DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

4/20/05

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

Current Human Exposures under Control

Facility Name: _Cook Composites and Polymers Company_____
Facility Address: _Chatham, Virginia_____
Facility EPA ID #: _VAD055046049 _____

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.

DEFINITIONS

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's developed to-date indicates 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 (YES status code) indicates that there are no unacceptable human exposures to contamination. (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all contamination subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

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

Duration / Applicability of EI Determinations

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

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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_	___	___	**VOCs, SVOCs**
Air (indoors)[2]	___	___	_X_	**VOCs**
Surface Soil (<2 ft)	__X_	___	___	**VOCs, SVOCs, Inorganics**
Surface Water	___	_X__	___	**VOCs**
Sediment	__X_	___	___	**VOCs, Inorganics**
Subsurf. Soil (>2 ft)	__X_	___	___	**VOCs, SVOCs, Inorganics**
Air (outdoors)	__X_	___	___	**VOCs**

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

_____ 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.

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) suggests 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.

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BACKGROUND

Cook Composites and Polymers Company (CCP) was originally constructed in 1969 by the former Freeman Chemical Corporation on a 68 acre tract in the Tight Squeeze Industrial Park near Chatham, Virginia. (See attached Figure 2-1.) CCP has owned and operated the facility since 1990. The facility primarily produces unsaturated polyester resins for use in the manufacture of fiberglass boats, bathroom fixtures, sinks, and related specialty composite products.

The facility operation consists of batch process equipment housed in a roofed, semi-enclosed facility. The batch process equipment currently includes above-ground process tanks, reactor vessels referred to as kettles, and blending and thinning tanks used to adjust the composition and consistency of the intermediate or finished product batches.

On October 2, 1981, the Virginia State Water Control Board (SWCB) issued a Special Order to Freeman Chemical outlining Virginia Pollutant Discharge Elimination system (VPDES) Permit compliance requirements related with the management of wastes and wastewater from the facility. The above Special Order required an environmental assessment of areas known, or having the potential for discharge and contamination of waters of the Commonwealth.

In response to the Special Order, remedial work was completed by Freeman Chemical in 1983, which included soil and groundwater remediation, and improvements to the "No-Discharge" facility under the VPDES authority of the SWCB. As part of the improvements, all wastewater generated during the site manufacturing processes and activities is contained in on-site catch basins (50,000 gallons total capacity) and transported to the City of Danville Northside Wastewater Treatment Plant on a daily basis by tanker truck.

As the conditions of the Special Order above were being addressed by Freeman Chemical, the Commonwealth of Virginia, under the SWCB, entered into a Release Agreement on October 10, 1982, which outlined measures to be taken to resolve environmental obligations and release Freeman Chemical from liabilities related to the identified discharges after the conditions of the Release Agreement were met. In 1986, the requirements of the Release Agreement were successfully completed, and the SWCB released Freeman Chemical from further mitigation activities.

In 1988, a Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) was completed by A.T. Kearney for the EPA, Region III. The RFA identified 32 solid waste management units (SWMUs) and 9 areas of concern (AOC). In the RFA, no further action was recommended for 17 of the 32 SWMUs. The RFA recommended further documentation and/or investigative sampling for the remaining 15 SWMUs and 9 AOCs, and continued compliance with the historic SWCB agreements.

CCP was subsequently issued a Hazardous Waste Management Permit by the Virginia Department of Environmental Quality (DEQ) with an effective date of July 8, 1996. The above Permit was for storage and treatment of hazardous waste on-site. The on-site treatment consisted of a hazardous waste incinerator. The above Permit also required CCP to perform a Verification Investigation (VI) of the specified SWMUs and AOCs. The stated purpose of the VI and VI Report was to provide information for future corrective action work under the Resource Conservation and Recovery Act (RCRA).

The above Permit required CCP to perform the investigation under a VI Work Plan. The VI Work Plan received final approval by the DEQ on June 5, 1998.

The Permit specifies that the purpose of the VI Work Plan was to provide the initial corrective action investigation for all SWMUs and AOCs identified at the facility. The VI Work Plan/Report was to meet the following minimum

objectives and requirements:

1. Identify releases or suspected releases of hazardous waste and/or hazardous constituents into air, soils, sediments, surface water, or groundwater which need further investigation to determine whether corrective measures are necessary to protect human health and the environment and/or the implementation of Interim Measures at the facility.

2. Screen from further investigation those SWMUs or AOCs which do not pose a threat to human health or the environment.

The VI Work Plan objectives had been expanded to collect sufficient information to:

1. Delineate the vertical and horizontal extent of contamination.

2. Allow for screening risk-based evaluations to be completed.

3. Allow for the assessment of potential corrective actions for the area.

In addition, the VI Work Plan indicates that "the level of effort for these areas of the VI should be comparable to that required for a RCRA Facility Investigation (RFI)."

The Hazardous Waste Management Permit specified that the "Permittee shall fulfill the requirements of the VI Work Plan and submit a *VI Report* to the DEQ by June 4, 1999."

The *VI Report* was submitted to the EPA and the DEQ on June 4, 1999. (The *VI Report* was subsequently determined to be equivalent to a Phase 1 RFI Report.)

The DEQ determined that additional site investigations and evaluations were needed to further characterize contamination in various media and to establish whether the contaminant levels in all of the media were protective of human health and the environment under the current industrial use and a potential future residential use of the site. The DEQ provided conditional approval of the *VI Report* by correspondence, dated July 12, 2001. This conditional approval required CCP to submit a *RFI Work Plan* to the DEQ for approval to further investigate and report on the nature and extent of the releases at the Chatham facility. Requirements for the RFI were specified in the DEQ correspondence dated July 26, 2001, September 20, 2001, and September 28, 2001. This RFI was deemed necessary to comply with the requirements of the DEQ and the EPA.

The *RFI Work Plan* requirements included additional sampling of surface soils, subsoils, groundwater, sediment, surface water, wetlands, and stormwater from sample areas identified as requiring further investigation. Data from sampling and testing of the above media were required to undergo a full human health and ecological risk assessment and were to be evaluated for the potential impacts to human health and the environment. The *RFI Work Plan* included the following:

1. Characterization of the nature and extent of releases of hazardous constituents from SWMUs and AOCs into surface soils, subsoils, groundwater, sediment, and surface water. (Additional samples were to be taken from surface soils, sub-soils groundwater, sediments, surface waters, and storm water. Three new wells/piezometers were to be installed and groundwater samples were to be collected from all existing and new wells/piezometers. Surface waters and sediment samples were to be collected from drainage ditches or unnamed tributaries located down-gradient of the CCP facility's operational area. Soil/sediment samples

were to be collected from the wooded floodplain below the CCP site.)

2. Characterization of the potential human health and ecological risks associated with any identified releases of hazardous constituents of concern (HCOCs) detected from the site investigations.

3. Determination of the need for and scope of corrective measures needed to protect human health and the environment.

4. Identification and characterization of releases of hazardous constituents from the SWMUs/AOCs, which have not been screened from further investigation under the VI, as approved by the DEQ.

In addition to the above, the RFI was to include engineering and hydrogeologic evaluations of the existing engineered control measures already in-place at the facility. The existing engineered control measures were installed under the authority of the SWCB under a previous Special Order and Release Agreement issued to Freeman Chemical Corporation in 1981 and 1982, respectively. (CCP has owned and operated the facility since 1990.) The existing engineered control measures (or past remediation measures) include the following: two groundwater pump and treat systems, soil removal actions, and the installation of an engineered landfill cap over a large area at the site which showed past soil and groundwater contamination. These past remediation measures are summarized in the *VI Report,* dated June 4, 1999.

The RFI evaluations of the existing engineered control measures were to establish whether additional corrective action or remediation measures are needed to minimize migration of contaminants from soils to groundwater, and groundwater to surface water and/or sediments. In addition to the above, engineering and integrity evaluations of the CCP facility's process wastewater piping and sump structures were to be conducted and a storm sewer was to be inspected and evaluated to determine if it is a means of conveyance of HCOCs from the CCP site to the environment.

The potential impact of the HCOCs migration to surface waters and nearby wetlands were to be assessed and evaluated under current conditions in the RFI.

CCP submitted a *Phase II RFI Work Plan* to the DEQ on January 8, 2002. The DEQ's review comments were provided to CCP by correspondence, dated September 30, 2002. In the above correspondence, the DEQ agreed with CCP that the investigation work at the CCP site under the VI was equivalent to a Phase I RFI.

A revised *Phase II RFI Work Plan* was submitted to the DEQ by CCP on November 27, 2002. A meeting was held between CCP and the DEQ regarding the *Phase II RFI Work Plan* and Permit related items on January 31, 2003. On March 31, 2003, the DEQ provided conditional approval of the *Phase II RFI Work Plan*, contingent upon submittal of correspondence and a *Phase II RFI Work Plan* Addendum, which addresses itemized comments in the DEQ's correspondence.

A *Phase II RFI Work Plan - Revision 2*, dated May 2003, was submitted to the DEQ with correspondence, dated May 21, 2003. The above revised Work Plan and correspondence addressed the agency's itemized comments in the DEQ's conditional approval, dated March 31, 2003.

CCP was sent a confirmation letter and comments regarding their submitted correspondence and the *Phase II Work Plan - Revision 2* by DEQ correspondence, dated June 27, 2003. The *Phase II RFI Report* was to be submitted to the DEQ within 180 days of the DEQ's above confirmation letter of the *Phase II RFI Work Plan - Revision 2*.

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The CCP facility's Hazardous Waste Management Permit underwent a Class 2 permit modification to incorporate the corrective action (CA) permit modules and attachments under the Hazardous and Solid Waste Amendments (HSWA) of the RCRA. (Spring-Summer, 2003) The permit modification was approved by the DEQ effective September 19, 2003. The permit modification request underwent a public notice mailing and a publication in a major local newspaper, and a public meeting was held in accordance with the requirements of the RCRA Regulations. The Permit's CA modules and attachments outline the plan for further action and provide specific detailed requirements for the evaluation of the nature and extent of releases at the Chatham facility. The Permit CA modules and attachments require a complete human health and ecological risk-assessment associated with the releases at the site.

CCP submitted the *Phase II RFI Report* to the DEQ, by correspondence, dated December 23, 2003.

On January 15, 2004, the DEQ sent CCP correspondence which specified that the *Phase II RFI Report*, dated December 2003, would not be considered the *Final RFI Report* as the RFI Report does not include all RFI information in accordance with the facility's Permit and the approved RFI Work Plan. **The above Phase II RFI Report was missing two significant elements or components that the DEQ considers part of the RFI, which were the following:**

1. Information from the investigation and findings of the *Flow-Through Process Tank Replacement Work Plan – Revision 1*, dated February 21, 2003. This above work was considered an Interim Measure (IM) under CA and subject to CA oversight under the facility's Hazardous Waste Management Permit.

2. The surface soil sampling for evaluation of the air deposition of HCOCs from the facility's incinerator.

Additional background information regarding the above two component parts of the Phase II RFI Report is provided below.

<u>Flow-Through Process Tank Replacement Work Plan and Report</u>

CCP had submitted a *Flow-Through Process Tank Replacement Work Plan*, dated September 10, 2002. (This above Work Plan is considered by the DEQ to a component part of the facility's revised *Phase II RFI Work Plan.*) The DEQ considers the replacement of these underground flow-through process tanks as an Interim Measure (IM) under CA due to the co-location of these underground process tanks with the SWMU No. 26, Tank Farm Drain System, and the past evidence of a release emanating from the area of SWMU No. 26 and SWMU No. 27, Tank Farm Sump. Sample data from SWMU No. 27 had shown evidence of groundwater contamination and a release of hazardous constituents of concern (HCOCs) to the environment. The underground process tanks had been installed approximately 30 years ago.

The DEQ provided CCP with review comments of this IM Work Plan by correspondence dated December 20, 2002.

A *Flow-Through Process Tank Replacement Work Plan -Revision 1*, dated February 21, 2003, was submitted by CCP to address the DEQ's review comments on the submitted Work Plan. The DEQ provided CCP conditional approval of the *Flow-Through Process Tank Replacement Work Plan - Revision 1* by correspondence, dated March 31, 2003. The approved Work Plan involves removal of a total of eight underground process tanks (five 15,000 gal. tanks and three 30,000 gal. tanks) in two phases to minimize disruption to the facility's production. The underground process tanks were to be replaced with above-ground tanks with an engineered secondary containment system. The Work Plan includes a qualitative assessment of each tank and tank system, which includes the tanks piping and connectors. The integrity and condition of each tank and tank system were to be recorded and included in the *Flow-Through Process Tank Replacement Report*. In addition, soil borings and soil samples were to be taken

beneath each tank. A total of 20 soil sample locations were planned to characterize the soils in the underground tank area. Soil samples were to be tested for HCOCs specified in the *Phase II RFI Work Plan.*
In accordance with the DEQ's conditional approval, dated March 31, 2003, the tanks replacement project is considered an IM under site-wide CA and a component part of the CCP facility's *Final Phase II RFI Report.* The sample data and the tank system integrity evaluation results of the above IM project were to be reported in the *Phase II RFI Report*. In addition, all analytical data from soil samples of the above IM project were to be evaluated in the risk-assessment of the *Phase II RFI Report.*

CCP correspondence was submitted to the DEQ, dated May 19, 2003, to provide clarification and/or a response to each item of the DEQ's conditional approval of the *Flow-Through Process Tank Replacement Work Plan.* The DEQ provided CCP with correspondence, dated June 27, 2003, to further clarify requirements of the DEQ's conditional approval of this IM Work Plan. The tank removal activities associated with this IM were scheduled to begin in June 2003, contingent upon completion of the installation of the new process tanks.

On May 5, 2004, URS submitted the *Flow-Through Process Tank Replacement - Final Report*, dated May 4, 2004.

On October 8, 2004, the DEQ provided correspondence and the technical response comments and a disapproval of submission of the *Flow-Through Process Tank Replacement - Final Report*, dated May 4, 2004. The DEQ found the above submission technically and administratively incomplete and provided detailed review comments in two enclosed staff memorandums. CCP was instructed to make the necessary revisions to the *Flow-Through Process Tank Replacement - Final Report*, so to address the DEQ's review comments. CCP is to make corresponding and consistent revisions, as needed, in the forthcoming *Final Phase II RFI Report* submittal.

On December 10, 2004, URS provided correspondence and *the Flow-Through Process Tanks Replacement Report – Revision 1*, dated December 10, 2004, in response to the DEQ's correspondence (disapproval of submission letter) of the above IM Report, dated October 8, 2004.

Surface Soil Sampling and Evaluation Work Plan and Report

On January 5, 2004, URS submitted information regarding the air dispersion model, the surface soil sampling locations, and HCOCs from 40 CFR Part 261, Appendix VIII, for the surface soil sampling initiative. (This submittal was in response to the DEQ's correspondence, dated November 20, 2003.) The above URS submittal provided the remaining and outstanding items of *Phase II RFI Work Plan* which needed to be addressed by CCP as delineated in the DEQ's correspondence, dated June 27, 2003. The above Work Plan components needed to be approved by the DEQ prior to implementation of the work and related investigations and completion of the RFI and the *Final Phase II RFI Report.*

On March 31, 2004, the DEQ sent CCP correspondence and a Notice of Deficiency (NOD) regarding the URS submittal, dated January 5, 2004, regarding the air dispersion model, the surface soil sampling locations, and the HCOCs for this surface soil sampling initiative. These above Work Plan components were to provide the basis for the evaluation of the risk assessment of the potential exposure to HCOCs from CCP's hazardous waste incinerator operations. The DEQ determined, based upon an administrative and technical review, that the submitted evaluation to establish the surface soil sampling locations and the HCOCs was technically incomplete and; therefore, issued an NOD for this submittal. The DEQ's details of the NOD were delineated in staff review comments and NOD memorandum, dated March 31, 2004, and in an enclosed memorandum from Mr. Gary Gross, EPA Region III, dated March 5, 2004.

On May 21, 2004, URS Corporation submitted a *Surface Soil Sampling and Evaluation Plan* to address the DEQ's NOD, dated March 31, 2004.

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On August 5, 2004, the DEQ sent CCP correspondence providing conditional approval of the *Surface Soil Sampling and Evaluation Plan*, dated May 21, 2004. The submitted Plan contained essential information regarding the facility's final elements of the *Phase II RFI Work Plan*, which were outstanding for this facility. The above RFI Work Plan elements included the following: 1) information regarding the air dispersion model to model air emissions from the facility's current incinerator, 2) the surface soil sampling locations based upon the above model, 3) the background surface soil sampling locations, 4) the HCOCs for this sampling and testing initiative, 5) the analytical test methods and detection limits, and 6) the statistical methods and risk assessment evaluations of products of incomplete combustion (PICs) (dioxins and furans) found in the surface soils.

The DEQ's conditional approval of the above Work Plan specified conditions regarding: 1) the target analyte list (TAL) for the PICs (dioxins and furans), the use of EPA Test Method SW-846, 8290, and the MDLs and PQLs for evaluation of the potential risk from exposure to dioxins and furans, and 2) the statistical methods for comparison of PICs to background.

On January 28, 2005, URS submitted correspondence and provided the DEQ with the *Surface Soil Sampling and Evaluation Results Report,* dated May 21, 2004. The above submitted Report was in response to the DEQ's conditional approval of the submitted Work Plan, by letter dated August 5, 2004. The submitted information in the above Report contained essential information and final elements needed for completion of *the Final Phase II RFI Work Report.*

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__	_Yes__	No__	_Yes_	_ No_	No	No
Air (indoors)	_No__	_ ? _	No__	Yes	No	No	No
Soil (surface, e.g., <2 ft)	_No__	_Yes__	No__	Yes_	No	No	No
Surface Water	_No__	_No_	No	No	No	No	No
Sediment	_No__	_Yes_	No	Yes	No	No	No
Soil (subsurface e.g., >2 ft)	_No__	Yes	No	Yes	No	No	No
Air (outdoors)	_ No__	_Yes	No	Yes	No	No	No

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.

Footnote:

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

_____ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter Yes 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).

__Yes_ 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

See text under Summary of Phase II Report Findings under Item No. 5 below.

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 YES 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.

__Yes_ 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

See text under Summary of Phase II Report Findings under Item No. 5 below.

Footnote:

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?

__Yes_ If yes (all significant exposures have been shown to be within acceptable limits) - continue and enter YES 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

SUMMARY OF PHASE II RFI REPORT FINDINGS

The text, tables, and figures from the submitted components of the *Phase II RFI Report* provide documentation of the areal extent and depths of the contamination found in the surface soils, subsoils, groundwater, sediments, and surface waters at the CCP site. Information in the *Phase II RFI Report* includes the following submittals: 1) *Phase II RFI Report*, dated December 2003, 2) *Flow-Through Process Tank Replacement Report – Revision 1*, dated December 10, 2004, and 3) *Surface Soil Sampling and Evaluation Results Report*, dated January 28, 2005.

The surface soils, subsoils, sediments, and groundwater that are impacted by the past releases of HCOCs from the facility is limited in size to an area of approximately 500 ft. x 600 ft. and to a depth of approximately 40 ft. below grade. Contamination is localized to the facility property based upon the investigation findings. The area with the highest concentrations of HCOCs in the subsoils and groundwater is limited to an area of approximately 200 ft. x 300 ft. The groundwater table is typically 20 to 25 ft below the ground surface in the areas showing the highest levels of contamination at the site.

The summary findings and details of the submitted *VI Report*, and the submitted components of the *Phase II RFI Report* indicate that the existing contamination at the CCP site primarily includes VOCs and SVOCs in the subsoils and groundwater at the CCP site. The risk assessment evaluations have also indicated that inorganics contribute to the potential risks to human health in addition to the VOCs and SVOCs.

In the areas of highest contamination, the subsurface soils and groundwater HCOCs primarily include, but are not limited to the following: xylene, ethylbenzene, acetone, toluene, benzene, methyl-ethyl ketone (MEK), methyl-isobutyl ketone (MIBK), styrene, 2-hexanone, chloroform, acetophenone, phenol, dicyclopentadiene (DCPD), and phthalates.

Information in the *Phase II RFI Report*, dated December 2003, and the *Flow-Through Process Tank Replacement Report – Revision 1*, dated December 10, 2004, enables the DEQ to evaluate the human health risk assessment findings, and to establish whether the current human exposures to HCOCs in the subsoils, groundwater, sediments, and surface waters is under control at the CCP site.

The DEQ's summary of the human health risk assessment findings from the *Phase II RFI Report*, dated December 2003, and the *Flow-Through Process Tank Replacement Report – Revision 1*, dated December 10, 2004, is provided in a DEQ staff review comments memorandum entitled Summary of Human Health Risk Assessment Findings – Current Human Health Exposures Under Control Environmental Indicator (HHEI) - Update and Staff Summary, dated April 14, 2005. This above memorandum also provides an update regarding the status of the Current Human Health Exposures under Control Environmental Indicator (HHEI) (RCRIS code (CA725)) for the CCP facility.

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Recent information received in *Surface Soil Sampling and Evaluation Results Report*, dated January 28, 2005, for the CCP facility enables the DEQ to evaluate the current human health exposures to HCOCs in surface soils and to complete the EPA's HHEI for the CCP site so to address requirements regarding the Government Performance Results Act (GPRA).

The *Surface Soil Sampling and Evaluation Results Report* provided the data and the evaluation of the current incremental risk from potential exposure to HCOCs from the historical surface deposition of HCOCs from CCP's hazardous waste incinerator operations. (The CA risk assessment of the RFI needs to include an evaluation of the current potential risks of potential exposure to all media from the historical releases from the CCP facility. This includes historical releases from the CCP facility's incinerator operations.)

The DEQ's summary of the *Surface Soil Sampling and Evaluation Results Report* are provided in a DEQ staff review comments memorandum entitled Surface Soil Sampling and Evaluation Results Report, URS Submittal, January 28, 2005, HHEI Update – Staff Review Comments, dated March 31, 2005.

In the above DEQ memorandum, dated March 31, 2005, the staff summarized the risk assessment findings and determined that:

> Based upon the findings and risk assessment in the above Report, the staff believes that current human health exposure to surface soils is under control at the CCP site. This above determination is based upon the fact that the only exposure pathway of concern is the hypothetical future child resident; the future child resident is not a current exposure pathway (at the CCP facility).
>
> Therefore, all current human health exposure pathways to HCOCs in the surface soils are demonstrated to be under control under the current land-use.
>
> The above findings, when combined with the risk assessment findings of the *Phase II RFI Report*, dated December 2003, should enable the staff to determine that the HHEI is under control for the CCP facility under the current land-use.

Based upon the staff's technical reviews, the staff believes that findings in the *Phase II RFI Report*, dated December 2003, and the *Flow-Through Process Tank Replacement Report – Revision 1,* dated December 10, 2004, are sufficient to evaluate the current human health exposures at the CCP site and to make a determination whether the current human exposures are under control at the CCP site based upon the nature and extent of the contamination found and the engineering and other controls at the site.

It should be noted that in the above Reports, the total risk is compared to the EPA reference range of 1×10^{-6} and 1×10^{-4} for carcinogens, while the noncarcinogens are compared to the EPA Hazard Index (HI) reference level of 1.0.

A summary of the risk assessment findings regarding the potential exposures to HCOCs in the subsoils, groundwater, sediments, and surface waters at the CCP site are as follows:

1. Based upon the HCOCs, exposure pathways, and data evaluated, the performance standards of 1×10^{-6} to 1×10^{-4} have been exceeded for the Future Adult/Child under the residential exposure scenario for groundwater and subsoils.

2. Based upon the HCOCs, exposure pathways, and data evaluated, the performance standards of 1×10^{-6} to 1×10^{-4} have been exceeded for the current commercial/industrial worker and the future construction worker exposure scenarios for groundwater and subsoils.

3. Based upon the HCOCs, exposure pathways, and data evaluated, the performance standard HI of 1.0 has been exceeded for the Future Adult/Child under the residential exposure scenario for groundwater and subsoils.

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In the *Phase II RFI Report*, dated December 2003, the human health risk is identified Section 5.1.5, Human Health Risk Assesment-Groundwater, Section 5.16., Groundwater Summary, and 5.6.3, Risk Assessment, Soil Risks and Hazards, and Section 5.8.1., Shallow Soils and Sediment, and Section 5.8.4, Human Health Risk Assessment. (See attached excerpts of the Report in the above DEQ memorandum, dated April 14, 2005.)

In the *Flow-Through Process Tank Replacement Report – Revision 1,* dated December 10, 2004, the human health risk is identified in Section 5.0, Human Health Risk Assessment. (See attached excerpts of the Report in the above DEQ memorandum, dated April 14, 2005.)

Based upon the information in the above Reports and the DEQ staff's knowledge of the site, the existing engineering site controls are effective in preventing contact with the groundwater and subsoils and in mitigating the migration of groundwater to surface waters at the site. The existing engineering controls at the site include, but are not limited to: perimeter fencing, controlled access to the site, concrete and asphalt surface barriers, and two shallow groundwater collection and treatment systems. The potential human health risks under realistic scenarios are limited to potential exposure to outdoor volatile organic compound (VOC) vapors at the site. The Sample Area 5, which has the highest VOCs/HCOCs in subsoils and groundwater at the site, is covered either by asphalt or concrete, which would create a vapor barrier to prevent the HCOCs from reaching the facility personnel and construction workers at the site. (See attached figures in the above DEQ memorandum, dated April 14, 2005.)

Please note that the area of VOC contamination is below a semi-enclosed (open sided) and roofed area of the facility, which has a concrete floor. Workers at the CCP facility which may work indoors may include workers in the CCP facility laboratory, the control room, and in the pressing room, finishing room, office, etc. The indoor office is a stand-alone prefabricated structure approximately 200 ft. from the area of highest subsurface VOC contamination. The other noted manufacturing and process related areas have concrete floors and worker exposures to HCOCs and other process related chemicals should be based upon criteria, standards, and regulations under the Occupational Safety and Health Administration (OSHA), which is regulated under the Department of Labor. A more comprehensive evaluation of potential exposure to indoor air HCOCs will be a requirement of the *Final Phase II RFI Report.*

The facility is fully aware of the presence of HCOCs and the impacted media in the Sample Areas 3 and 5, etc., at the CCP site. In the event that subsurface activities are required, the facility will utilize a contractor trained in hazardous materials management to conduct the excavation and management of impacted subsoils. Such excavation work and/or construction would require implementation of a Health and Safety Plan (H&SP) for work at the CCP site. A H&SP would require procedures to protect workers and would require utilization of a flame ionization detector (FID) or photo-ionization detector (PID) and use of personal protective equipment (PPE) (e.g., respirators, protective clothing, etc.) for workers in the impacted area at the CCP site.

All waste generated at the site would be managed, sampled, and tested to establish the proper method of waste management, storage, treatment, and disposal in accordance with the requirements of the Virginia Hazardous Waste Management Regulations (VHWMR), the Resource Conservation and Recovery Act (RCRA), the Virginia Solid Waste Management Regulations (VSWMR), and the DEQ requirements.

In summary, the findings in the *Phase II RFI Report, dated December 2003*, the *Flow-Through Process Tank Replacement Report – Revision 1,* dated December 10, 2004, and the *Surface Soil Sampling and Evaluation Results Report*, dated January 28, 2005, indicate that the current Human Health Exposures Under Control EI determination for the CCP facility should be a "YES" status for the (HHEI) (RCRIS code (CA725)). This "Yes" status indicates that there are no identified unacceptable current human exposures to contamination in excess of appropriate risk-based levels that can be reasonably expected under current land-use and groundwater-use conditions and with the current control measures in place (for all contamination subject to RCRA corrective action (CA) at or from the identified facility (i.e., site-wide)).

DEQ Plan for Further Action

Future corrective action measures at the site will be based upon the submittal and evaluation of the *Final Phase II RFI Report*. The *Final Phase II RFI Report* should be submitted in 2005.

It should be noted, however, that although the HHEI has been met for the site (based upon the available information), the facility will be required to address the identified HCOCs contamination at the CCP site (which is primarily subsoils and groundwater) and undertake a Corrective Measures Study (CMS) to evaluate the alternatives to remediate the impacted media with the goal of achieving risk-based clean-up levels as necessary to protect human health and the environment in accordance with the requirements of the VHWMR, the RCRA, and applicable State laws and regulations.

CCP will be required to submit to the DEQ for approval a *Corrective Measures Study (CMS) Work Plan*. The CMS is to screen and evaluate a number of potential CA remedies, including any specified by the DEQ. Each potential CA remedy is to be evaluated in the CMS based upon the following: site conditions established under the RFI, the need to protect human health and the environment, and other criteria specified within the CCP facility's Permit. The evaluations under the CMS will be documented in a *CMS Report* submitted to the DEQ for approval and the EPA Region 3.

The *CMS Report* will be the primary basis for a corrective measures remedy selection for the CCP site, if needed. The alternative and proposed corrective measure remedies will undergo public notice and public meetings to receive comments in accordance with Permit requirements. The preferred corrective measures remedy will be established and implemented to protect human health and the environment and will also be based upon other criteria which includes, but is not limited to: long and short term effectiveness and performance of the remedy, reduction of toxicity, mobility, or volume of contamination, technical feasibility, cost, and acceptance by CCP, the State, the EPA, and the Community.

It must be stated that the goal of CA under the VHWMR, the RCRA, and the State Water Control Law is to restore degraded resources (soils and groundwaters, etc.) to levels which are protective of the most beneficial use.

Other potential future CA activities, if needed, may include a *Corrective Measures Implementation Work Plan*, the *Corrective Measures Design*, and *Corrective Measures Construction*.

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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):**

Yes - Yes, Current Human Exposures under Control has been verified under current and reasonably expected conditions at the Cook Composites and Polymers (CCP) Company facility (EPA ID No. VAD055046049) located in Chatham, Virginia. This determination is based upon the review and evaluation of the information described and contained in this EI Determination. This EI determination will be re-evaluated when the DEQ becomes aware of significant changes at the facility and upon review of the *Final Phase II RFI Report*.

____ NO - Current Human Exposures are NOT Under Control.

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

Completed by: _____ Date __04/20/05___
Richard J. Criqui, Jr., C.P.S.S.,
Environmental Engineer Senior

Supervisor: _____ Date 4/26/05
Leslie Romanchik
Director, Office of Waste Permitting
Virginia Department of Environmental Quality

Locations where References may be found at:

Commonwealth of Virginia
Department of Environmental Quality
Waste Division, Office of Waste Permitting
629 East Main St.
P.O. Box 10009
Richmond, Virginia 23240-0009

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	Environmental Engineer Senior
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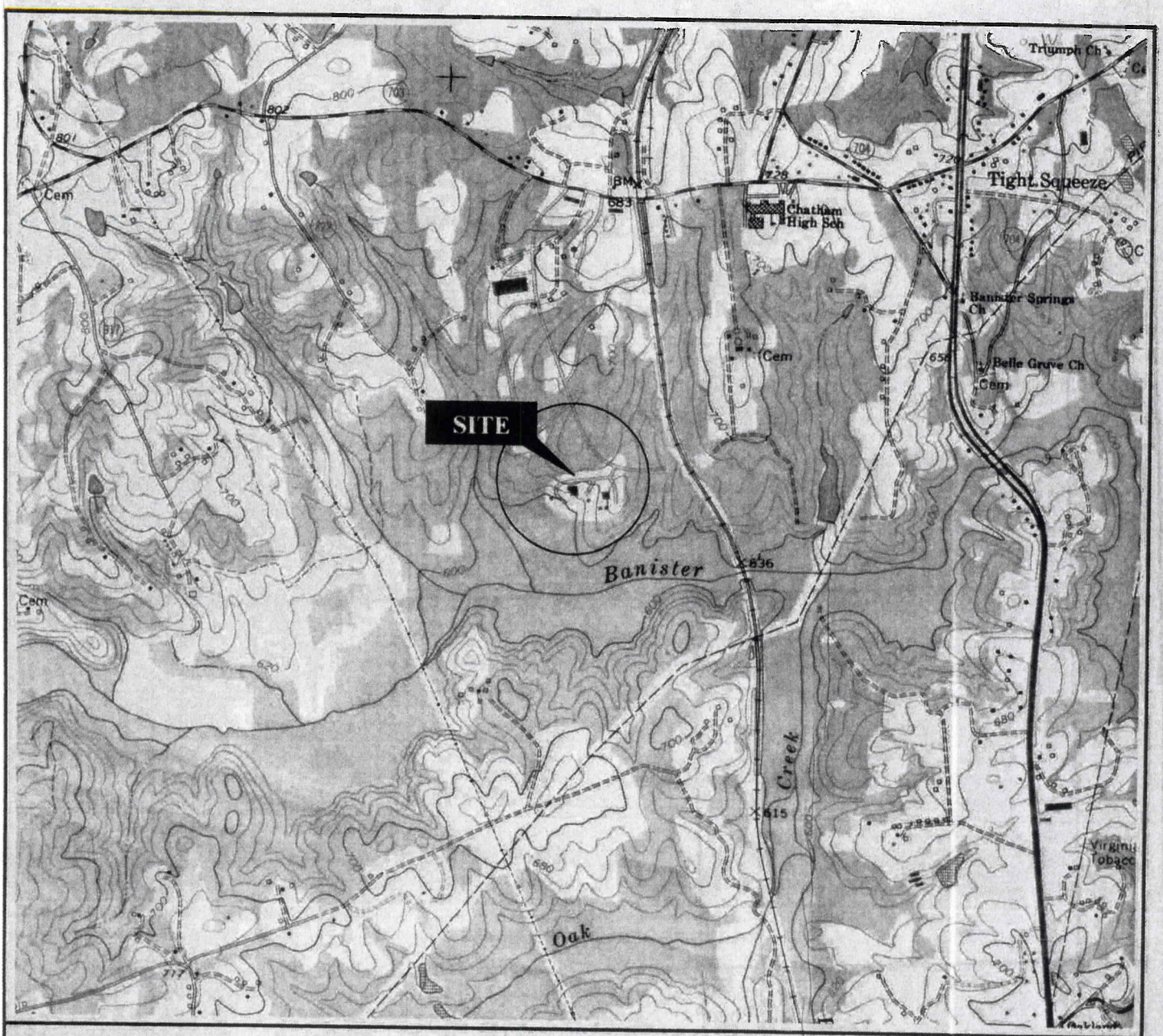

SCALE 1:24,000

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0.5 0 1 KILOMETER

CONTOUR INTERVAL: 20 FEET

DATUM IS MEAN SEA LEVEL

REFERENCES:
U.S. Geological Survey
7.5 Minute Series (Topographic)
Chatham, Virginia, 1965 (Photorevised 1978)

Cook Composite and Polymers **Chatham, Virginia**	**URS** URS Corporation – North Carolina *1600 Perimeter Park Drive* *Morrisville, North Carolina 27560* *Telephone (919)461-1100 Fax (919)461-1415*		**LOCATION MAP**	FILE NO. 55147.04
	SCALE: AS SHOWN	DRAWN BY: PAF CHECKED BY: CDF	DATE: Sep02 DATE: Sep02	FIG. NO. 2-1

URS

S:_Projects\CCP - Chatham\3182335 - RFI\RFI WP Revision 2\Drawing 2-1.doc\5/19/03