Documentation of Environmental Indicator Determination
Interim Final 2/5/99
RCRA Corrective Action
Environmental Indicator (EI) RCRA Info code (CA725)
Current Human Exposures Under Control

Facility Name: Hampton Industrial Plating Site
Facility Address: 109 Industry Drive, Tabb, Virginia 23693
Facility EPA ID #: VAD037426228

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?

   ✓ 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 RCRA Info as long as they remain true (i.e., in RCRA Info 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			✓	Possible Metals
Air (indoors)[2]		✓		
Surface Soil (<2 ft)	✓			Metals (possible hexavalent chromium), SVOCs
Surface Water		✓		
Sediment		✓		
Subsurf. Soil (>2 ft)	✓			Possible Metals
Air (outdoors)		✓		

_____ 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.

✓ 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.

"Unknowns" are carried through with "Yes" determinations to ascertain what information is needed or if risks are negligible.

Rationale and Reference(s):

(1) On April 20, 1989, the Virginia Department of Transportation (VDOT) conducted emergency sampling consisting of four drainage ditch sediment samples and a surface water sample. This sampling and analysis is documented in the December 2000 *Brownfields Site Reconnaissance and Historical Records Review Report* for Hampton Industrial Plating in Section *1.4.1 Drainage Ditch Sampling in 1989.*

(2) EPA Region III On-Scene Coordinator (OSC) preliminary assessment, dated March 21, 1991 and the CERCLA EPA Emergency Removal Action, June 21, 1991 through June 20, 1992.

(3) Brownfields Site Screening Report, dated September 20, 2001, for the Hampton Industrial Plating Site prepared by the Waste Policy Institute (WPI) and the Virginia Polytechnic Institute and State University (Virginia Tech). Brownfields sampling was conducted June 13, 2001.

(4) *Corrective Action Facility Lead Agreement Work Plan (FLA Work Plan)* dated January 2005 and revised March 2005, prepared by Bay Environmental for corrective action in accordance with the Facility Lead Agreement signed September 18, 2004.

(5) *Container Storage Area Closure Report*, dated May 2005 and revised June 2005 with addendum dated August 2005, prepared by Bay Environmental in accordance with the DEQ *Hazardous Waste Management Units Closure Plan for the Industrial Plating Site (Closure Plan)* effective September 11, 1997.

(6) *Alternate Closure Plan for the Vats,* dated July 13, 2005, submitted by Bay Environmental in accordance with the DEQ *Closure Plan* effective September 11, 1997.

(7) *Shop Area Closure Report* dated October 2005 and prepared by Bay Environmental in accordance with the DEQ *Closure Plan* effective September 11, 1997.

(8) Oak Ridge National Laboratory Risk Based Concentration (RBC) and Soil Screening Level (SSL) Table, updated July 7, 2008.
(9) DEQ correspondence and attachments, dated August 4, 2008, regarding the *FLA Work Plan,* dated January 2005 and revised March 2005 and *Container Storage Area Closure Report*, dated May 2005 and revised June 2005.

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.

Site Description and Site History:

The Hampton Industrial Plating Corporation operated on the two acre Hampton Industrial Plating Site (HIPS) at 109 Industry Drive, Tabb, Virginia, as a metal electroplating and finishing facility from 1984 to 1989. The property is located between the Industry Drive cul-de-sac and Victory Boulevard (Route 171). The property is flat with drainage ditches that run between the western property boundary and the adjacent J. D. Hammond Masonry Storage building and between the southern property boundary and Victory Boulevard (Route 171). The plating facility faces the Industry Drive Cul-de-Sac to the north. The Living Word Academy and Living Word Academy Recreational/Picnic Area is located to the east.

The property drains to the south to a ditch that borders Victory Boulevard (Route 171). The ditch that borders Route 171 flows westward approximately 200 feet to a small unnamed creek which drains to the south, under Route 171, to the Big Bethel Reservoir which was used until approximately 2004 as a water source for the Army's Big Bethel water plant which served Fort Monroe and Langley Air Force Base. The Big Bethel Reservoir is currently not being used as a water source for drinking water. Groundwater appears to flow in a northwesterly direction to the Poquoson River basin based on a 1986 topographic map. A day care facility, the Living Word Academy, and play area, is located to the east, adjacent to the East Yard where old machinery was stored. A chain link fence separates the Site from the day care facility. According to the DEQ Tidewater Regional Office, groundwater is expected to be shallow ranging from approximately 5 to 10 feet below ground surface (bgs). The direction of groundwater flow is unknown. There are no known private drinking water wells or production wells in the area.

Industrial Plating Corporation operated as an electroplating facility from 1984 until March 1989. On March 30, 1989, at the request of the Commonwealth of Virginia, the Virginia State Police issued a warrant against Industrial Plating Corporation due to repeated violations of the Virginia Hazardous Waste Management (VHWM) Regulations. On March 31, 1989 Industrial Plating Corporation ceased operation. A follow-up inspection on May 1, 1989 noted continuing violations. The facility was issued a Consent Order on July 19, 1989. The Consent Order was not signed and the owner did not remove chemicals used in the manufacturing process.

On April 20, 1989, the Virginia Department of Transportation (VDOT) conducted emergency sampling consisting of four drainage ditch sediment samples and a surface water sample. The maximum reported sediment sample values cyanide (14 mg/kg), barium (35 mg/kg), cadmium (10.3 mg/kg), and total chromium (46 mg/kg) exceeded the soil background 95 percent Upper Tolerance Levels (UTLs) for the site. The maximum value from four surface water samples (upstream, middle, downstream, and creek) for cyanide (5.2 mg/L), cadmium (0.190 mg/L), total chromium (1.2 mg/L), and lead (0.23 mg/L) did not exceed human health water quality standards. The Big Bethel Reservoir is currently no longer used for public water supply.

Three treatment system tanks (V-51, V-53, and V-54) were located in the Shop Area and contained F-listed hazardous wastes that were used in the metal plating process. Vat V-51 was a metal wastewater treatment tank with dimensions 8 feet high, 4 feet wide, and 10 feet long with a volume of approximately 2,400 gallons. Vat V-53 was a round plastic effluent tank 5 feet in diameter and 7 feet high with a volume of approximately 1,000 gallons. Vat V-54 was a round metal clean solvent tank 4 feet in diameter and 4 feet high with a volume of approximately 375 gallons. All vats were cleaned, triple rinsed, removed from the facility, and recycled or disposed of.

In June 1989, Industrial Plating Corporation hired Kirtek Engineering to begin site cleanup. A Work Plan was submitted, but the cleanup effort was halted because the site owner, Mr. Jolliffe, could not fund cleanup completion.

On February 26, 1991, the Department of Waste Management, predecessor to DEQ, referred the site to the U. S. Environmental Protection Agency (EPA) for cleanup action. From June 21, 1991 through June 30, 1992, EPA performed a CERCLA emergency hazardous waste removal action for the Shop (40 by 70 feet), Shed (small metal building at the southwest corner of the Shop, used for plating process hazardous waste drum storage), and the fenced Rear Yard (45 by 90 feet) to mitigate any immediate threats to human health and the environment.

The EPA removal action consisted of overpacking leaking drums, removing materials from vats, and mitigating the threat to the public. A total of 212 drums were sent offsite for treatment and disposal on December 19, 1991. In March 1992 the Rear Yard (hazardous waste container storage area) was excavated to from the building to the ditch to a depth of 12 inches and backfilled with 12 inches of clean fill. A total of 156 cubic yards (251.5 tons) of contaminated soil was sent offsite for treatment and disposal. These above EPA cleanup activities did not constitute a final RCRA closure of the unauthorized hazardous waste management units. Records indicate that a 20-mil polyethylene liner with a 50 year life expectancy was placed over portions of the excavated area in the Rear Yard prior to

backfilling. It is noted that Rear Yard soil sampling by Bay Environmental in March 2005 performed in conjunction with preparation of the *Container Storage Area Closure Report* did not confirm the presence of this liner. The site was fenced in following the EPA removal action. Signs were posted to warn of possible residual contamination.

On February 28, 1991, Roy F. Weston prepared a soil sampling plan for Hampton Industrial Plating to be conducted following excavation and disposal of the top 12 inches of soil. Sampling was conducted on April 5, 1992.

On April 29, 1992, the EPA informed the Virginia Department of Waste Management (VDWM) that the immediate hazard to human health and the environment had been removed and that no further EPA emergency removal action was deemed necessary.

In July 1992 the owner of the Industrial Plating Corporation was contacted. The owner stated that he was not financially able to perform HWMU closure. In December 1994, it was confirmed that the owner was not able to finance RCRA closure of the site. On June 1, 1995, an inspection revealed that the site was still in violation of the Virginia Hazardous Waste Management Regulations (VHWMR).

On June 1, 1995, a Facility inspection revealed that unauthorized units had not been closed in accordance with the regulations and the site was in violation of the VHWMR.

On September 10, 1995, a Closure Plan was submitted by the facility to the DEQ.

On August 11, 1997, the Closure Plan was advertised in the Daily Press.

On September 11, 1997, the DEQ approved the Closure Plan and declared that the site was abandoned and no longer operated by HIPS. By letter September 11, 1997, the DEQ notified the owner, Mr. Thomas P. Jolliffe, that the site was abandoned. York County subsequently seized the property for failure to pay property taxes and sold the property to a new owner, Sembilan Enterprises, LLC.

On May 5, 1999 Commonwealth Environmental Associates, Inc. Midlothian, VA prepared a Risk Assessment analysis Findings Report for the Hampton Industrial site. The maximum cumulative (carcinogenic risk) was found to be 1.2 x 10-7. Based on this finding, the carcinogenic risk associated with hypothetical residential exposure involving all relevant routes of exposure to all constituents of concern at the reported concentrations lies within acceptable risks.

In October 2000, DEQ placed Hampton Industrial Plating in the Virginia DEQ Brownfields Program to promote economic development.

DEQ Closure Plan

The Virginia Department of Environmental Quality (DEQ) prepared a *Hazardous Waste Management Units Closure Plan for the Industrial Plating Site (Closure Plan)* effective September 11, 1997, to address closure. The Closure Plan addresses closure for three units:

1. The shop wastewater treatment system including three vats (V-51, V-53, and V-54).
2. The building interior including the shop concrete floor and the soil underneath the concrete floor.
3. The Rear Yard former Hazardous Waste Container Storage Area.

Risk Assessment Analysis Findings Report

In file searches additional reports were found. Commonwealth Environmental Associates, Inc. prepared a *Risk Assessment Analysis Findings Report*, dated May 5, 1999, for the Hampton Industrial Plating Site.

Brownfields Site Screening Report

Waste Policy Institute (WPI) and the Virginia Polytechnic Institute and State University (Virginia Tech) prepared *Brownfields Site Screening Report*, dated September 20, 2001, for the DEQ under the Brownfields Program, based on a June 13, 2001, site investigation.

Facility Lead Corrective Action Agreement

Sembilan Enterprises, LLC purchased the property. On September 18, 2004, Sembilan Enterprises, LLC, signed the *Facility Lead Corrective Action Agreement* between EPA and Sembilan Enterprises, LLC and accepted an invitation into the Facility Lead Agreement (FLA) Program for cleanup of the site with the condition that a site specific *Work Plan* was to include Corrective Action and Closure and was to be submitted to the DEQ within 90 days.

Strategy to Complete Closure and CA Investigations at the Site:

The DEQ recommends that the facility submit a single Hampton Industrial Plating *Closure and Corrective Action Report* to address: 1) Removal action for soil in the Shop Area, 2) Removal action for soil in the Container Storage Area, and 3) Corrective action for soil in the West Yard, East Yard, and drainage ditches. The Hampton Industrial Plating *Closure and Corrective Action Report* will be used to document and certify completion of closure of the Shop Area and Rear Yard Container Storage Area in accordance with the *Hazardous Waste Management Unit Closure Plan,* dated September 11, 1997. This Report will also be used to supplement information in the *Shop Area Closure Report*, dated October 5, 2005, the *Container Storage Area Closure Report*, dated May 2005 and revised June 2005, and the *Closure Certification for the Vats*, dated October 5, 2006. This Report will also be used to document and certify corrective action work performed in accordance with the Facility Lead Agreement which was accepted by letter dated September 18, 2004.

Groundwater monitoring wells will be installed and groundwater will be sampled and analyzed for COCs at the site. See the Groundwater EI, dated September 2008.

See Attachments below which summarize site investigation findings to date:

Revised Figure 2: Work Plan Proposed Sample Location Map
Table 1: Soil Sampling Results Container Storage Area March – June 2005
Figure 10: Site Map with Final Sample (Brownfields) Locations
Table 2: Brownfields Soil Sampling Results
Table 3: Soil Quality Data Summary

1. Groundwater – UNKNOWN

REFERENCE: 1) *Brownfields Site Screening Report*, dated September 20, 2001, for the Hampton Industrial Plating Site prepared by the Waste Policy Institute (WPI) and the Virginia Polytechnic Institute and State University (Virginia Tech). Brownfields sampling was conducted June 13, 2001. 2) *Corrective Action Facility Lead Agreement Work Plan* (*FLA Work Plan)* dated January 2005 and revised March 2005, prepared by Bay Environmental for corrective action in accordance with the Facility Lead Agreement signed September 18, 2004. 3) *Shop Area Closure Report* dated October 2005 and prepared by Bay Environmental in accordance with the DEQ *Closure Plan* effective September 11, 1997. 4) *Container Storage Area Closure Report*, dated May 2005 and revised June 2005 with addendum dated August 2005, prepared by Bay Environmental in accordance with the DEQ *Closure Plan* effective September 11, 1997.

RATIONALE: No groundwater wells have been installed at the site. The facility will install five (5) groundwater wells to identify groundwater flow direction and elevated concentrations of organic and inorganic constituents in shallow groundwater in the immediate vicinity of the Hampton Industrial Facility. Proposed groundwater well locations are shown on Revised Figure 2: Work Plan Proposed Sample Location Map. There are no known private drinking water wells or production wells in the area. There is no potential for human exposure to groundwater given the absence of surface water discharge of groundwater and the absence of wells in the area. Soil boring data collected at the facility indicates that soil quality, where impacted at or near the ground surface, improves with depths below 2 feet.

2. Air (indoors) – NO

REFERENCE: 1) *Shop Area Closure Report* dated October 2005 and prepared by Bay Environmental in accordance with the DEQ *Closure Plan* effective September 11, 1997.

RATIONALE: No volatile or semi-volatile contaminates were found in soil borings with the exception of a single soil boring located outside the building and adjacent to the shed located at the south west corner of the shop at a depth of 18 inches below ground surface. Residential RBC values were exceeded for benzo(a)anthracene, benzo(b)fluoranthene, and benzo(a)pyrene. No semi-volatile contaminates exceeded Industrial RBC values, and no semi-volatile contaminates were found at a depth of 3 to 5 feet at the same location. From June 21, 1991 through June 30, 1992, EPA performed a CERCLA emergency hazardous waste removal action for the Shop (40 by 70 feet), Shed (small metal building at the southwest corner of the Shop, used for plating process hazardous waste drum storage), and the fenced Rear Yard (45 by 90 feet) to mitigate any immediate threats to human health and the environment. The site is fenced and the gate is locked. The East Yard, Rear Yard, and West Yard are grass covered to prevent inorganic contaminants in surface soils from becoming airborne. The Facility is currently non-operational, and there are no plans to operate the Facility. It is assumed that indoor and outdoor air concentrations are below acceptable levels. No direct measurements of indoor air or soil gas have been made and there are no plans to measure indoor air or soil gas.

3. Surface Soil – YES

REFERENCE: 1) *Brownfields Site Screening Report*, dated September 20, 2001, for the Hampton Industrial Plating Site prepared by the Waste Policy Institute (WPI) and the Virginia Polytechnic Institute and State University (Virginia Tech). Brownfields sampling was conducted June 13, 2001. 2) *Corrective Action Facility Lead Agreement Work Plan (FLA Work Plan)* dated January 2005 and revised March 2005, prepared by Bay Environmental for corrective action in accordance with the Facility Lead Agreement signed September 18, 2004. 3) *Container Storage Area Closure Report*, dated May 2005 and revised June 2005 with addendum dated August 2005, prepared by Bay Environmental in accordance with the DEQ *Hazardous Waste Management Units Closure Plan for the Industrial Plating Site (Closure Plan)* effective September 11, 1997. 4) *Shop Area Closure Report* dated October 2005 and prepared by Bay Environmental in accordance with the DEQ *Closure Plan* effective September 11, 1997.

RATIONALE: Site investigations have identified elevated concentrations of electroplating and metal finishing related inorganic constituents (cyanide, barium, cadmium, chromium, nickel, and silver) in the metal plating Shop Area, East Yard, Rear Yard, and West Yard. Semi-volatile constituents were identified adjacent to the storage shed located in the West Yard adjacent to the southwest corner of the Shop Area. Tables 1 and 2 summarize the inorganic constituent concentrations detected with a comparison to Risk-Based Concentrations (RBCs) and Soil Screening Levels (SSLs) based on the Oak Ridge National Laboratory Table, updated July 7, 2008. Table 1 summarizes soil concentrations for inorganic constituents, as identified in the *Work Plan, revised March 2005*. Table 2 summarizes soil concentrations for inorganic constituents, as identified in the *Brownfields Site Screening Report, September 20, 2001*. Table 1 sample locations are shown on the Revised Figure 2: Work Plan Proposed Sample Location Map. Table 2 sample locations are shown on Brownfields Figure 10: Site Map with Final Sample Locations. Surface sampling of the East Yard, Rear Yard, and West Yard on June 13, 2001 and March 20, 2005 revealed that maximum concentrations of cyanide (0.61 mg/kg), barium (52 mg/kg), cadmium (734 mg/kg), total chromium (2,490 mg/kg), lead (1,260 mg/kg), nickel (898 mg/kg), and silver (92.9 mg/kg) were below Residential Risk Based Concentration levels with the exception of cadmium, total chromium, and lead. Maximum cadmium and lead concentrations in surface soil samples exceeded Industrial Risk Based Concentration levels. A chain link fence extends from the building around the East Yard, Rear Yard, and West Yard and separates the Site from the day care facility to the east and other neighbors. The facility is closed, and the chain link fence effectively eliminates the potential for trespasser exposure to affected surface soils.

4. Surface Water – NO

REFERENCE: 1) On April 20, 1989, the Virginia Department of Transportation (VDOT) conducted emergency sampling consisting of four drainage ditch sediment samples and a surface water sample. This sampling and analysis is documented in the December 2000 *Brownfields Site Reconnaissance and Historical Records Review Report* for Hampton Industrial Plating in Section *1.4.1 Drainage Ditch Sampling in 1989*.

RATIONALE: Groundwater does not discharge to surface water. On April 20, 1989, the Virginia Department of Transportation (VDOT) conducted emergency sampling consisting of four drainage ditch sediment samples and a surface water sample. The maximum value from four surface water samples (upstream, middle, downstream, and creek) for cyanide (5.2 mg/L), cadmium (0.190 mg/L), total chromium (1.2 mg/L), and lead (0.23 mg/L) did not exceed human health

water quality standards. The Big Bethel Reservoir is currently no longer used for public water supply. Consequently, surface water quality is not an issue at this facility.

5. Sediment – NO

REFERENCE: 1) On April 20, 1989, the Virginia Department of Transportation (VDOT) conducted emergency sampling consisting of four drainage ditch sediment samples and a surface water sample. This sampling and analysis is documented in the December 2000 *Brownfields Site Reconnaissance and Historical Records Review Report* for Hampton Industrial Plating in Section *1.4.1 Drainage Ditch Sampling in 1989*.

RATIONALE: On April 20, 1989, the Virginia Department of Transportation (VDOT) conducted emergency sampling consisting of four drainage ditch sediment samples and a surface water sample. The maximum reported sediment sample values: cyanide (14 mg/kg), barium (35 mg/kg), cadmium (10.3 mg/kg), and total chromium (46 mg/kg) were below Residential Risk Based Concentration (RBC) levels based on the Oak Ridge National Laboratory Table, updated July 7, 2008. On June 13, 2001, Brownfields sampling of the Victory Boulevard drainage ditch revealed that maximum concentrations of cyanide (0.57 mg/kg), barium (39.3 mg/kg), cadmium (19.6 mg/kg), and total chromium (204 mg/kg) were below Residential RBC levels based on the Oak Ridge National Laboratory Table, updated July 7, 2008. Although this drainage ditch is outside the fence surrounding the East Yard, Rear Yard, and West Yard, concentrations of chemicals of concern in the Rear Yard drainage ditch sediment are below Residential RBC levels. Consequently, sediment contamination is not an issue at this facility.

6. Subsurface Soil – YES

REFERENCE: 1) *Brownfields Site Screening Report*, dated September 20, 2001, for the Hampton Industrial Plating Site prepared by the Waste Policy Institute (WPI) and the Virginia Polytechnic Institute and State University (Virginia Tech). Brownfields sampling was conducted June 13, 2001. 2) *Corrective Action Facility Lead Agreement Work Plan* (*FLA Work Plan)* dated January 2005 and revised March 2005, prepared by Bay Environmental for corrective action in accordance with the Facility Lead Agreement signed September 18, 2004. 3) *Container Storage Area Closure Report*, dated May 2005 and revised June 2005 with addendum dated August 2005, prepared by Bay Environmental in accordance with the DEQ *Hazardous Waste Management Units Closure Plan for the Industrial Plating Site (Closure Plan)* effective September 11, 1997. 4) *Shop Area Closure Report* dated October 2005 and prepared by Bay Environmental in accordance with the DEQ *Closure Plan* effective September 11, 1997.

RATIONALE: On June 13, 2001, Brownfields subsurface (3 to 5 feet below ground surface) sampling revealed that maximum concentrations of cyanide (0.28 mg/kg), barium (32.9 mg/kg), cadmium (1.2 mg/kg), and total chromium (30.9 mg/kg) were below Residential Risk Based Concentration levels based on the Oak Ridge National Laboratory Table, updated July 7, 2008. VOCs and SVOCs were not detected in soil samples taken below 18 inches bgs. Soil boring data collected at the facility indicates that soil quality, where impacted at or near the ground surface, improves with depth. Potential exposure to subsurface soil is expected to be limited to construction workers performing soil removal activities in accordance with a site specific Health and Safety Plan. Exposure to contaminated subsurface soils is not expected to be a significant issue at the facility.

7. Air (outdoors) – NO

REFERENCE: 1) *Brownfields Site Screening Report*, dated September 20, 2001, for the Hampton Industrial Plating Site prepared by the Waste Policy Institute (WPI) and the Virginia Polytechnic Institute and State University (Virginia Tech). Brownfields sampling was conducted June 13, 2001. 2) *Corrective Action Facility Lead Agreement Work Plan* (*FLA Work Plan)* dated January 2005 and revised March 2005, prepared by Bay Environmental for corrective action in accordance with the Facility Lead Agreement signed September 18, 2004. 3) *Container Storage Area Closure Report*, dated May 2005 and revised June 2005 with addendum dated August 2005, prepared by Bay Environmental in accordance with the DEQ *Hazardous Waste Management Units Closure Plan for the Industrial Plating Site (Closure Plan)* effective September 11, 1997.

RATIONALE: No volatile or semi-volatile contaminates were found in soil borings with the exception of a single soil boring located outside the building and adjacent to the shed located at the south west corner of the shop at a depth of 18 inches below ground surface. Residential RBC values were exceeded for benzo(a)anthracene, benzo(b)fluoranthene, and benzo(a)pyrene. No semi-volatile contaminates exceeded Industrial RBC values, and no semi-volatile contaminates

were found at a depth of 3 to 5 feet at the same location. From June 21, 1991 through June 30, 1992, EPA performed a CERCLA emergency hazardous waste removal action for the Shop (40 by 70 feet), Shed (small metal building at the southwest corner of the Shop, used for plating process hazardous waste drum storage), and the fenced Rear Yard (45 by 90 feet) to mitigate any immediate threats to human health and the environment. The site is fenced and the gate is locked. The East Yard, Rear Yard, and West Yard are grass covered to prevent inorganic contaminants in surface soils from becoming airborne. The Facility is currently non-operational, and there are no plans to operate the Facility. It is assumed that indoor and outdoor air concentrations are below acceptable levels. No direct measurements of indoor air or soil gas have been made and there are no plans to measure indoor air or soil gas.

3. Are there **complete pathways** between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

Potential **Human Receptors** (Under Current Conditions)

Contaminated Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food[3]
Groundwater	NO	NO	NO	YES	NO	NO	NO
~~Air (indoors)~~	____	____	____	____	____	____	____
Soil (surface, e.g.,< 2 ft)	NO	NO	NO	YES	NO	NO	NO
~~Surface Water~~	____	____	____	____	____	____	____
~~Sediment~~	____	____	____	____	____	____	____
Soil (subsurface e.g., >2 ft)	NO	NO	NO	YES	NO	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).

__✓__ If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination) - continue after providing supporting explanation. (potential contamination of subsurface soil and potential exposure pathway evaluation)

_____ If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code.

Rationale and Reference(s):

Groundwater – see attached page, Item #1
Soil (surface) – see attached page, Item #2
Soil (subsurface) – see attached page, Item #3

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

1. Groundwater

REFERENCE: 1) *Brownfields Site Screening Report*, dated September 20, 2001, for the Hampton Industrial Plating Site prepared by the Waste Policy Institute (WPI) and the Virginia Polytechnic Institute and State University (Virginia Tech). Brownfields sampling was conducted June 13, 2001. 2) *Corrective Action Facility Lead Agreement Work Plan (FLA Work Plan)* dated January 2005 and revised March 2005, prepared by Bay Environmental for corrective action in accordance with the Facility Lead Agreement signed September 18, 2004. 3) *Shop Area Closure Report* dated October 2005 and prepared by Bay Environmental in accordance with the DEQ *Closure Plan* effective September 11, 1997. 4) *Container Storage Area Closure Report*, dated May 2005 and revised June 2005 with addendum dated August 2005, prepared by Bay Environmental in accordance with the DEQ *Closure Plan* effective September 11, 1997.

RATIONALE:

Residents

NO – There is no information indicating the presence of residents nearby or at the facility. The facility is located adjacent to a day care facility in an otherwise industrial area with a fence with locked gate surrounding the Hampton Industrial Plating East, West, and Rear Yards and Metal Plating Shop thereby restricting access to the facility. The Hampton Industrial Plating facility and surrounding properties are serviced by public utilities, including a public water supply.

Workers

NO – The Hampton Industrial Plating facility and surrounding properties are serviced by public utilities, including a public water supply. The groundwater at the site is not utilized for any purposes at the facility; therefore workers are not exposed to the groundwater. There are no known users of groundwater near the facility that use the groundwater for drinking water purposes.

Day-Care

NO – A day-care facility is located to the east of the Hampton Industrial Plating facility. A fence with locked gate surrounds the Hampton Industrial Plating East, West, and Rear Yards and Metal Plating Shop thereby restricting access to the Hampton Industrial Plating facility.

Construction

YES – There are no planned or perceived construction activities at the site other than soil removal and well drilling activities that would expose construction workers to the groundwater. The current site specific Health and Safety Plan will be followed for soil removal and well drilling activities at the Hampton Industrial Plating facility.

Trespassers

NO – The facility is located adjacent to day care facility in an otherwise industrial area with a fence with locked gate surrounding the property thereby restricting access to trespassers.

Recreation

NO – There is no information indicating that any portion of the facility is used for recreational purposes. There is a day care recreational area located to the east of the Hampton Industrial Plating facility; however, a fence with locked gate surrounds the Hampton Industrial Plating facility thereby restricting access to trespassers.

Food

NO – There is no information indicating that food is grown within the facility's boundary.

2. Soil (Surface)

REFERENCE: 1) *Brownfields Site Screening Report*, dated September 20, 2001, for the Hampton Industrial Plating Site prepared by the Waste Policy Institute (WPI) and the Virginia Polytechnic Institute and State

University (Virginia Tech). Brownfields sampling was conducted June 13, 2001. 2) *Corrective Action Facility Lead Agreement Work Plan* (*FLA Work Plan)* dated January 2005 and revised March 2005, prepared by Bay Environmental for corrective action in accordance with the Facility Lead Agreement signed September 18, 2004. 3) *Container Storage Area Closure Report*, dated May 2005 and revised June 2005 with addendum dated August 2005, prepared by Bay Environmental in accordance with the DEQ *Hazardous Waste Management Units Closure Plan for the Industrial Plating Site (Closure Plan)* effective September 11, 1997. 4) *Shop Area Closure Report* dated October 2005 and prepared by Bay Environmental in accordance with the DEQ *Closure Plan* effective September 11, 1997.

RATIONALE:

Residents

NO – There is no information indicating the presence of residents nearby or at the facility. The facility is closed. The facility is located adjacent to a day care facility in an otherwise industrial area with a fence with locked gate restricting access to the property.

Workers

NO – The facility is closed and there are no workers on-site. Potential exposure to surface and subsurface soil is expected to be limited to workers performing soil removal and well drilling activities to be performed in accordance with a site specific Health and Safety Plan.

Day-Care

NO – A day-care facility is located to the east of the Hampton Industrial Plating facility. A fence with a locked gate surrounds the Hampton Industrial Plating East, West, and Rear Yards and Metal Plating Shop thereby restricting access to the Hampton Industrial Plating facility.

Construction

YES – The facility is closed. There are no construction activities planed at this time with the exception of soil removal and well drilling. Soil removal and well drilling activities will be performed in accordance with a site specific Health and Safety Plan.

Trespassers

NO – The facility is located in an industrial area with the exception of an adjacent day care facility. A fence with locked gate surrounds the Hampton Industrial Plating East, West, and Rear Yards and Metal Plating Shop thereby restricting access to the Hampton Industrial Plating facility.

Recreation

NO – The facility is closed and fenced with a locked gate. There is no information indicating that any portion of the facility is used for recreation.

Food

NO – The facility is closed and fenced with a locked gate. Grass covers the East, West, and Rear Yards. There is no information indicating that food is grown within the facility's boundary.

3. Soil (subsurface)

REFERENCE: 1) *Brownfields Site Screening Report*, dated September 20, 2001, for the Hampton Industrial Plating Site prepared by the Waste Policy Institute (WPI) and the Virginia Polytechnic Institute and State University (Virginia Tech). Brownfields sampling was conducted June 13, 2001. 2) *Corrective Action Facility Lead Agreement Work Plan* (*FLA Work Plan)* dated January 2005 and revised March 2005, prepared by Bay Environmental for corrective action in accordance with the Facility Lead Agreement signed September 18, 2004. 3) *Container Storage Area Closure Report*, dated May 2005 and revised June 2005 with addendum dated August 2005, prepared by Bay Environmental in accordance with the DEQ *Hazardous Waste Management Units Closure Plan for the Industrial Plating Site (Closure Plan)* effective September 11, 1997. 4) *Shop Area*

Closure Report dated October 2005 and prepared by Bay Environmental in accordance with the DEQ *Closure Plan* effective September 11, 1997.

RATIONALE:

Residents

NO – There is no information indicating the presence of residents nearby or at the facility. The facility is closed. The facility is located adjacent to a day care facility in an otherwise industrial area with a fence and locked gate restricting access to the property.

Workers

NO – The facility is closed and there are no workers on-site. Potential exposure to surface and subsurface soil is expected to be limited to workers performing soil removal and well drilling activities to be performed in accordance with a site specific Health and Safety Plan.

Day-Care

NO – A day-care facility is located to the east of the Hampton Industrial Plating facility. A fence with a locked gate surrounds the Hampton Industrial Plating East, West, and Rear Yards and Metal Plating Shop thereby restricting access to the Hampton Industrial Plating facility.

Construction

YES – The facility is closed. There are no construction activities planed at this time with the exception of soil removal and well drilling. Soil removal and well drilling activities will be performed in accordance with a site specific Health and Safety Plan.

Trespassers

NO – The facility is located in an industrial area with the exception of an adjacent day care facility. A fence with locked gate surrounds the Hampton Industrial Plating East, West, and Rear Yards and Metal Plating Shop thereby restricting access to the Hampton Industrial Plating facility.

Recreation

NO – The facility is closed and fenced with a locked gate. There is no information indicating that any portion of the facility is used for recreation.

Food

NO – The facility is closed and fenced with a locked gate. Grass covers the East, West, and Rear Yards. There is no information indicating that food is grown within the facility's boundary.

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 expected not to be "significant."

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

Rationale and Reference(s):

Note: See discussion under rational under Item No. 3.

[4] If there is any question on whether the identified exposures are "significant" (i.e., potentially "unacceptable") consult a human health Risk Assessment specialist with appropriate education, training and experience.

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

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

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

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

Rationale and Reference(s):

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6. Check the appropriate RCRA Info 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 Hampton Industrial Plating facility, EPA ID # VAD037426228, located in Tabb,, Virginia, 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 Chris Tompkins Date 9-17-08
(print) Chris Tompkins, P.E.
(title) Environmental Engineer

Supervisor Leslie A Romanchik Date 9/18/08
(print) Leslie A. Romanchik
(title) Director, Office of Hazardous Waste
(EPA Region or State) VA DEQ

Locations where References may be found:

VA Department of Environmental Quality, Office of Hazardous Waste

Contact telephone and e-mail numbers:

(name) Chris Tompkins
(phone #) (804) 698-4124
(fax #) (804) 698-4234
(e-mail) crtompkins@deq.virginia.gov

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