RCRA RECORDS CENTER
FACILITY Summit Corp.
I.D. NO. CTD002496909
FILE LOC. R-13
OTHER # 5969

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: Summit Corporation of America
Facility Address: 1430 Waterbury Road, Thomaston, Connecticut
Facility EPA ID #: CTD002496909

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

Yes, "contaminated" media are known or reasonably suspected to be "contaminated" above appropriately protective risk-based "levels." The following paragraphs identify key contaminants, the appropriate "levels", and the referenced supporting documentation.

Groundwater: According to the *Environmental Condition Assessment Form* (ECAF) for the site, dated August 27, 2003, groundwater beneath the site is designated as Class GB. The State of Connecticut Water Quality Standards indicate that designated uses for Class GB groundwater include industrial process water and cooling waters; baseflow for hydraulically connected surface water bodies; presumed not suitable for human consumption without treatment. While groundwater at the site is not a source of drinking water for the Summit facility, a private supply well for a residential property is located within 100 feet of the site. Therefore, appropriately protective "levels" for this EI determination would be the Federal Maximum Contamination Levels (MCL). In cases where an MCL is not available, the Connecticut Remediation Standards Regulations (RSR) Groundwater Protection Criteria (GWPC) were used for comparison.

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[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.

Groundwater samples were collected from monitoring wells MW-5, MW-6, MW-8, and MW-10 on March 5, 2003 and September 30, 2003 as part of semi-annual monitoring for the closed metal hydroxide sludge impoundment. Concentrations of dissolved nickel exceeded the GWPC (0.1 mg/l) in wells MW-5 and MW-6 during both recent sampling events. Concentrations of dissolved cadmium exceeded the MCL (0.005 mg/L) in wells MW-5 and MW-6 in the March 2003 sampling event only. Trichloroethylene (TCE) was detected in well MW-5 above the MCL (5 ug/l) during both the March and September 2003 sampling events at concentrations of 76 ug/l and 29 ug/l, respectively (*2003 Annual Ground Water Monitoring Report for Summit Corporation of America*, dated April 8, 2004).

The pH of groundwater samples was below the EPA National Secondary Drinking Water Standard recommended range (6.5-8.5) in all samples analyzed during 2003 (*2003 Annual Ground Water Monitoring Report for Summit Corporation of America*, dated April 8, 2004).

The most recent site-wide sampling event was conducted in September 2000 (Letter from HRP Associates to EPA, RE: RCRA Corrective Action, dated September 19, 2001). An additional event for some wells was conducted in March 2001. During these events, the following contaminants were detected at or above the appropriate MCL and/or GWPC in the identified wells:

Beryllium (MCL = 0.004 mg/l):	CW-16
Cadmium (MCL = 0.005 mg/l):	MW-103, MW-104, CW-28, MW-1, MW-9, MW-101, MW-102, CW-16, CW-24, MW-5, and MW-6
Copper (TT* = 1.3 mg/l):	CW-18, CW-18LF, MW-1, CW-12, CW-16, CW-24, and MW-6
Nickel: (GWPC = 0.1 mg/l):	CW-18, MW-103, CW-28, CW-18LF, MW-1, MW-101, MW-102, CW-6, CW-7, CW-12, CW-13, CW-16, CW-21, CW-24, PW-1, PW-2, PW-3, MW-5, MW-6
Cyanide (MCL = 0.2 mg./l):	MW-1, CW-12, CW-16, CW-19, CW-24, MW-6
TCE (MCL = 5 mg/l):	MW-1, CW-21, MW-5, MW-8

**EPA has not promulgated an MCL for copper. TT is the action level for copper.

Air (indoor): Impacts to indoor air are not anticipated. Groundwater results were compared to the Connecticut RSR industrial/commercial (I/C) volatilization criteria (VC). TCE was detected slightly above the I/C VC in well MW-5 during the March 2003 sampling event but not the September 2003 sampling event (*2003 Annual Ground Water Monitoring Report for Summit Corporation of America*, dated April 8, 2004 (2003 Report)). According to Figure 1 of the 2003 Report, monitoring well MW-5 is located along the Naugatuck River, and more than 100 feet downgradient of the nearest occupied building; therefore, impacts to indoor air are not anticipated.

Surface Soil (e.g., <2ft): A limited number of shallow surface soil samples appear to have been collected. According to the *Phase II Soil Investigation* report, dated March 22, 1999, a "green sludge-like material" was identified in surface soil during installation of boring TB-8 in the vicinity of the former CERCLA area - the former metal hydroxide dewatering area. However, analytical results for TB-8, 0.2-2 ft, did not report contaminants above the CT RSR Industrial/Commercial (I/C) direct exposure criteria (DEC). According to the Phase I Environmental Site Assessment summary table, the former metal hydroxide dewatering area was closed and capped with DEP approval in 1978. An additional asphalt cap was installed in 1985 with DEP approval.

Surface Water: Surface water samples apparently have not been collected by Summit; however impacts to surface water are anticipated. Groundwater collected from monitoring wells MW-5 and MW-6, both located along the Naugatuck River, have reported concentrations of inorganics (cadmium, copper, nickel, and zinc) during the recent March 2003 and/or September 2003 sampling events above the CT RSR Surface Water Protection Criteria (SWPC). Dissolved nickel was detected in well MW-6 in September 2003 at a concentration of 17.4 mg/l (more than 10 times the SWPC of 0.88 mg/l). Page 1 of the *2003 Annual Ground Water Monitoring Report* notes that these wells "are screened in a single coarse sand and gravel aquifer that discharges directly to the Naugatuck River..."

Sediment: Sediment samples apparently have not been collected at the site; however, impacts to sediment are

anticipated due to the elevated concentrations of inorganics detected in shallow groundwater closest to the Naugatuck River (MW-5 and MW-6). Page 1 of the *2003 Ground Water Monitoring Report* notes that these wells "are screened in a single coarse sand and gravel aquifer that discharges directly to the Naugatuck River..." Additionally, Summit holds a NPDES permit for discharge of process wastewater (CT0001180).

Subsurface Soil (e.g., >2 ft): Subsurface soil is contaminated above the CT RSR I/C DEC in the vicinity of the former sludge deposit area. Lead, beryllium, cadmium, total chromium and nickel were detected above the I/C DEC (Tables 4 and 6, *Phase II Soil Investigation* report, dated March 22, 1999). It is not known whether the chromium concentrations detected included trivalent or hexavalent chromium since the samples were analyzed for total chromium only. The CT RSR DEC I/C differs for the two forms of chromium. The following samples reported exceedances of the I/C DEC:

REPORTED EXCEEDANCES OF THE I/C DEC
SOIL RESULTS

Sample ID Depth	TB-2 10-12'	TB-10 5-7'	TB-11 5-7'	TB-12 5-7'	TB-13 5-7'	TB-14 5-7'	TB-14 10-12'	TB-15 10-12'	CT RSR I/C DEC
Lead, total	4,200	9,565	20,480	--	12,680	13,940	25,680	--	1,000
Chromium, total	665	1,715	1,777	135	727	193	11,040	--	Cr^{+3} - 51,000 Cr^{+6} - 100
Nickel, total	--	35,810	36,480	--	16,680	21,140	35,520	--	7,500
Beryllium, total	8.8	7.7	18.4	2.7	14.1	11.1	70.2	2.5	2
Cadmium, total	--	--	--	--	--	--	1,290	--	1,000

Notes: Results reported in milligrams per kilogram (mg/kg)
-- Compound not detected at or above DEC I/C
CT RSR I/C DEC: Connecticut Remediation Standards Regulations Industrial/Commercial Direct Exposure Criteria
Source: Tables 4 and 6, *Phase II Soil Investigation* report, dated March 22, 1999

Air (outdoor): Impacts to outdoor air are not anticipated. Only trace concentrations of volatile organic compounds (VOC) are present in groundwater, and there are no known existing areas of VOC contamination of soils.

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)~~	=	=	=	=	=		
Surface Water	NO	NO			**YES**	**YES**	**YES**
Sediment	NO	NO			**YES**	**YES**	NO
Soil (Subsurface, e.g. > 2 ft)				NO			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

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

Rationale and Reference(s):

Yes, pathways are complete for several "contaminated" media - human receptor combinations. Supporting explanations are provided below:

Groundwater: Groundwater at the facility is not used for potable uses. Sanitary and sprinkler system water is supplied by the City of Waterbury (*Phase I Environmental Site Assessment Report* (Phase I Report), dated July 29, 1999)). Three production wells, located on the west side of the Naugatuck River, provide process water to the facility (Phase I Report). Laboratory analytical results from the three production wells (PW-1, PW-2, and PW-3) reported concentrations of nickel above the MCL in September 2000 (HRP Associates letter to EPA, RE: RCRA Corrective Action, dated September 19, 2001). However, site workers are not likely to come into contact with process water.

Several private water supply wells are located in the vicinity of the Summit facility. According to the *Down-Gradient Ground Water Receptor Survey*, dated January 20, 1998, 35 of 37 target properties in the vicinity of the site were noted as having private wells. Ten of these properties were located in an assumed side-gradient position to the site, and the remainder were located upgradient in relation to the site (Page 2, *Down-Gradient Groundwater Receptor Survey*). Groundwater at the facility flows in a westerly direction, towards the Naugatuck River. No private supply wells were identified west of the subject site, on the opposite side of the Naugatuck River. In response to EPA's previous comment regarding wells on the opposite side of the Naugatuck, Summit responded "Based on HRP's discussions with the local health department and windshield survey, there appears to be no private wells on the opposite side of the river" (Page 3, HRP Associates letter to EPA, RE: RCRA Corrective Action, dated May 22, 2000).

To verify that contaminated groundwater has not impacted the off-site private wells on the eastern side of the Naugatuck, Summit collected a groundwater sample from the closest private supply well, located at 1402 Waterbury Road, adjacent to the north side of the property in May 2004. Cadmium was detected at 0.0017 mg/l, below the MCL of 0.005 mg/l (*Results of Domestic Well Sampling Report, 1402 Waterbury Road*, dated July 23, 2004). The cadmium concentration recently detected at 1402 Waterbury Road is also less than the concentration detected in March 1989 (0.002 mg/l) (State of Connecticut Department of Health Services sampling, included in a fax to EPA, dated September 3, 2003). As the groundwater in this off-site private well is not considered "contaminated" as defined by this EI, a complete pathway between "contamination" and off-site residents does not currently exist.

Surface Water: Recreators or trespassers along the western property boundary along the Naugatuck River potentially could be exposed to surface water which is reasonably expected to be contaminated. Additionally, recreational fishers could potentially be exposed to contaminants via ingestion of fish from the Naugatuck River.

Sediment: Recreators on the Naugatuck River or trespassers potentially could be exposed to sediment which is reasonably expected to be contaminated above risk based levels.

Soil (Subsurface, e.g., >2 ft): A draft formal plan with specific procedures to follow during excavation in contaminated areas of the site has been submitted to EPA. This plan - *Onsite Excavation Work Instructions* - can effectively prevent exposures between contaminated subsurface soil and the construction worker.

When a situation involving excavation of any soil within the property boundaries is planned, the responsible party will contact the Manager or Director of the Environmental Department, who will then review site information to either confirm that the location is thought to be contaminant free or if the potential for contamination exists. If contamination is known or expected, the proposed excavation location will be reviewed for possible alternatives. Section 7.3 of the Onsite Excavation Work Instructions then notes that "If, after review, no alternative location can be found, the site will be continuously monitored by the Manager or Director while excavation takes place to ensure that no exposure to workers has occurred." Appropriate personal protection equipment (PPE) should be utilized to prevent any potential exposures.

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):

No, exposures from each of the complete pathways to "contamination" cannot be reasonably expected to be significant. Explanations are provided below:

Trespassers and Recreators/Surface Water and Sediment pathways: These exposure pathways are not reasonably expected to be significant. According to Page 11, Attachment C of the May 22, 2000 letter to EPA, there is "limited recreational use of the Naugatuck River due to historic industrial use throughout the river basin." Access on the western boundary of the facility along the Naugatuck River is vegetated with weeds and not easily accessible. The frequency and duration of this exposure pathway is expected to be limited.

Additionally, the State of Connecticut recently conducted a study of Upper Naugatuck River and presented the results in a draft document titled *Total Maximum Daily Load (TMDL) Analysis for the Upper Naugatuck River, Thomaston, Connecticut* (a draft is available online at http://www.dep.state.ct.us/wtr/wq/naugtmdl.pdf.) Ambient water quality samples were collected from the Naugatuck for this TMDL study at a monitoring location just downstream of the Summit facility (Frost Bridge, USGS monitoring location Station 01208049). According to the TMDL study (Page 9) and from communications with the CTDEP Bureau of Water Management, no exceedances in water quality criteria in the ambient data were reported in the study at this downstream monitoring location.

Recreator/Fish Ingestion pathway: Communications with the CTDEP Bureau of Water Management have indicated that a fish advisory would not be warranted as a result of the recent TMDL study of the Upper Naugatuck, in which ambient water quality samples were collected upstream and downstream of the Summit facility.

Additionally, the following was noted from communications with CTDEP:

"The Naugatuck River is currently stocked with trout and broodstock salmon. The section in Thomaston is

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[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.

designated as a Trophy Trout stream with a daily creel limit of 2 fish. Broodstock salmon are stocked outside of the Thomaston area but it is possible that they can migrate into this area. Anglers may keep 1 fish during some parts of the year. These fish are all hatchery raised and it is not expected that contaminated levels (accumulated in fish tissue) would be high."

Based on the above information provided by CTDEP, it is not anticipated that the recreator/fish ingestion pathway is likely to be significant.

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

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

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

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

Rationale and Reference(s):_____
_____
_____

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

_X_ **YE** - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the **Summit Corporation of America facility,** EPA ID # **CTD002496909,** located at **1430 Waterbury Road, Thomaston, 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) Carolyn J. Casey Date: **September 29, 2004**
(print) **Carolyn J. Casey**
(title) **Environmental Engineer**

Supervisor (signature) Matthew R. Hoagland Date: 12/6/04
(print) **Matthew R. Hoagland**
(title) **Chief, RCRA Corrective Action Section**
(EPA Region or State) **EPA New England**

Locations where References may be found:
Documents referenced in this evaluation:

- Down-gradient Ground Water Receptor Survey, dated January 20, 1998
- Phase II Soil Investigation Report, dated March 22, 1999
- Phase I Environmental Site Assessment report, dated July 29, 1999
- Letter from HRP Associates to EPA, RE: RCRA Corrective Action , dated May 22, 2000
- Letter from HRP Associates to EPA, RE: RCRA Corrective Action , dated September 19, 2001
- Total Maximum Daily Load Analysis for the Upper Naugatuck River, draft, dated January 15, 2003
- Environmental Condition Assessment Form, dated August 27, 2003
- State of Connecticut Dept. of Health Services Sampling, sent via fax to EPA, dated September 2003
- Aquatic Toxicity Monitoring Report, dated September 16, 2003
- 2003 Annual Ground Water Monitoring Report, dated April 8, 2004
- Results of Domestic Well Sampling Report, 1402 Waterbury Road, dated July 23, 2004
- Communications with Mr. Christopher Bellucci of CTDEP, via email dated September 1, 2004

These documents may be found in the EPA Region 1 RCRA Records Center, 1 Congress Street, Suite 1100, Boston, MA, 02114.

Contact telephone and e-mail numbers

(name) **Mark Conti**
(phone #) **860-283-4391**
(e-mail) **mconti@scact.com**

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.