (SVOC) compounds.

Ownership and use from the 1950s to the 1960s is not well documented. From 1961 to 1970, Wyre Wynd occupied a portion of the facility property as a tenant. In 1970, Wyre Wynd, a division of Southwire Company (Southwire), purchased the facility from the Jewett City Industrial Park. Wyre Wynd manufactured aluminum, copper, and tin-plated wires, which were sold primarily for use in the telecommunication and transportation industries. In 1996, the factory parcel was conveyed to Live Wire, Inc. (Live Wire). Live Wire currently continues to use the facility for wire manufacturing operations.

The wastes generated by the copper and tin-plated copper wire operations include tin sludge, wastewater treatment sludge, used oil, copper mud, and filters that contain tin sludge sediment. The wastes are characterized under the Resource Conservation and Recovery Act (RCRA) as D002 and F006 hazardous wastes, and are stored in 55-gallon drums in the Green Garage Hazardous Waste Container Storage Area (Area of Concern [AOC] 3) until they are manifested for off-site disposal. The wastes generated in the electroplating area (part of AOC 5) are associated with tin-plating of wire and include wastewater, tin anode butts, spent plating solution (characterized as D002 hazardous waste), and spent filters. The tin plating line includes a caustic rinse, sulfuric acid pickling solution, a water rinse, and a tin plating tank (including several tin anodes) (TRC, 1994). The spent plating solution and filters are placed in drums and manifested for off-site disposal as a hazardous waste. The tin anode butts are processed in the tin pot along with tin ingots to produce new tin anodes for use in tin plating. The tin-plating line also is equipped with a heat exchanger that uses non-contact cooling water, drawn from the Quinebaug River, to cool the plating solution. Spills along the plating line are contained in floor drains (AOC 7) that empty into the wastewater collection sump.

Aluminum wire manufacturing operations generate wastes that include aluminum mud (a Connecticut-regulated nonhazardous material). Aluminum mud is generated during the stranding process, in which aluminum rods are milled into aluminum wire. Spent wire drawing solution also is generated. The spent drawing solution is piped to one of the aboveground storage tanks (ASTs) (AOC 6). Scrap aluminum generated during the aluminum stranding process is recycled off site.

On March 10, 1975, Wyre Wynd was issued a National Pollutant Discharge Elimination System (NPDES) permit to discharge treated wastewater to the Quinebaug River. According to documents prepared by the facility, the wastewater treatment plant was installed in 1971, at the time that the first plating line was installed (Southwire, October 1999). Live Wire maintains a wastewater treatment facility on site (AOC 2) to treat electroplating rinse water and water-soluble oils. Live Wire remains a generator of hazardous wastes, including sludge and waste oils. Hazardous substances and wastes have been generated at the property since at least 1961.

Environmental investigations at the factory parcel have included: (1) assessment of potential environmental impact on soils and groundwater in 1985; (2) collection and analysis of groundwater samples in 1985; (3) a preliminary assessment in 1987; (4) a closure investigation for the former hazardous waste container storage area in 1992; (5) sampling associated with closure of a 1,000-gallon gasoline underground storage tank (UST) and closure of a 3,000-gallon diesel tank in 1994; (6) a RCRA facility assessment in 1994; (7) a Phase 2 environmental site assessment in 1995 and 1996; and (8) a RCRA closure plan and site characterization in 1999 (9) and a supplemental investigation in 2001. Samples of soil and groundwater have been collected and analyzed for pH, volatile organic compounds (VOC), SVOCs, polychlorinated biphenyls (PCB), total petroleum hydrocarbons (TPH), asbestos, and total metals.

The 1999 RCRA Closure Plan and Site Characterization Results Report documents 34 AOCs. The This EI evaluates the factory parcel, which includes 33 of the 34 AOCs. These 33 AOCs are presented below with estimated years of operation, as available:

AOC 2 - Wastewater Treatment Facility (1976 - present*)
AOC 3 - Green Garage Hazardous Waste Container Storage Area (1989 - present)
AOC 4 - Former Container Storage Area ("Old" Boiler House) (1980 - 1989)
AOC 5 - Electroplating Area and Floor Drain to Sump (1975 - present)
AOC 6 - ASTs (1975 - present)
AOC 7 - Electroplating Area and Floor Drain to Sump (1975 - present)
AOC 8 - Maintenance Shop (1970 - present)
AOC 9 - Chemical and Materials Storage Area (1970 - present)
AOC 10 - Former Quality Assurance Area (Unknown - 1991)
AOC 11 - Two USTs (1971 - present)
AOC 12 - "New" Boiler House (Unknown - present)
AOC 13 - Flammable Storage Cabinets (Unknown - present)
AOC 14 - Satellite Storage (Unknown - present)
AOC 15 - Laboratory Area (1975 - present)
AOC 16 - Former PCB Transformers (Unknown - late 1980s or early 1990s)
AOC 17 - Sewer Pump Station/Former Coal Storage
AOC 18 - Former Maintenance Garage
AOC 19 - Garage/Transformers/Potential UST Area
AOC 20 - Kerosene UST/Transformer
AOC 21 - Potential USTs near Building 28
AOC 22 - USTs at North End of Building 2A
AOC 23 - UST at End of Anthony Street
AOC 24 - Two USTs at Building 37
AOC 25 - UST West of Buildings 38 & 39
AOC 26 - Septic #1: Southwest Corner of Building 14, near AOC 9
AOC 27 - Septic #2: South of Building 19, near AOC 4
AOC 28 - Septic #3: West of Building 2, near AOC 4
AOC 29 - Septic #4: Northwest Corner of Building 37
AOC 30 - Satellite Transformer and Hydraulic Equipment
AOC 31 - Former Floor Drains
AOC 32 - Distressed Concrete
AOC 33 - Subsurface Pit and Tanks
AOC 34 - Stormwater Conveyance System

*Dates of operation reported in the RCRA Facility Assessment Report (TRC, 1994); therefore, "present" indicates a unit was active until at least 1994. Years of operation are not available in the documents reviewed for all AOCs.

Sampling and investigations and analytical results for AOCs associated with the factory parcel are presented in the 1995 to 1996 Phase II Investigation Report and the 1999 RCRA Closure Plan and Site Characterization Results Report. These are summarized by AOC below. Attachment 1 presents analytical results for soil, sediment, and groundwater samples that exceed regulatory criteria or screening guidelines.

AOC	Sampling and Investigations (Primarily, 1995 -1996 and 1999)	Sampling and Investigation Analytical Results
2	In 1995, two soil borings, a magnetometer survey, and a test pit were completed. Three sediment samples were collected at the facility's NPDES outfall to the Quinebaug River and two soil samples were collected. In 1999, two additional soil borings were completed outside the wastewater treatment building. Two soil samples were collected.	In the past, NPDES exceedances had been documented for copper, tin and suspended solids (TRC, 1994). In 1995, a significant level of asbestos was identified at 10.5 feet below ground surface (bgs) in one soil boring. In 1999, arsenic (up to 130 milligrams per kilogram [mg/kg]) exceeded the Connecticut Department of Environmental Protection (CTDEP) residential and industrial soil direct exposure criteria (DEC).
3	In 1995, four soil borings were implemented outside the exterior wall of the Green Garage. Three soil samples were collected. In 1999, seven soil samples were collected from additional soil borings installed around the perimeter of the building.	Soil samples from both investigations did not detect any contaminants at levels above residential and industrial DEC for soil.
4	In 1995, three soil borings were completed. Four soil samples were collected. In 1999, seven soil borings were completed on the north side of the former container storage area, where drums were stored. Eight soil samples were collected.	The 1995 and 1999 investigations identified arsenic (up to 16.7 mg/kg) at levels above the residential or industrial soil DEC. According to the facility, and reportedly approved by CTDEP, arsenic in this area is due to fly ash deposits (Aaron, December 1998). The building that contained this AOC was demolished in 1997.
5	In 1995, one soil boring and one groundwater monitoring well were installed downgradient of the plating lines. Soil and groundwater samples were collected. In 1999, samples were collected from six additional soil borings.	No contaminants were detected at levels above residential or industrial DEC for soil or groundwater standards.
6	In 1995, groundwater from the facility manufacturing water supply well adjacent to the ASTs was sampled. In 1999, nine soil borings, two chip samples, and one piping pit sample were collected from the AST pit and the subsurface piping.	The 1999 sampling detected TPH (up to 15,000 mg/kg) at levels above the residential and industrial DEC and pollutant mobility criteria for soil and elevated concentrations of copper (up to 1,800 mg/kg), lead (up to 22 mg/kg), and tin (up to 3,000 mg/kg) in soil.
7	In 1995, one soil boring and one groundwater monitoring well were implemented. In 1999, six additional soil borings were completed.	In 1995, an elevated pH value of 11.65 was reported for one of the soil samples. No contaminants were detected at levels above residential or industrial DEC in either investigation.
8	In 1995, two soil borings and a groundwater monitoring well were completed. In 1999, two soil borings were completed adjacent to the former floor drains.	In 1999, arsenic (up to 13 mg/kg) was detected at levels above residential and industrial DEC.
9	In 1999, one soil boring was completed within the storage area berm, and one chip sample was collected from the wall on which electrical equipment is located.	Samples from the investigation did not contain contaminants at levels above residential or industrial DEC for soil.

AOC	Sampling and Investigations (Primarily, 1995 -1996 and 1999)	Sampling and Investigation Analytical Results
10	In 1995, two borings were completed. In 1999, two borings were completed, and a chip sample was collected from the oil-stained portion of the concrete floor.	The 1999 soil samples contained copper (up to 4,400 mg/kg) and lead (up to 680 mg/kg) at levels above the residential soil DEC.
11	In 1994, the two USTs were removed. In 1995, one soil boring was completed through the estimated center of the former UST field.	Post-closure soil samples collected from the base of the UST excavations and the 1995 samples did not contain contaminants at levels above the DECs for soil.
12	In 1992, asbestos-containing materials were identified and removed from the old boiler building. In 1995, samples from two soil borings and one monitoring well and the boiler pile (ash sample) were collected. The building was demolished in July 1997. In 1999, samples were collected from three additional soil borings in the vicinity of the former boiler house.	In both 1995 and 1999, arsenic (up to 54.3 mg/kg) was detected at levels above residential and industrial DEC in the soil and ash samples. A groundwater sample contained benzene (up to 0.002 mg/kg) in concentrations above groundwater protection criteria for GA and GAA areas (note: the facility indicates that it is in a GB classification area). Results of the 1999 investigation indicated that one soil sample obtained from 1 to 2 feet bgs contained 3 percent asbestos.
13	In 1995, six soil samples were collected from five soil borings at the northern end of Building 37. In 1999, one boring was completed with a GeoProbe, and three additional borings were completed with a hand auger outside the western wall of Building 37, adjacent to the former paint booths and a large crack in the floor.	In 1995, arsenic (up to 16.8 mg/kg) was detected at levels above residential and industrial DEC in soil. In 1999, arsenic (up to 10 mg/kg) was detected at a level equal to the DEC for soil.
14	In 1999, two soil borings were completed with a GeoProbe.	Soil samples from the investigation did not contain contaminants at levels above residential or industrial DEC for soil.
15	In 1999, two soil borings were completed through the factory floor, just outside the doorway.	Soil samples from the investigation did not contain contaminants at levels above residential or industrial DEC for soil.
16	In 1995, one soil sample was collected during the installation of a monitoring well. In 1999, a new soil boring was completed adjacent to the transformer location.	Soil samples from the investigations did not contain contaminants at levels above residential or industrial DEC for soil or groundwater standards.
17	In 1995, a sample from a soil boring was collected. In 1999, three soil borings were completed, one adjacent to the pump station and advanced to below the base of the structure and the other two within the area of the coal pile.	In both 1995 and 1999, arsenic (up to 130 mg/kg) was detected at levels above residential and industrial DEC in soil.
18	In 1995, one soil boring and one groundwater monitoring well were completed. The monitoring well was installed adjacent to the septic systems and the boring was completed on the west side of the building. In 1999, four additional soil borings were completed adjacent to the septic systems.	Samples from the investigations did not contain any contaminants at levels above residential or industrial DEC for soil or groundwater standards.

AOC	Sampling and Investigations (Primarily, 1995 -1996 and 1999)	Sampling and Investigation Analytical Results
19	In 1995, a groundwater monitoring well and a test pit were completed. In addition, a magnetometer survey was conducted. In 1999, two soil borings were completed, a new magnetometer survey was performed, and the monitoring well was resampled.	Samples from the investigations did not contain any contaminants at levels above residential or industrial DEC for soil or groundwater standards.
20	In 1995, a soil boring was completed in the vicinity where the UST was suspected to be located. In 1999, three new soil borings were completed in the vicinity of the reported kerosene tank.	The 1995 investigation detected arsenic (up to 13.7 mg/kg) at levels above residential and industrial DEC. Benzo(a)anthracene (up to 1.5 mg/kg) was detected at levels above the residential DEC and the pollutant mobility criteria for soil.
21	In 1995, a magnetometer survey was performed and a soil boring was completed. In 1999, an additional soil boring was completed, but the boring met refusal on rock at 2 feet bgs.	No samples were collected from the 1995 and 1999 soil borings. The soil borings did not confirm the presence of the former "Vitriol" tanks. Vitriol can indicate iron oxide or sulfuric acid (Aaron, December 1998).
22	In 1995, one monitoring well was installed, and a magnetometer survey was performed. In 1999, a soil boring was completed at a location believed to be adjacent to the former fuel oil USTs. The other two soil borings were completed near the remote fill.	The 1995 magnetometer survey was unsuccessful based on interference from electrical lines. Samples from the 1995 investigation did not contain contaminants at levels above DECs for soil or groundwater standards. The 1999 investigations identified arsenic (up to 14 mg/kg) at levels above residential and industrial DEC for soil.
23	In 1995, a soil boring and a magnetometer survey were completed in the suspected location of the UST. In 1999, a second magnetometer and two soil borings were completed in an effort to locate the tank.	The 1995 investigation detected arsenic (up to 16 mg/kg) at levels above residential and industrial DEC for soil. The tank was not located.
24	In 1995, a soil boring was completed and a magnetometer survey was conducted in an effort to locate the two tanks. A groundwater monitoring well was then installed in the boring. In 1999, three soil borings were completed in an attempt to locate the tanks.	The 1999 investigations detected benzo(a)anthracene (up to 18 mg/kg), benzo(a)pyrene (up to 13 mg/kg), benzo(b)fluoranthene (up to 12 mg/kg), dibenzo(a,h)anthracene (up to 4.4 mg/kg), and indeno(1,2,3-cd)pyrene (up to 6.5 mg/kg) at levels above residential and industrial DECs and pollutant mobility criteria for soil. Benzo(k)fluoranthene (up to 11 mg/kg) was detected at levels above the residential DEC and the pollutant mobility criteria. The former tanks were not located.
25	In 1995, two soil borings, one monitoring well, and one test pit were completed in the suspected vicinity of the UST. In 1999, one soil boring was completed between the tank and the river. The groundwater monitoring well also was resampled.	Samples from the investigations did not contain contaminants at levels above residential or industrial DEC for soil or groundwater standards.

AOC	Sampling and Investigations (Primarily, 1995 -1996 and 1999)	Sampling and Investigation Analytical Results
26	In 1995, one groundwater monitoring well was installed adjacent to the septic area. One soil and one groundwater sample were collected. In 1999, one soil boring was completed and the groundwater monitoring well was resampled.	The 1995 investigation detected arsenic (up to 10.6 mg/kg) at levels above residential and industrial DEC for soil.
27	In 1999, two soil borings were completed near the location of the septic system and a groundwater monitoring well was sampled.	Samples from the investigations did not contain contaminants at levels above regulatory criteria for soil. A sample collected from the monitoring well contained trichloroethylene [(up to 0.014 milligrams per liter (mg/L)] at a level above groundwater protection criteria for GA and GAA areas.
28	In 1999, a soil boring was completed near the location of the septic system.	Samples from the investigations did not contain contaminants at levels above residential or industrial DEC for soil.
29	In 1995, one soil boring was completed near the septic area. In 1999, one soil boring was completed on the western side of the dry well.	The investigations detected arsenic (up to 16.8 mg/kg), copper (up to 4,080 mg/kg), and benzo(a)anthracene (up to 2.0 mg/kg) at levels above residential and industrial DECs for soil. Benzo(a)anthracene also exceeded the pollutant mobility criteria for soil.
30	In 1999, eight concrete chip samples were collected from areas in which manufacturing or electrical equipment was located and sampled for PCBs.	The concrete chip samples contained PCBs, including: Aroclor 1260 (up to 1.3 mg/kg), Aroclor 1254 (up to 0.63 mg/kg), and Aroclor 1248 (up to 0.67 mg/kg).
31	In 1999, two soil borings were completed in the western portion of the factory adjacent to the floor drains. Sediment samples were collected from the sump and the accessible portion of a floor drain in this area.	The sediment sample collected from the sump contained TPH (up to 3,500 mg/kg) at levels above the DEC for soil. The sediment sample collected from the floor drain contained copper (up to 24,000 mg/kg), lead (up to 620 mg/kg), and TPH (up to 110,000 mg/kg) at levels above residential and industrial DECs for soil.
32	In 1999, two soil borings were completed in the southern portion of the factory.	Copper was detected in soil (up to 1,100 mg/kg) at levels above residential and industrial DEC for soil.
33	In 1999, four borings were completed. Two borings were completed next to the subsurface, pit and two borings were completed next to the tank.	TPH were detected in soil (up to 33,000 mg/kg) at levels above the DEC for soil.
34	In 1999, sediment samples were collected from the six discharge points associated with the storm water conveyance system.	Sediment samples from several of the discharge points contained elevated concentrations of copper (up to 860 mg/kg) and lead (up to 63 mg/kg). TPH (up to 1,600 mg/kg) was detected at levels above the residential DEC and the pollutant mobility criteria for soil.

Limited remedial activities have been conducted at the factory parcel. In 1998, the Hazardous Waste Container Storage Area (AOC 4), located inside the Old Boiler House was closed in accordance with an approved RCRA closure plan. In 1994, the 3,000-gallon diesel and 1,000-gallon gasoline USTs (AOC 11) were removed. Before 1997, asbestos-containing materials were detected in the Boiler House (AOC 12) and removed and the building was demolished. Between 1989 and 1991, three transformers (AOC 16) were removed from the facility. In 2001, surface soil was removed from the area at the end of the rail spur so that a building addition could be constructed (see figure in Attachment 2).

Soil - Much of the original soil at the facility has been disturbed by fill activities. The fill, which is up to 15 feet thick in some areas, consists of ash, slag, building debris, cinders, gravel, and other materials. The overburden is alluvium deposits formed from glacial outwash plains. These alluvium deposits contain sands with trace amounts of silt and loam. The gneiss bedrock underlying these deposits at depths ranging from 15 to 25 feet bgs.

In several AOCs, surface and subsurface soil samples contained metals (antimony, arsenic, copper) and SVOCs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and benzo(k)fluoranthene) at levels that exceeded residential and/or industrial DEC at depths of up to 16 feet bgs. The ranges of these exceedances, as well as the frequency of the exceedances, are tabulated in Attachment 1.

A demonstration of site-specific arsenic background levels shows that background concentrations of arsenic at Wyre Wynd may range up to 44 mg/kg. If this is the case, the majority of arsenic detections at the facility may represent background concentrations. EPA has only performed a cursory review of the background demonstration at this point. Therefore, EPA would not necessarily accept this background demonstration as part of a final remedy decision. However, this environmental indicator determination is an interim milestone and the facility appears to be continuing work toward achievement of final remedy. In addition, the site-specific background range presented by the facility is within the range of background levels of arsenic found regionally. Therefore, EPA will accept the demonstration for purposes of this environmental indicator determination.

Groundwater - Groundwater at the facility is classified as GB by the Connecticut Department of Environmental Protection (CTDEP). GB indicates groundwater within a highly urbanized area of intense industrial activity that may not be suitable for direct human consumption due to waste discharges, spills, or leaks of chemicals or land use impacts. For this class of groundwater, CTDEP has established a goal of preventing further degradation of groundwater and has established criteria for groundwater and soil (pollutant mobility criteria) for these groundwaters. However, CTDEP regulations indicate that groundwater standards for GA and GAA areas are used for GB groundwater.

The depth to groundwater at the facility is 14 to 16 feet bgs. Results of analyses of groundwater samples indicate that VOCs and metals are present in groundwater. In addition, results from 8 of the 17 wells on the facility parcel sampled in July 2001 showed levels of arsenic that exceeded both the GA/GAA GWPC (50 μg/l) and the surface water protection criteria (4 μg/l). These elevated arsenic results ranged from 100 μg/l to 440 μg/l (results summarized in Table 3). However, results from the other 9 wells did not detect arsenic (at a detection limit of 4 μg/l).

It is likely that these elevated levels of arsenic are associated with a well development problem, as arsenic was not detected in groundwater samples collected prior or subsequent to the July 2001 sampling event. The quality of the data from the July 2001 sampling event is questionable based on the following factors:

- 5 of the 10 samples in which elevated levels of metals were detected had turbidity readings that exceeded the 5 NTU level recommended in the Region I low stress (low flow) procedure (EPA 1996);
- the duplicate samples which were collected (from well H-1) and analyzed to evaluate sample precision for the sampling event had analytical results for arsenic of 120 μg/l and non-detect. These results have a relative percent difference of ±187% which greatly exceeds the acceptance criteria of ±25% typically applied to evaluation of duplicate sample results.

In addition, 2 of the 8 samples in which elevated levels of arsenic were detected were upgradient of the facility. One additional upgradient sample, outside of the facility parcel (AW-10), had the second highest level of arsenic (360 μg/l) detected in groundwater samples collected as part of the July 2001 sampling event.

With the exception of the elevated arsenic levels detected in July 2001, exceedances of GA/GAA groundwater protection criteria (GWPC) have been at isolated locations and do not indicate the presence of a contaminant plume. In addition, GA/GAA have not been observed consistently over time in any given location on the facility parcel. Exceedances of applicable levels are tabulated in Attachment 1.

Based on the levels of contaminants identified to date, groundwater discharge to surface water is not expected to present a pathway of concern for surface water contamination. Contaminant levels that have exceeded groundwater criteria have been below site-specific surface water protection criteria for groundwater contaminants.

Surface Water and Sediment - The Quinebaug River is classified as Bc by the CTDEP. This indicates surface water that is designated for recreational use; fish and wildlife habitat; agricultural and industrial water supply and other legitimate uses, such as navigation. No potable water supply intakes associated with the surface water have been identified within a one-mile radius of the facility. The Quinebag River is used for fishing by local fisherman (TRC, 1994).

The available data indicate that no surface water sampling and limited sediment sampling have been conducted at the facility. Surface water from the property flows into the Quinebaug River, located along the north, west, and southwest of the facility property. However, surface water contamination would not be expected based on the limited degree of contamination that has been found in site soils and groundwater, the history of the site, and the flow rate of the Quinebaug River.

In 1995, three sediment samples were collected from the Quinebaug River in an area adjacent to the facility's drainage pipe outfall. The facility indicated that these samples were under the soil DEC (Aaron, November 1995). It appears that these sediment samples were collected on facility property along the bank of the river.

Outdoor and Indoor Air - Although no indoor or outdoor air data are available, air has not been identified as a concern. Only isolated detections of VOCs have occurred in groundwater and do not indicate the presence of a contaminant plume. These levels do not exceed residential or industrial volatilization criteria established by the CTDEP. Therefore, based on current data and operations, outdoor and indoor air are not expected to pose a significant risk for human exposure.

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	No			No
~~Air (indoors)~~	___	___	___				
Soil (surface, e.g., <2 ft)	No	Yes	No	Yes	Yes	No	No
~~Surface Water~~	___	___			___	___	___
~~Sediment~~							
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):
The site is enclosed by an 8-foot chain-link fence on three sides and bordered by the river on one side. A 24-hour surveillance system monitors the area around the buildings, thereby reducing the likelihood that trespassers will be exposed to the contaminated soil. During plant shutdowns, security guards are present and gates are closed (Southwire, October 1999). These factors limit off-site access by trespassers and residents.

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

Currently, no measures are in place to prevent remediation or construction workers from direct contact with contaminated soil; however, such activities are not presently occurring. It is assumed that if remedial or construction activities are conducted, appropriate personal protective equipment would be worn to prevent the potential for exposure of workers to contaminants at the site. Employees at the facility generally work inside the buildings; however they may go outside during lunch, breaks, or when going to and from buildings.

There does not appear to be a pathway for human exposure to the groundwater contamination through drinking water uses. Groundwater use within 4 miles includes municipal and residential wells. The nearest potable water supply well is located about 0.1 miles northwest of the facility (across the river from the facility) (Aaron, 1997 and TRC, 1994). Groundwater from the facility generally discharges to the Quinebaug River, northwest to southwest (see the Water Table Contour Map in Attachment 3). At the northern end of the facility property, the Aspinhook Pond Dam and hydroelectric plant increase the local gradient and alter groundwater flow to the south in that area. A local groundwater divide appears to exist across the central portion of the Wyre Wynd parcel. This may be created by the main factory building and the thick fill zone in the area of Building 28.

In 1999, EPA requested additional details on well information south of the facility. Southwire responded that Jewett City Water Company (JCWC) representatives stated that areas south and west of the facility (potentially downgradient) have been served by public water since the late 19th to early 20th century. This area includes Anthony Street, Rhea Street, South Main Street, Sylvandale Road, and Knights of Columbus Drive. The only other well identified by these personnel was the manufacturing production well on the facility property (Southwire, October 1999). The nearest private well is located northwest facility across the river; the nearest public well is 0.4 miles to the northeast of the facility, upgradient of the facility. Southwire indicated that both wells are hydraulically isolated from the facility's groundwater (Southwire, October 1999).

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):

While workers, construction workers, and trespassers may be exposed to contaminants present in surface soil and construction workers may be exposed to subsurface soils, these exposures are not reasonably expected to be significant. As described above, the likelihood of trespassing is reduced due to the presence of a fence and guards. While workers may be exposed to surface soils while walking from building to building, given the levels of contaminants detected in soils and the frequency of detection, and the presence of buildings and pavement over much of the facility parcel, this pathway is not reasonably expected to be significant. While exposures may be greater for construction workers, it is reasonable to expect, given the knowledge of contaminants in soil at the site, that protective equipment would be worn. Therefore, exposures to construction workers are not 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?

Note: This item is not applicable as Item 4 was answered unknown. Proceed to item 6.

_____ 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 Wyre Wynd facility, EPA ID # CTD002590461, located at 77 Anthony Avenue Jewett City, CT 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) _____ Date 3/23/02
(print) Stephanie Carr
(title) RCRA Facility Manager

Supervisor (signature) _____ Date 3/26/02
(print) Matthew R. Hoagland
(title) Chief, RCRA Corrective Action Section
(EPA Region or State) EPA - New England

Locations where References may be found:

EPA Region 1 - Stephanie Carr or EPA Region 1 RCRA Record Center

Contact telephone and e-mail numbers

(name) Stephanie Carr
(phone #) 617-918-1363
(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.

References

Aaron Environmental. 2002. 2000/2001 Sampling Results. March 18

Aaron Environmental. 2002. Groundwater Sampling Results - January 2002: Wyre Wynd Manufacturing Parcel. March 7.

Aaron Environmental. 2001. Draft results of July 2001 groundwater sampling event provided to Stephanie Carr, EPA from Matt Coldwell, Aaron Environmental in September 2001.

Aaron Environmental. 2000. Voluntary Corrective Action Work Plan Addendum #1. October 6.

Aaron Environmental. 1999. RCRA Closure Plan Part 2: Results of Site Characterization. June.

Aaron Environmental. 1998. RCRA Closure Plan Part 1: Facility Information & Site Characterization Work Plan. December 28.

Aaron Environmental. 1996. Environmental Site Assessment; Southwire Company Hydroelectric Plant. November 11.

Aaron Environmental. 1995. Phase 2 Environmental Site Assessment, Volumes 1 and 2. November.

CTDEP. 2000. Letter from David Ringquist to Paul N. Simms, P.E. of Southwire Company. Regarding Voluntary Corrective Action, Wyre Wynd Facility, EPA ID No. CT002590461. June 5.

CTDEP, David Ringquist. 1997. Wyre Wynd/Live Wire, Inc./Southwire Company Environmental Indicators Report. April 25.

EPA. 1999. Letter from Stephanie Carr to Paul N. Simms, P.E. Southwire Company. Regarding RCRA Corrective Action at Wyre Wynd, CT002590461. December 9.

EPA. 1999. Letter from Stephanie Carr to Paul N. Simms, P.E. Southwire Company. Regarding RCRA Corrective Action at Wyre Wynd, CT002590461. September 9.

Newfields. 2002. Technical Memorandum describing procedures used to determine a site-specific background value for arsenic at the Wyre Wynd facility. March 4.

Southwire Company (Southwire). 1999. Letter from Paul N. Simms, P.E. to Stephanie Carr, EPA Site Manager. Regarding RCRA Corrective Action at Wyre Wynd, CT002590461: Responding to Stephanie Carr's Letter dated September 1999. October 28.

TRC Environmental Corporation (TRC). 1994. Draft RCRA Facility Assessment for Wyre Wynd, Inc. Jewett City, Connecticut, RCRA Facility Assessments. April.

Attachment 1

Table 1
Wyre Wynd Environmental Indicator Evaluation
Maximum Soil Concentration Detected of Constituents Exceeding Regulatory Criteria

Sample Identification	Residential Direct Exposure Criteria	Industrial Direct Exposure Criteria	Pollutant Mobility Criteria (GB)	Maximum Concentration Detected
TPH	500	2,500	2,500	1,300
SVOCs				
Benzo(a)anthracene	1	7.8	1	25
Benzo(b)fluoranthene	1	7.8	1	27
Benzo(k)fluoranthene	7.8	78	1	21
Benzo(a)pyrene	1	1	1	24
Dibenz(a,h)anthracene	1	1	1	330[1]
Indeno(1,2,3-cd)pyrene	1	7.8	1	8.3
Metals				
Antimony	27	8,200	NE	56
Arsenic	10	10	NE	130
Copper	2,500	76,000	NE	4,400

Concentrations are in mg/kg
NE = no existing standard

[1]Anomalous detection. The next highest concentration detected was 4.4 mg/kg.

Table 2
Soil Samples Exceeding CT Remediation Standard Regulations
Industrial/Commercial Direct Exposure Criteria

Compound	Industrial Direct Exposure Criteria (mg/kg)	Samples Above IDEC / Total Number of Samples
Arsenic	10	42 / 148
Copper	76,000	1 / 141
Benzo(a)anthracene	7.8	5 / 91
Benzo(a)pyrene	1	13 / 79
Benzo(b)fluoranthene	7.8	4 / 79
Dibenz(a,h)anthracene	1	7 / 91
Indeno(1,2,3-cd)pyrene	7.8	4 / 79

Table 3
Groundwater Concentrations Exceeding Applicable Levels

Sample ID	GA/GAA GWPC	SWPC	Res. VC	Ind. VC	SW-1	SW-4	AW-3	AW-4	AW-2	AW-4	AW-4D	AW-6	AW-7D	MW-380	MW-378	MW-382	SW-4	H-1
Sample Date					1995	1999	1999	1999	7/2001	7/2001	7/2001	7/2001	7/2001	7/2001	7/2001	7/2001	7/2001	7/2001
Antimony	0.006	86	NA	NA	**0.17(d)**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.13**	BDL
Arsenic	0.05	0.004	NA	NA	BDL	BDL	BDL	BDL	**0.44**	**0.17**	**0.1**	**0.15**	**0.18**	**0.11**	BDL	**0.11**	BDL	**0.12**
Copper	1.3	0.048[1]	NA	NA	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**3.8**	BDL	BDL	BDL
Lead	0.015	0.013[2]	NA	NA	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.73**	BDL	BDL	BDL
Benzene	0.001	0.71	0.215	0.53	BDL	**0.002**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Trichloroethylene	0.005	2.34	1.5	3.82	BDL	BDL	**0.014**	BDL	**BDL**	**BDL**	**BDL**	**BDL**	**BDL**	**BDL**	**BDL**	**BDL**	**BDL**	**BDL**

Values in bold exceed regulatory criteria.

Concentrations are in mg/L.

GWPC = CT DEP Groundwater Protection Criteria

SWPC = CT DEP Surface Water Protection Criteria

Res. VC = CT DEP Residential Volatilization Criteria

Ind. VC = CT DEP Industrial/Commercial Volatilization Criteria

BDL = Below Detection Limit

NA = Not Applicable

d = dissolved concentrations

[1] Site-specific surface water protection criteria for copper was calculated as 10 mg/L (Aaron, 2002).

[2] Site-specific surface water protection criteria for lead was calculated as 22.9 mg/L (Aaron, 2002).

Table 3 - Continued
Groundwater Concentrations Exceeding Applicable Levels

Sample ID	GA/GAA GWPC	SWPC	Res. VC	Ind. VC	AW-1	MW-380	MW-379
Sample Date					1/2002	1/2002	1/2002
Antimony	0.006	86	NA	NA	**0.046**	BDL	BDL
Arsenic	0.05	0.004	NA	NA	BDL	BDL	BDL
Copper	1.3	0.048[1]	NA	NA	BDL	BDL	**0.051**
Lead	0.015	0.013[2]	NA	NA	BDL	**0.016(d)**	BDL
Benzene	0.001	0.71	0.215	0.53	BDL	BDL	BDL
Trichloroethylene	0.005	2.34	1.5	3.82	BDL	BDL	BDL
Values in bold exceed regulatory criteria.							
Concentrations are in mg/L.							
GWPC = CT DEP Groundwater Protection Criteria							
SWPC = CT DEP Surface Water Protection Criteria							
Res. VC = CT DEP Residential Volatilization Criteria							
Ind. VC = CT DEP Industrial/Commercial Volatilization Criteria							
BDL = Below Detection Limit							
NA = Not Applicable							
d = dissolved concentrations							

[1] Site-specific surface water protection criteria for copper was calculated as 10 mg/L (Aaron, 2002).

[2] Site-specific surface water protection criteria for lead was calculated as 22.9 mg/L (Aaron, 2002).

Attachment 2

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

RDMS Document ID# 982

Facility Name: Wyre Wynd

Phase Classification: R-13

Document Title: Environmental Indicator (EI) Determination, Current Human Exposures Under Control (CA725YE) - Wyre Wynd

Date of Document: 03-26-2002

Document Type: EI Determination

Purpose of Target Sheet:

[x] **Oversized** [ ] **Privileged**

[ ] **Page(s) Missing** [ ] **Other** **(Please Provide Purpose Below)**

Comments: Map of Soil Boring Locations

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