
**DOCUMENTATION OF
ENVIRONMENTAL INDICATOR
DETERMINATION
CURRENT HUMAN EXPOSURES
UNDER CONTROL**

**Pratt & Whitney
60 Belamose Avenue
Rocky Hill, CT**

February 2000

Prepared for

**PRATT & WHITNEY
400 Main Street
East Hartford, CT 06108**

Prepared by

**LOUREIRO ENGINEERING ASSOCIATES
100 Northwest Drive
Plainville, CT 06062**

LEA Comm. No. 68VE401

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

Page 1

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

Current Human Exposures Under Control

Facility Name: Pratt & Whitney, Rocky Hill Facility
Facility Address: 60 Belamose Avenue, Rocky Hill, Connecticut
Facility EPA ID #: CTD000844407

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

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

Page 2

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).

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

Page 3

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

	<u>Yes</u>	<u>No</u>	<u>?</u>	<u>Rationale / Key Contaminants</u>
Groundwater	<u>x</u>	<u> </u>	<u> </u>	<u>Arsenic, chromium, copper, lead, mercury, zinc, and carbon disulfide were detected in groundwater at concentrations above the respective generic Pratt & Whitney screening levels.</u>
Air (indoors) ²	<u> </u>	<u>x</u>	<u> </u>	
Surface Soil (e.g., <2 ft)	<u> </u>	<u>x</u>	<u> </u>	<u>Benzo[a]pyrene was detected in sample RH-RSK-SS-01 at a concentration of 2.5 mg/kg, above the screening level of 1.6 mg/kg. However, the 95% UCL on the mean for benzo[a]pyrene in the surface soil data set for the exposure area is well below the screening level.</u>
Surface Water	<u>x</u>	<u> </u>	<u> </u>	<u>A single exceedance over surface water screening levels was noted for lead (0.0042 mg/l) at sample location RH-RSK-SD-03.</u>
Sediment	<u> </u>	<u>x</u>	<u> </u>	
Subsurf. Soil (e.g., >2 ft)	<u>x</u>	<u> </u>	<u> </u>	<u>Though subsurface soil at portions of the site is reasonably expected to be contaminated, exposure to subsurface soil is controlled through the Design Process Review, an institutional control, to ensure analytical data for subsurface soils are reviewed or generated/evaluated prior to exposure.</u>
Air (outdoors)	<u>x</u>	<u> </u>	<u> </u>	<u>Exposure to outdoor trench air is considered applicable only to excavation laborers. As the subsurface soil at portions of the site is reasonably expected to be contaminated, it is similarly reasonably expected that excavation laborers may be exposed to contaminated air during the performance of excavations. The exposure to air by excavation laborers is limited through the implementation of an institutional control, the Design</u>

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

Page 4

Process Review, to ensure analytical data for subsurface soils and/or groundwater are reviewed or generated/evaluated prior to exposure.

_____ 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 Rocky Hill Facility is a jet engine component manufacture and assembly facility. The facility prepares and packages selected jet engine assembly components for shipment to other facilities. The facility consists of a main factory building, a separate powerhouse, and several auxiliary buildings on 51.5 acres of land. Pratt & Whitney has occupied the facility since 1965. The site was reported to have been developed in 1927 as the Belamose Rayon plant, and operated as a rayon manufacturing facility until 1965. Samples of groundwater, indoor air, surface soil (i.e., those soils located at depths less than or equal to 6 inches below the ground surface), surface water, and sediment have been collected during the performance of investigation activities conducted at the site.

A report entitled *Conceptual Site Models and Screening Levels for Pratt & Whitney's VCAP Connecticut Facilities*, was prepared by Gradient Corporation (Gradient Report). This report was issued on December 19, 1997 and revised on September 18, 1998, and September 15, 1999. A copy of applicable portions of this report, those portions addressing the Rocky Hill Facility, has been included in Attachment No. 1. For the Rocky Hill Facility, the Gradient Report provides a facility-specific conceptual site model, a description of facility-specific exposure media and exposure pathways, a description of potential receptors, a rationale and approach to screening analytical data generated for exposure media, and screening levels for exposure media. For the Rocky Hill Facility, the Gradient Report identifies the applicable receptors, exposure media and pathways that require screening as follows:

- 1) grounds keepers, samplers, and trespassers, surface soil by ingestion and dermal contact (Table 3-10);

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

Page 5

- 2) maintenance workers, indoor workers, and samplers, indoor air by inhalation (Table)3-4;
- 3) off-site recreators, samplers, and trespassers, surface water, ingestion and dermal contact (Tables 3-6 and 3-7);
- 4) off-site recreators, samplers, and trespassers, sediment, ingestion and dermal contact; (Table 3-10) and,
- 5) maintenance workers and samplers, groundwater by dermal contact (Raney well water compared to Table 3-8 and MCLs, respectively).

This documentation of environmental indicator determination is based on a review of all available relevant/significant data as it applies to these receptors for the identified exposure media and pathways.

Groundwater

Groundwater samples have been collected from groundwater monitoring wells installed at the Pratt & Whitney Rocky Hill Facility as part of the Voluntary Corrective Action Program (VCAP) groundwater monitoring since September 1997. The initial groundwater monitoring well network was installed in March 1997 and consisted of eighteen groundwater monitoring wells (RH-MW-01S through RH-MW-18S). Each of these wells are constructed such that the screen section intersects the groundwater table. In February 1999, RH-MW-06D, RH-MW-11D, and RH-MW-17D were added to augment the existing well network with monitoring wells screened in deeper zones of the aquifer. Specifically, these three additional wells are constructed with screen sections immediately above the bedrock/unconsolidated material interface.

Groundwater samples have been collected from the site during four separate events during the period from September 1997 to December 1999. In September 1997, groundwater samples were collected from wells RH-MW-1S through RH-MW-18S. In the April 1999 and May 1999 sampling event, groundwater samples were collected from RH-MW-1S through RH-MW-18S and RH-MW-06D, RH-MW-11D, and RH-MW-17D. In the December 1999 sampling event, a single groundwater duplicate sample pair was collected from the soil boring RH-SB-35. A complete listing of constituents for which samples were analyzed during the September 1997, April 1999, May 1999, and December 1999 sampling events is provided in the tabular presentation of analytical data in Attachment No. 3.

General groundwater flow in the upper portion of the unconsolidated aquifer at the site is toward the southeast. However, the direction of flow, especially in proximity to the Connecticut River, is influenced for periods of time and to varying degrees by the tidal influences of the river. The Connecticut River is tidally influenced from its mouth at Long Island Sound up to approximately the City of Hartford. The depth to the water

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

Page 6

table over most of the site is typically 15 to 25 feet below the ground surface. Water table elevations typically range from approximately 7 to 8.5 feet above mean sea level (MSL).

In the vicinity of monitoring well RH-MW-17S, a layer of dense silt was encountered which acts locally as an aquitard. A perched layer of groundwater in the immediate vicinity of RH-MW-17S is located approximately 10 feet above the water table in the general area. The full extent of the perched zone has not been identified. However, with the exception of soil boring RH-SB-35, the dense silt was not encountered in any other soil borings or monitoring wells installed at the site. Based on the available geologic and hydrogeologic data, coupled with chemical data from locations downgradient of RH-MW-17S, it is concluded that a direct hydrologic connection between the contaminated zone of the perched layer of groundwater and the underlying aquifer does not exist. Provided in Attachment No. 3 is a map depicting generalized geologic cross sections for the area proximal to RH-MW-17S.

Provided in Attachment No. 2 is a Site Plan depicting the location of each of the groundwater monitoring points. The site plan also presents groundwater contours generated from data collected during the April 1999 groundwater sampling event. Provided as Attachment No. 3 is a copy of a report entitled *Groundwater Monitoring in Support of VCAP Risk Assessment, Pratt & Whitney, Rocky Hill, Connecticut*. Attachment No. 3 also includes a database listing of analytical data for groundwater samples collected during the period from September 1997 through December 1999 and a summary of constituents detected in groundwater samples collected from onsite monitoring wells for the same period.

The groundwater data provided in the attachments have been compared to the numeric screening levels published in the Gradient Report. Specifically, the groundwater data have been compared to the numeric criteria published in Table 3-7 of the above-referenced report. The table is titled *Generic P&W Groundwater Screening Levels (SLs) Based on Surface Water Protection, P&W VCAP, Connecticut Facilities*. The groundwater monitoring well network at the site is determined adequate in number and spatial distribution to assess the quality of groundwater that discharges to surface water bodies at the site. With the exception of those constituents noted below, constituents were not detected in groundwater at concentrations above the numeric criteria published in the above referenced table. The exceptions were noted for arsenic, chromium, copper, lead, mercury, zinc, and carbon disulfide at one or more of the following locations; RH-MW-07S, RH-MW-09S, RH-MW-11D, RH-MW-16S, RH-MW-17S, and RH-SB-35. A tabular presentation of the exceedances of groundwater screening criteria is presented in Attachment No. 3.

The zinc detected in groundwater at locations RH-MW-09S during the September 1997

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

Page 7

sampling event, RH-MW-16S during the April 1999 and May 1999 sampling event, and RH-MW-17S in the May 1999 sampling event do not represent exceedances of applicable groundwater screening criteria. The criterion in Table 3-7 for zinc is derived directly from the DEP Surface Water Protection Criteria. The Surface Water Protection Criterion for zinc is calculated by multiplying the aquatic life criteria protective of chronic health effects by a dilution attenuation factor of 10. In 1997, the DEP revised the aquatic life criteria for surface waters. As a result, the current aquatic life criteria protective of chronic health effects in surface water for zinc is 0.0582 mg/l, above the previous 0.0123 mg/l standard in existence at the time of the development of the generic screening levels. As a result, the screening criterion for zinc for the purposes of comparison of groundwater data is 0.582 mg/l (0.0582×10). Since the concentrations of zinc detected in location RH-MW-16S, RH-MW-17S and RH-MW-09S during the noted sampling events do not exceed this criterion, additional evaluation of these data from these locations for zinc is not necessary.

With regard to arsenic detected in monitoring well RH-MW-11D, this well is constructed with the screen section immediately above the bedrock/unconsolidated material interface (a depth of 140 to 145 feet below the ground surface). While it is likely that groundwater from this depth in the unconsolidated aquifer will eventually discharge to a surface water body, it is unlikely that such discharge occurs within an area proximate to the site. As such, it is not believed to be representative of groundwater that discharges to surface water at the site. Furthermore, due to natural dilution and attenuation that would occur within the aquifer over the significant distance prior to discharge to a surface water, the concentration of arsenic observed in monitoring well RH-MW-11D would not pose a risk to surface water. As a result, additional evaluation of the data from this location for arsenic is not necessary.

With regard to carbon disulfide and zinc detected in well RH-MW-17S, groundwater from this well is not considered to be representative of groundwater that discharges to surface water at the site. As discussed, this well is constructed with the screened section intersecting the groundwater surface in a very localized zone of perched groundwater located beneath the facility. Groundwater samples collected from monitoring wells located downgradient from RH-MW-17S (and at locations in closer proximity to surface water bodies) that are constructed with screen sections intersecting the groundwater surface do not contain detectable levels of carbon disulfide and do not contain concentrations of zinc in excess of applicable groundwater screening criteria. In December 1999, a single deep soil boring was successfully advanced in the area downgradient of RH-MW-17S (RH-SB-35). The intent of this soil boring was to obtain soil and groundwater quality data in the area downgradient of monitoring well RH-MW-17S in order to determine whether there had been migration of the carbon disulfide previously noted in that well. Soil and groundwater samples collected from RH-SB-35 did not indicate the presence of carbon disulfide at detectable concentrations. A more

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

Page 8

detailed description of the December 1999 investigations is provided in Attachment No. 3. Furthermore, with respect to carbon disulfide, the source of this constituent is the former rayon manufacturing facility that occupied the site from 1927 until 1965. Pratt & Whitney has not used carbon disulfide during its tenure at the site. Due to the likely date of the release (i.e. between 1927 and 1965) and the fact that there is no indication of the migration of this contaminant, the carbon disulfide has reached equilibrium. As such, the concentrations of carbon disulfide and zinc detected in well RH-MW-17S do not pose a risk to surface water.

The concentrations of arsenic, chromium, lead, and zinc detected in the single groundwater duplicate sample pair collected from soil boring RH-SB-35 exceed the P&W generic groundwater criteria. However, sampling points located downgradient and in closer proximity to surface water bodies (particularly RH-MW-05S, RH-MW-09S, RH-MW-10S and RH-MW-11S) do not contain concentrations of these constituents in excess of the generic P&W groundwater screening levels. As a result, the groundwater collected from location RH-SB-35 is not representative of groundwater discharging to surface water. As a result, additional evaluation of the data from this location for arsenic, chromium, lead and zinc is not necessary.

In summary, concentrations of arsenic, chromium, copper, lead, mercury, zinc, and carbon disulfide were detected in groundwater at concentrations above the respective generic Pratt & Whitney groundwater screening levels. Based on the above discussions, it is concluded that groundwater collected from RH-MW-17S is not representative of groundwater that has the potential to discharge to surface water at the site. As such, further evaluation of the data with respect to carbon disulfide is not warranted. Through the discussions presented above, it also appears that only arsenic detected in groundwater collected from RH-MW-07S is representative of groundwater discharging to surface water at the site. However, further evaluation of the presence of arsenic, chromium, copper, lead, mercury, and zinc in groundwater (at one or more of the following locations RH-MW-07S, RH-MW-09S, RH-MW-11D, RH-MW-16S, RH-MW-17S, and RH-SB-35) is presented in the following parts of this document.

Groundwater analytical data from a sample collected from the Ranney Well on November 18, 1988, was compared to the numeric criteria published in Table 3-8 of the above-referenced report. The table is titled *Generic P&W Groundwater Screening Levels (SLs) Based on Dermal Contact, P&W VCAP, Connecticut Facilities*. The groundwater analytical data from the same sample was also compared to the USEPA Maximum Contaminant Levels (MCLs). Analytical data from the Ranney Well indicated the presence of the following compounds (listed as compound and detected concentration) copper (0.019 mg/l), iron (0.210 mg/l), manganese (0.061 mg/l), sodium (14 mg/l), zinc (0.009 mg/l), alkalinity and hardness as calcium carbonate (50 mg/l), chloride (30 mg/l), nitrate (8 mg/l), total dissolved solids (100 mg/l), and chloroform (2 µg/l). The detected

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

Page 9

concentrations are below both the screening criteria and the MCL (for those constituents listed in Table 3-8 and that have established MCLs). A copy of the analytical data from the Ranney Well sampling is included in Attachment 3 to this document.

Indoor Air

With respect to indoor air, five indoor air samples, including a duplicate sample pair, were collected in November 1998 in an effort to assess concentrations of volatile organic compounds present in indoor air at the main factory building. These samples, collected at the locations identified as RH-RSK-AS-01 through RH-RSK-AS-05 on the attached Site Plan provided as Attachment No. 2, were collected as part of the comprehensive risk assessment sampling program to evaluate potential exposure pathways at the site. Provided as Attachment No. 4 is a copy of the report entitled *Indoor Air Monitoring in Support of VCAP Risk Assessment, Pratt & Whitney, Rocky Hill, Connecticut*, including a database listing of analytical data for the indoor air samples and a summary of constituents detected in those samples.

The indoor air sample data provided in the attachments has been compared to the numeric screening levels published in the Gradient Report. Specifically, the indoor air data have been compared to the numeric criteria published in Table 3-4 of the above-referenced report. The table is titled *Generic P&W Indoor Air Screening Levels (SLs) P&W VCAP, Connecticut Facilities*. Maximum concentrations of the constituents detected in the indoor air samples were: acetone (330 $\mu\text{g}/\text{m}^3$); methyl ethyl ketone (8.1 $\mu\text{g}/\text{m}^3$); methyl *t*-butyl ether (8.1 $\mu\text{g}/\text{m}^3$) and, toluene (6.7 $\mu\text{g}/\text{m}^3$). Carbon disulfide was not detected in any of the air samples. All of the constituents detected in the air samples were well below the applicable screening levels.

Surface Soil

A total of 17 surface soil samples, including one duplicate sample pair, were collected during risk assessment sampling activities. These samples, identified as RH-RSK-SS-01 through RH-RSK-SS-16, were collected on March 19, 1998. The samples were analyzed for the presence of volatile organic and semi-volatile organic compounds, PCBs, metals, and total petroleum hydrocarbons. The samples were collected as part of the comprehensive risk assessment sampling program to evaluate potential exposure pathways at the site. The location of each sample is provided on the Site Plan provided as Attachment No. 2. Provided as Attachment No. 5 is a copy of the report entitled *Surface Soil Sampling in Support of VCAP Risk Assessment, Pratt & Whitney, Rocky Hill, Connecticut*, including a database listing of analytical data for the 17 surface soil samples and a summary of constituents detected in the surface soil samples.

The surface soil sample data provided in the attachments have been compared to the

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

Page 10

numeric screening levels published in the Gradient Report. Specifically, the surface soil data have been compared to the numeric criteria published in Table 3-10 of the above-referenced report. The table is titled *Generic P&W Soil Screening Levels (SSLs) based on Soil Ingestion and Dermal Contact (mg/kg) P&W VCAP, Connecticut Facilities*. The sampling is determined adequate to assess the quality of surface soils in those areas likely to be encountered by grounds keepers, samplers, and trespassers at the site. Benzo[a]pyrene was detected in sample RH-RSK-SS-01 at a concentration of 2.5 mg/kg, above the 1.6 mg/kg numeric criteria published in the above-referenced table. It should be noted that benzo[a]pyrene is not a primary constituent of concern at this facility. This sample was collected from an area within the groundskeeper exposure area. Of the 17 samples analyzed, 11 were collected from within the groundskeeper exposure area. Benzo[a]pyrene was detected in each of the eleven samples at concentrations ranging from 0.062 mg/kg to 2.5 mg/kg. The arithmetic average of the data set for these 11 samples is 0.363 mg/kg and the 95% UCL on the mean of the data set is 0.808 mg/kg with a standard deviation of 0.813 mg/kg. The 95% UCL on the mean concentration is below the screening level of 1.6 mg/kg. To arrive at the 95% UCL on the mean, the benzo[a]pyrene data set was log-transformed. A copy of the 95% UCL calculation sheet for the data set is included in Attachment No. 5.

It should also be noted that the project-specific practical quantitation limit for n-nitrosodimethylamine is 330 µg/kg. Subsequent to the analyses performed, lower screening levels were developed by Gradient Corporation. The screening level for n-nitrosodimethylamine for groundskeepers is 230 µg/kg, and for samplers is 400 µg/kg. The lower screening levels were developed in response to recent changes in the conceptual site model, which was finalized on September 15, 1999. Although the analyses were done using a higher detection limit, n-nitrosodimethylamine has not been detected in any of the samples analyzed. Moreover, based on historic sampling as well as manufacturing use and operational knowledge, n-nitrosodimethylamine is not expected to be a constituent of concern at the Pratt & Whitney facilities. Therefore, no further evaluation is necessary regarding this compound.

A letter from Lancaster Laboratories regarding the detection limits achieved has been provided to EPA in the *Pratt & Whitney Voluntary Corrective Action Plan Progress Report for Third Quarter 1999*. According to the letter, instrument sensitivity and purging characteristics limit the achievable detection limits.

A comparison of data for soil samples collected from the Electrochemical Machining (ECM) versus non-ECM areas of the site was performed. The data and comparison table are provided in Attachment No. 5. The data comparison table presents a summary of the average concentrations and standard deviations (where appropriate) of original and log transformed concentrations for constituents detected in soil samples at the Pratt & Whitney Rocky Hill facility. The total number of detected constituents, the total number

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

Page 11

of analyses available, and the maximum detected concentrations for each analyte are also listed.

To perform the comparison, the samples were segregated into those soil samples collected from areas within the former ECM area and those from the remaining portions of the site. Only detected constituents were incorporated into the comparative analysis. Except for carbon disulfide, the data do not appear to indicate any general tendency for constituents detected in the ECM area to be higher or lower in concentrations than those same constituents detected elsewhere.

Surface Water

To assess surface water quality in the vicinity of the Rocky Hill Facility, surface water samples were collected at three locations (one being a duplicate pair) within Dividend Brook. The sample locations are identified on the Site Plan in Attachment No. 2 as RH-RSK-SD-01 through RH-RSK-SD-03. Surface water samples were collected from RH-RSK-SD-01 through RH-RSK-SD-03 on May 11, 1999. The samples were analyzed for volatile organic compounds and metals. The samples collected from Dividend Brook were collected as part of the comprehensive risk assessment sampling program to evaluate potential exposure pathways at the site. Provided as Attachment No. 6 is a copy of the report entitled *Surface Water and Sediment Sampling in Support of VCAP Risk Assessment, Pratt & Whitney, Rocky Hill, Connecticut*, including a database listing of analytical data for the surface water samples and a summary of constituents detected in the surface water samples.

The surface water data provided in the attachments have been compared to the numeric screening levels published in the Gradient Report. Specifically, the surface water data have been compared to the numeric criteria published in Table 3-6 of the above-referenced report. The table is titled *Generic P&W Surface Water Screening Levels (SLs) P&W VCAP Facilities*. The surface water sampling network is determined adequate to assess the surface water quality in those areas likely to be encountered by offsite recreators, samplers, and trespassers at the site. With the exception of lead, constituents were not detected in surface water at concentrations above the numeric criteria published in the above referenced table. The single exceedance over surface water screening levels was for lead (0.0042 mg/l) at sample location RH-RSK-SD-03. The surface water screening level for lead is 0.003 mg/l.

A single potentially bioaccumulative compound (barium) was detected in each of the surface water samples analyzed. Barium was detected in each at relatively low concentrations ranging from 0.0876 to 0.0919 mg/l. These detected concentrations are not expected to pose significant risks to human health. Dividend Brook is a small stream that is not likely to contain fish that would be attractive (i.e., of adequate size and

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

Page 12

appropriate specie) to humans for ingestion. In addition, general fish advisories are in place in Connecticut restricting ingestion of fish in fresh water bodies due to the presence of elevated levels of "background" mercury. This further reduces the likelihood of fish ingestion. For these reasons, the low concentrations of barium present in surface water at the site are not expected to pose significant risks to humans.

Sediment

As part of the comprehensive risk assessment sampling activities, a total of 4 sediment samples have been collected. These samples were collected from three locations (one being a duplicate pair) within Dividend Brook. The location of each sampling point is provided on the Site Plan in Attachment No. 2. The sediment samples, identified as RH-RSK-SD-01 through RH-RSK-SD-03, were collected on May 11, 1999. The sediment samples were analyzed for the presence of VOCs, SVOCs, PCBs, metals, and TPH. The sampling was performed as part of the comprehensive risk assessment sampling program to evaluate potential exposure pathways at the site. Provided as Attachment No. 6 is a copy of the report entitled *Surface Water and Sediment Sampling in Support of VCAP Risk Assessment, Pratt & Whitney, Rocky Hill, Connecticut*, including a database listing of analytical data for the sediment samples and a summary of constituents detected in the sediment samples.

The sediment data provided in the attachments have been compared to the numeric screening levels published in the Gradient Report. Specifically, the sediment data have been compared to the numeric criteria published in Table 3-10 of the above-referenced report. The table is titled *Generic P&W Soil Screening Levels (SSLs) based on Soil Ingestion and Dermal Contact (mg/kg) P&W VCAP, Connecticut Facilities*. The sampling is determined adequate to assess the quality of sediment in those areas likely to be encountered by samplers, trespassers, and offsite recreators and constituents were not detected in the sediment samples at concentrations above the numeric criteria published in the above referenced table.

Potentially bioaccumulative compounds were detected in sediment at relatively low concentrations. The range and average concentrations detected, respectively are as follows: arsenic 0.79 to 1.40 mg/kg, average of 1.04 mg/kg, barium 31.2 to 39.5 mg/kg, average of 35.1 mg/kg, cadmium 0.46 to 0.64 mg/kg, average of 0.54 mg/kg, mercury 0.014 to 0.430 mg/kg, average of 0.153 mg/kg, PCB 1260 31 to 47 µg/kg, average of 33 µg/kg, benzo[a]anthracene 200 to 460 µg/kg, average of 358 µg/kg, benzo[b]fluoranthene 390 to 790 µg/kg, average of 618 µg/kg, benzo[k]fluoranthene 110 to 240 µg/kg, average of 195 µg/kg, butyl benzyl phthalate in a single sample at 280 µg/kg, chrysene 240 to 530 µg/kg, average of 428 µg/kg, dibenzo[a,h]anthracene 52 to 120 µg/kg, average of 85µg/kg, and indeno(1,2,3-cd)pyrene 230 to 490 µg/kg, average of 350µg/kg. These

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

Page 13

detected concentrations, and the fact that with the exception of barium none were detected in surface water, are not expected to pose significant risks to human health. Dividend Brook is a small stream that is not likely to contain fish that would be attractive (i.e., of adequate size and appropriate specie) to humans for ingestion. In addition, general fish advisories are in-place in Connecticut restricting ingestion of fish in fresh water bodies due to the presence of elevated levels of “background” mercury. This further reduces the likelihood of fish ingestion. For these reasons, bioaccumulative chemicals present in sediment at the site are not expected to pose significant risks to humans.

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.

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

Page 14

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

<u>“Contaminated” Media</u>	Potential <u>Human Receptors</u> (Under Current Conditions)						
	Residents	Workers	Day Care	Construction	Trespassers	Recreation	Food ³
Groundwater	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>
Surface Water	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>Yes</u>	<u>Yes</u>	<u>No</u>
Soil (subsurface e.g., >2 ft)	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>
Air (outdoors)	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>

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

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

Page 15

Rationale and Reference(s):

Groundwater, Outdoor Air and Subsurface Soil

The implementation of the Design Process Review (DPR) controls worker exposure to contaminants in groundwater, subsurface soil, and trench air (outdoor air encountered during performance of excavation of subsurface soil). A DPR is completed prior to any activity that results in the excavation of soil (the potential source of exposure to constituents in groundwater, subsurface soil and air, due to soil movement). The DPR includes an assessment of available analytical data for soil and groundwater in the area where the proposed activity will occur. If no data are available, or if existing data are incomplete, samples are collected. The data for the areas are compared to the screening criteria. If there are exceedances of applicable screening levels, all subsurface work in the area is conducted by personnel who have received appropriate health and safety training.

Surface Water

Surface water is a complete human exposure pathway for off-site recreators and trespassers (via ingestion and dermal contact). As noted above, concentrations of lead (0.0042 mg/l) were detected at sample location RH-RSK-SD-03 above the surface water screening level of 0.003 mg/l. Additionally, concentrations of arsenic, chromium, copper, lead, mercury, and zinc were detected in groundwater at concentrations in excess of groundwater screening level. As a result, the significance of potential exposures for offsite recreators and trespassers to lead in surface water and arsenic, chromium, copper, lead, mercury and zinc in groundwater discharging to surface water must be evaluated.

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

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

Page 16

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

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

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

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

Footnotes:

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.

Rationale and Reference(s):

Surface Water

As discussed above, a single exceedance of the P&W generic surface water screening levels was noted for lead (0.0042 mg/l) at sample location RH-RSK-SD-03. The P&W generic surface water screening level for lead is 0.003 mg/l. It should be noted that the screening levels listed in the conceptual site model (CSM) were developed based on readily available published criteria. The readily available published criteria cited are protective of both human and ecological exposure. However, other applicable screening criteria with respect to evaluation of human exposures exist. Specifically, the maximum

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

Page 17

contaminant level (MCL) for lead (0.015 mg/l) is considered an applicable screening criterion to evaluate direct human exposures to surface water. Comparison with this criterion did not indicate any exceedances in surface water. As a result, the concentration of lead detected in surface water does not represent a significant direct exposure risk to humans.

Arsenic, chromium, copper, lead, mercury, and zinc were detected in groundwater samples collected from the site. The screening levels for groundwater discharging to surface water listed in the conceptual site model (CSM) were developed based on readily available published criteria. The readily available published criteria cited are protective of both human and ecological exposure. However, other applicable screening criteria with respect to evaluation of human exposures exist. Specifically, in evaluating the significance of direct human exposures to a surface water, in consideration of the effects of groundwater discharges to the surface water, comparison of the maximum contaminant level (MCL) multiplied by a dilution attenuation factor of 10 is considered an applicable screening criterion. The applicable screening criteria for evaluation of direct human exposures to surface in consideration of the effects of groundwater discharge to the surface water are as follows:

• Arsenic	0.05 mg/l x 10	=	0.5 mg/l
• Chromium	0.1 mg/l x 10	=	1 mg/l
• Copper	1.3 mg/l x 10	=	13 mg/l
• Lead	0.015 mg/l x 10	=	0.15 mg/l
• Mercury	0.002 mg/l x 10	=	0.02 mg/l
• Zinc	5 mg/l x 10	=	50 mg/l

Comparison with these criteria did not indicate any exceedances in groundwater. Therefore, the discharge of groundwater containing arsenic, chromium, copper, lead, mercury, and zinc at the detected concentrations to surface water does not represent a significant direct exposure risk to humans.

Of the compounds detected in groundwater at concentrations above the generic P&W screening levels, arsenic and mercury are considered potentially bioaccumulative compounds. Arsenic has been detected in 17 of 62 (27 percent) groundwater samples collected at the site. P&W generic groundwater screening levels for arsenic were exceeded in 10 of 62 (16 percent) groundwater samples collected at the site. Mercury has been detected in 5 of 72 (7 percent) groundwater samples collected at the site. P&W generic groundwater screening levels for mercury were exceeded in 1 of 72 (1 percent) groundwater samples collected from the site. Due to the infrequent detection of these compounds in groundwater at the site, potential bioaccumulative affects are not considered relevant in the evaluation of the data.

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

Page 18

Furthermore, although arsenic can potentially bioaccumulate in fish tissue, a screening criteria of 10 times the arsenic MCL of 50 µg/L (using a default DAF of 10) was used to evaluate potential risks *via* groundwater discharge to surface water. This approach is appropriate because the bioaccumulative potential for arsenic is limited compared to other compounds, such as PCBs. The bioaccumulation factor (BCF), which relates aqueous concentrations with fish tissue concentrations, for arsenic is on the order of 1 L/kg (Stephan, 1993; U.S. EPA, 1998)^{1,2} compared to BCFs for PCBs (Aroclor 1016, 1248, 1254, and 1260) ranging from 26,000 to 660,000 L/kg in aquatic species (fish, shrimp, oysters) (ATSDR, 1998).³ Given the low bioaccumulative potential for arsenic, human health risks as a result of exposure to arsenic *via* the fish ingestion is not expected to be significant and 10 times the MCL is expected to be protective of human health for all pathways, including fish ingestion.

Additionally, Dividend Brook is a small stream that is not likely to contain fish that would be attractive (i.e., of adequate size and appropriate specie) to humans for ingestion. Furthermore, general fish advisories are in-place in Connecticut restricting ingestion of fish in fresh water bodies due to the presence of elevated levels of “background” mercury. This further reduces the likelihood of fish ingestion. For these reasons, the low concentrations of arsenic and mercury present in groundwater, coupled with the infrequent detection of these compounds in groundwater at the site support the determination that exposure to these compounds at the detected concentrations is insignificant with respect to potential human health risks associated with ingestion of fish obtained from Dividend Brook.

1 U.S. Environmental Protection Agency (USEPA). 1998. Region 6 Interim Strategy: Arsenic Freshwater Human Health Criterion for Fish Consumption. Last Update on 02/04/98.

2 Stephan, C.E. 1993. Draft: Derivation of Proposed Human Health and Wildlife Bioaccumulation Factors for the Great Lakes Initiative. Duluth, MN. U.S Environmental Protection Agency, Office of Research and Development.

3 Agency for Toxic Substances and Disease Registry (ATSDR). 1998. Toxicological Profile for Polychlorinated Biphenyls. Draft. U.S. Department of Human & Health Services.

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

Page 19

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):

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

Page 20

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):

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 Pratt & Whitney Rocky Hill Facility, EPA ID #CTD000844407, located at 60 Belamose Avenue, Rocky Hill, Connecticut under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

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

IN - More information is needed to make a determination.

Completed by (signature) E. W.
(print) Ernest Waterman
(title) Geologist

Date 9-11-2000

Supervisor (signature) Matthew R. Foggland
(print) Matthew R. Foggland
(title) Section Chief
(EPA Region or State) EPA-NE

Date 9/11/00

Locations where References may be found:

Contact telephone and e-mail numbers

(name) _____
(phone #) _____
(e-mail) _____

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

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

LIST OF ATTACHMENTS

- Attachment No. 1** Copies of Applicable Sections, *Conceptual Site Models and Screening Levels For Pratt & Whitney's VCAP Connecticut Facilities*, Gradient Corporation, December 19, 1997, revised September 18, 1998, and September 15, 1999
- Attachment No. 2** Site Plan
- Attachment No. 3** Summary of Groundwater Analytical Data and Constituents Detected in Groundwater, December 1999 Deep Soil Boring Installation Report, Generalized Geologic Cross Sections, and Ranney Well Results
- Attachment No. 4** Summary of Indoor Air Analytical Data and Constituents Detected in Indoor Air
- Attachment No. 5** Summary of Surface Soil Analytical Data and Constituents Detected in Surface Soil, and Evaluation of Soil Data From ECM vs. non-ECM Areas of the Site
- Attachment No. 6** Summary of Surface Water and Sediment Analytical Data and Constituents Detected in Surface Water and Sediment

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

Attachment No. 1

***Copies of Applicable Sections
Conceptual Site Models and Screening Levels
For
Pratt & Whitney's VCAP Connecticut Facilities
Gradient Corporation, December 19, 1997,
revised September 18, 1998, and September 15, 1999***

8 Rocky Hill Belamose Avenue Facility

A facility-specific CSM for the Rocky Hill Belamose Avenue Facility is developed in this chapter based on the activities undertaken at the facility. The generic P&W screening levels developed in Chapter 3 are evaluated for their applicability to facility-specific exposure conditions.

8.1 Introduction

The Rocky Hill Belamose Avenue Facility consists of a main factory building, a separate power house, a wastewater treatment system, and several additional structures (e.g., flammable material and hazardous waste storage areas) on 51.5 acres of land (Pratt & Whitney/LEA, 1996). These structures are all in the northern portion of the facility which is completely enclosed by a dike (Figure 8-1). The southern portion of the facility is a wooded area that abuts the Connecticut River and contains the former American Enka landfill. Except for a well tower near the river, there are no current uses of the wooded portion of the facility. The northern portion of the facility is used for manufacturing jet engine components. The future use of the Rocky Hill property is expected to remain industrial.

The Rocky Hill facility is situated between Belamose Avenue to the west and the Connecticut River to the east (Figure 8-1). Surrounding land use is industrial and includes the Crown Petroleum Corporation Tank Farm to the north.

On August 29, 1997, Gradient conducted a facility visit and interviewed Pratt & Whitney employees to understand land use and activities at the Rocky Hill facility. We spoke with the Facilities Engineer and the Plant Manager. The visit and interviews revealed that the Rocky Hill facility is similar to other Pratt & Whitney manufacturing plants described by the generic CSM.

The unique characteristics of the Rocky Hill facility are:

- Dividend Brook discharges into the Connecticut River at the southeast corner of the property (Figure 8-1). Surface water and runoff from on-site paved areas most likely flow toward Dividend Brook.
- Groundwater at the facility flows to the south-southeast toward the confluence of the Connecticut River and Dividend Brook.
- Non-contact cooling water, in a closed loop system, comes from a Ranney-type collector well, near the Connecticut River.
- The only basement area is a locked tunnel near the former electrochemical machining area that was taken out of service in 1990. There are no groundwater seeps or standing water in the tunnel.
- Landscape maintenance is done less frequently at Rocky Hill than at other P&W facilities.
- There are no recreational activities at Rocky Hill. Many employees eat lunch off-site because the cafeteria has been closed. There are a few picnic tables on paved areas between buildings which may be used for lunch and other breaks.

8.2 Facility-Specific CSM and Screening Levels

The generic P&W CSM is modified, as appropriate, to: 1) delete any exposure scenarios or exposure pathways considered not to be "complete" at the Rocky Hill Belamose Avenue facility, and 2) add exposure scenarios (*i.e.*, receptors, pathways, and media) not included in the generic P&W CSM, if needed. Exposure conditions at the Rocky Hill Belamose Avenue facility are also evaluated against exposure conditions used in the development of generic P&W screening levels to determine if any modifications to these screening levels are required to reflect unique facility-specific conditions.

Overall, potential exposure scenarios and exposure conditions at the Rocky Hill Belamose Avenue facility are similar to exposure scenarios and conditions presented in the generic P&W CSM and the generic P&W screening levels. Since the non-contact cooling water obtained using the Ranney well could potentially be affected by groundwater leaving the site, exposures to this water are included in the facility-specific CSM.

Figure 8-2 presents the potential receptors at the Rocky Hill facility and the complete exposure pathways for these receptors. Potential on-site receptors include:

- Excavating Laborers -- Excavation is done at most once or twice per year to relocate machinery, and the typical duration for this work is 2 days; therefore, this exposure pathway is not significant at this facility. Furthermore, since DPR is used to control exposures during subsurface excavations, no screening is required (see Section 3.0).
- Maintenance Workers -- Exposure scenario same as in generic P&W CSM, although, subsurface maintenance activities are undertaken infrequently at this facility. DPR is used to control all exposures, except dermal contact with groundwater while repairing cooling water lines and indoor air exposure. Screening levels proposed in Section 3.0 will be used to address these exposures.
- Groundskeepers -- Unpaved areas are not maintained. P&W personnel mow grassy areas once during the summer. However, in order to be conservative, no modifications to the generic P&W screening levels are proposed.
- Indoor Workers -- Exposure scenario same as in generic P&W CSM. No modifications to generic P&W screening levels proposed. Since the Ranney well water is only used for non-contact cooling, Indoor Workers do not come in dermal contact with this water and indoor air quality is also not likely to be affected by this water.
- Samplers -- Exposure scenario same as in generic P&W CSM. No modifications to generic P&W screening levels proposed. Since the Ranney well water is used as a source of process water at the facility, water quality data for this source will be screened against MCLs to evaluate whether surface water/sediment-related risks need to be further assessed at outfalls that only convey process water.
- Trespassers -- Exposure scenario same as in generic P&W CSM. No modifications to generic P&W screening levels proposed.
- On-Site Recreators -- Not applicable. Employees do not recreate at the facility.

Off-site receptors and screening levels considered for the Rocky Hill facility are:

- Off-Site Utility Repair Workers -- Not applicable because the direction of groundwater flow is toward the Connecticut River, which abuts the facility boundary. Therefore, there are no off-site areas between the facility and the river.
- Off-Site Recreators -- Exposure scenario same as in generic P&W CSM. No modifications to generic P&W screening levels proposed.

- Off-Site Residents -- Not applicable because groundwater flow is toward the Connecticut River, which abuts the facility boundary. In addition, land use around the facility is not residential and is zoned for "manufacturing" or "office industry."

Table 8-1 summarizes the facility-specific CSM and compares the potential facility-specific receptors to the generic CSM receptors. Primary consideration is given to whether the exposure conditions described by the generic CSM are significantly different from facility-specific exposure conditions. Exposure Areas (EAs) for each of the facility receptors are also identified (Figure 8-3).

Table 8-2 presents a summary of the exposure media and pathways for each receptor and points the reader to other tables which contain the screening levels for these media and pathways.

Table 8-1
Summary of Facility-Specific Receptors and Comparison to Generic P&W Receptors
Pratt & Whitney, Rocky Hill Belamose Avenue Facility, CT

Potential Receptors	Exposure assumptions significantly different from generic CSM?	Facility-Specific Receptor Characteristics	Exposure Area
Excavating Laborers	No screening proposed since exposures are controlled by DPR.		
Maintenance Workers	Yes. DPR controls all exposures, except groundwater exposure during cooling water line repair and indoor air exposure. Screening proposed to address these exposures.	None	Not defined*
Groundskeepers	Yes	infrequent, EF = 5 days/year**	Figure 8-3
Indoor Workers	No	None	Figure 8-3
Samplers	No	None	Figure 8-3
Trespassers	No	None	Figure 8-3
On-Site Recreators	Yes, no exposure	Not applicable	Not applicable
Off-Site Utility Repair Workers	Yes, no exposure	Not applicable	Not applicable
Off-Site Recreators	No	None	Not defined*
Off-Site Residents	Yes, no exposure	Not applicable	Not applicable

Notes:

NSP: No Screening Proposed

** Exposure areas are not defined, however screening is proposed as indicated in Table 8-2.*

***Although the exposure frequency (EF) is less than the EF used in deriving the generic screening levels, the generic screening levels will be used in the Qualitative Risk Assessment to provide a conservative screening.*

**Table 8-2
Summary of Screening Levels and Proposed Screening Approach
Pratt & Whitney, Rocky Hill Belamose Avenue Facility, CT**

Exposure Media	Soil	Trench Air	Indoor Air	Surface Water	Sediment	Groundwater
Exposure Pathways	Ingestion and Dermal	Inhalation	Inhalation	Ingestion and Dermal	Ingestion and Dermal	Dermal
Maintenance Workers	DPR	DPR	Table 3-4	N/A	N/A	Table 3-8*
Groundskeepers	Table 3-10	N/A	N/A	N/A	N/A	N/A
Indoor Workers	N/A	N/A	Table 3-4	N/A	N/A	N/A
Samplers	Table 3-10	N/A	Table 3-4	Tables 3-6, 3-7, MCLs**	Table 3-10**	MCLs**
Trespassers	Table 3-10	NA	N/A	Table 3-6, 3-7	Table 3-10	N/A
Off-Site Recreators	N/A	N/A	N/A	Table 3-6, 3-7	Table 3-10	N/A
Proposed Screening Approach	Compare max by EA to P&W soil screening level	NSP	Compare measured indoor air concentrations to on-site indoor air screening levels.	Compare surface water, groundwater concentrations to CT criteria	Compare max by EA to P&W soil screening level	Compare cooling water concentrations to P&W groundwater screening levels

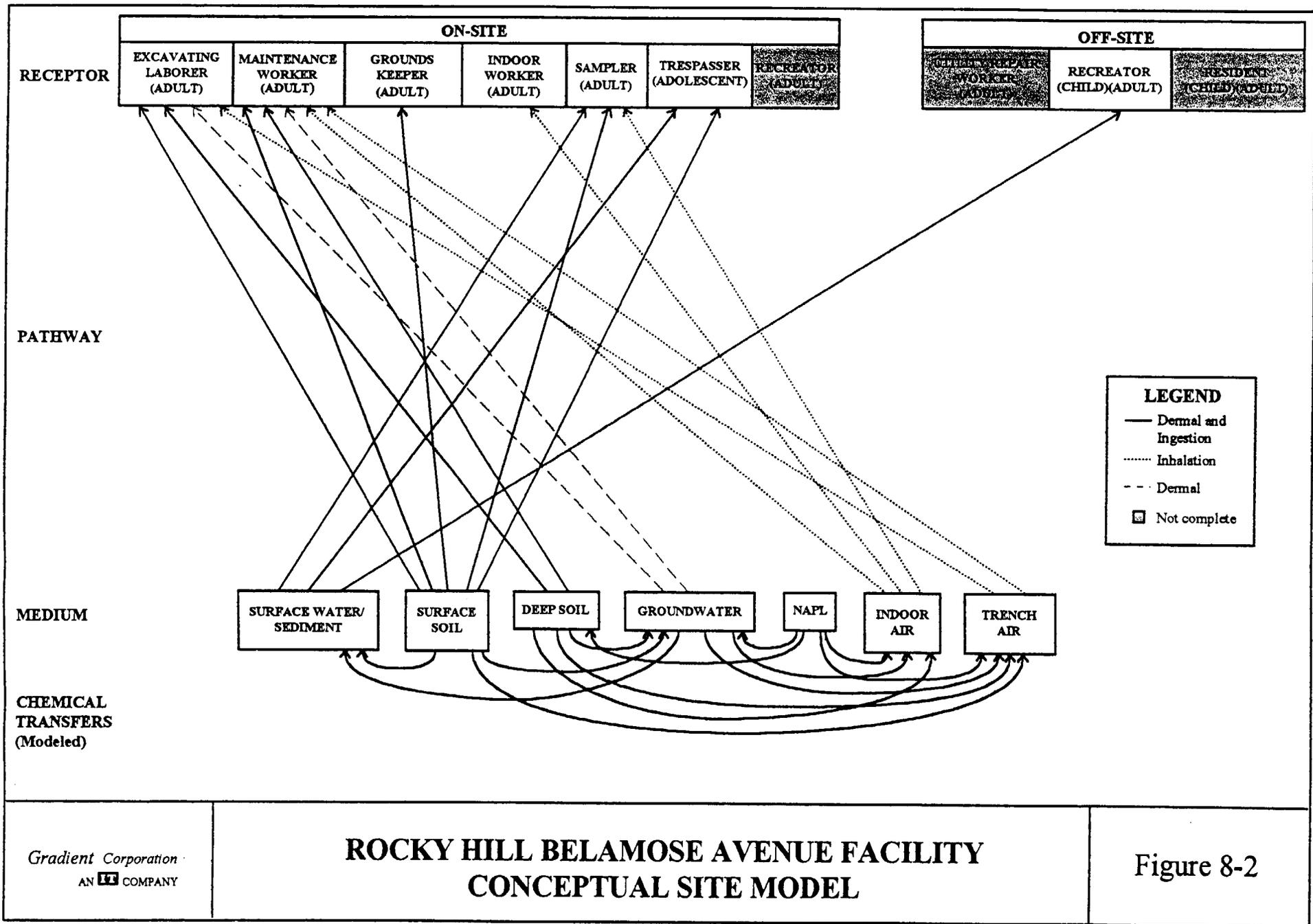
Notes:

N/A: Indicates that receptor is not exposed to medium/pathway.

NSP: No Screening Proposed.

**: Screening will evaluate dermal contact with groundwater while repairing cooling water lines.*

*** : Ranney well water quality will be screened against MCLs to evaluate whether surface water/sediment-related risks need to be further evaluated at process water outfalls.*



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

Attachment No. 2

***Site Plan
Environmental Indicator Determination
For
Pratt & Whitney Rocky Hill Facility***

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

RDMS Document ID# 711

Facility Name: Pratt & Whitney (Rocky Hill)

Phase Classification: R-13

Document Title: Environmental Indicator (EI) Determination,
Current Human Exposures Under Control (CA 725 YE) - Pratt &
Whitney Rocky Hill

Date of Document: 09-11-2000

Document Type: EI Determination

Purpose of Target Sheet:

Oversized **Privileged**

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

Comments:

Drawing 1 : Determination of Environmental Indicators, Current
Human Exposures Under Control

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