DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION
Interim Final:

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

Current Human Exposures Under Control

Facility Name: Buffalo Color Corporation
Facility Address: 100 Lee Street; Buffalo, NY
Facility EPA ID#: NYD08033052

1. Has all available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g. from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)) been considered in this EI determination?

   X If yes - check here and continue with #2 below.

   ____ If no - re-evaluate existing data, or

   ____ If data are not available skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g. reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e. contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e. site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GRPA). 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 RCRAInfo national database ONLY as long as they remain true (i.e. RCRAInfo status codes must be changed when the regulatory authorities become aware of contrary information).

Background

The Buffalo Color Corporation (BCC) is located on approximately 42 acres, adjacent to the Buffalo River (see Figure 1). The surrounding area of BCC is zoned for heavy industry which includes to the north and the west CSX railroad tracks, to the north Honeywell International, Inc. and to the south and the east PVS chemicals Inc. To the east of area E an industrial property is owned by Mobil Oil Company. The closest residential area is approximately 150 feet of the northeastern point of the site, across Elk and Orlando streets. Contaminated groundwater at the Buffalo Color Facility flows towards the Buffalo River in a south-southwesterly direction (see Figure 2). The direction of groundwater flow towards the river and away from the residential areas prevents any potential exposure to the residential areas.

Over the past 100 years dyestuff and organic chemicals have been produced. The plant was built in 1879 by a predecessor of Schoellkopf Aniline and Dye Company, which became National Aniline Chemical Company (NACCO) in 1917. In July of 1977 Buffalo Color Corporation bought assets from Allied Chemical, giving the plant the right to produce certain chemicals. Production of all dyestuff and chemicals ceased at BCC in July 2003 and currently BCC operates as a packaging and distribution facility.

In 1995 the NYSDEC approved a RCRA facility investigation of the Buffalo Color Corporation. A single solid waste

management unit (SWMU) was designated for areas A,B,C and E. Active features included sewer lines, container storage area and hazardous waste storage for drummed waste (for less than 90 days). Inactive features include abandoned sewer lines, old container storage in Area E, a deep well in Area E (used for waste disposal/surface impoundments) and the construction of a waste water treatment plant in Area E.

Golder Associates, 1997, “Final Report on the RCRA facility investigation of the Buffalo Color Corporation”.

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

		Yes	No	?	Rationale/Key Contaminants
Groundwater		X			See Attachment 1
Air (indoors)[2]			X		Contamination plumes are in areas where no workers are present
Surface Soil (e.g.<2 ft)		X			See Attachment below
Sediment		X			See Attachment 2
Surface Water				X	Not required component of RFI
Subsurface Soil (e.g.>2 ft)	X				See Attachment below
Air (outdoors)			X		

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

X If yes (for any media) - continue after identifying key contaminants in each "contaminated" medium citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

____ If unknown (for any media) - skip to #6 and enter "IN" status code.

Rationale and Reference(s):

Surface and subsurface soil contamination consists of several volatile and semi-volatile organic compounds which include chloroform, aniline, benzo(A)anthracene, benzo(A)pyrene, benzo(B)fluoranthene, benzo(K)fluoranthene, carbazole, chrysene, dibenzofuran, indeno(1,2,3-CD)pyrene, naphathalene, nitrophenol and 1,2,4-trichlorbenzene. In addition to VOCs and SVOCs within the soil of the Buffalo Color Corporation many metals have been identified including arsenic, cadmium, chromium, copper, iron, manganese, mercury, nickel and selenium.

Groundwater can pose a potential threat to residential indoor air quality. However, at this facility groundwater discharges to either the Buffalo Sewer Authority line or discharges to the Buffalo River, precluding such an exposure concern (see figure 2). The groundwater contaminants at this site have a relatively low volatility, so they have a low potential for causing adverse exposures. In addition, there are no residential areas that could be impacted from groundwater in this locality, so therefore, this exposure mechanism is not of concern.

The sediment in the Buffalo River does exceed the threshold for open-lake disposal of sediments due to the contaminants within. Presently, the Buffalo River is an Area of Concern although, studies indicate there have been a decline of key contaminants such as polycyclic aromatic hydrocarbons PAHs (See Attachment 2).

Golder Associates, 1998, "Addendum to the final report on the RCRA facility investigation of Buffalo Color Corporation".

Irvine, K.N. et al. "Contaminated sediment in the Buffalo River area of concern-historical trends and current conditions". 2003.

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.

3. Are there complete pathways between "contamination" and human receptors such as 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	Foods		
Groundwater			No	No	No	*No	No	*No	No
Soil (surface, e.g. >2 ft.)		No	No	No	*No	No	No	No	
Soil (subsurface e.g. >2 ft.)		No	No	No	*No	No	No	No	
Surface water		No	No	No	No	No	No	No	
Sediment		No	No	No	No	No	No	No	
Air (indoors)		No	No	No	No	No	No	No	
Air (outdoors)		No	No	No	No	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:

_X_ 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 completed for any "Contaminated" Media - Human Receptor combination) - continue after providing supporting explanation.

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

Rationale and Reference(s):

The potential exposure of contaminants via surface soil, subsurface soil and groundwater media are present only to construction workers. Construction workers are subject to health and safety plans, therefore they are not at risk. A possible human receptor may be an individual who uses this location of the Buffalo River for recreation. The contaminants of concern found within the river are not the contaminants present at the Buffalo Color Facility. Recent data obtained from a fish tissue toxics study indicate elevated levels of PCBs, pesticides, and two PAHs - toxaphene and methoxychlor. These contaminants are not present in the groundwater at the Buffalo Color Facility (see Attachment 1).
Presently, there are no beaches in this area and the Department of Health has a fish consumption advisory. Contaminated media of the Buffalo Color Corporation does not exist to human receptors under normal conditions.
Overall, the sediment and water quality has improved in the Buffalo River over the past 25 years. This was the conclusion in the published report: Contaminated sediment in the Buffalo River area of concern-historical trends and current conditions. Attachment 2 also supports the conclusion that the Buffalo river sediment quality is improving.

* Subject to health and safety plans, risks are still present

Draft for Public Notice- Statement of basis

Irvine, K.N. et al. " Contaminated sediment in the Buffalo River area of concern-historical trends and current conditions"; in Sediment Quality Assessment an Management: Insight and Progress - 2003.

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

Current Human Exposure Under Control
Environmental Indicator (EI) RCRAInfo code (CA725)

S Can the exposures from any of the complete pathways identified in #3 be reasonably expected to be "significant" (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 concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?

X If no (exposures can not be reasonably expected to be significant (i.e. potentially "unacceptable" for any

complete exposure pathway) - skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant".

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

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

Rationale and Reference(s):

Subsurface soil, surface soil and the groundwater in this area are contaminated (see attachment 1). The migration of groundwater into the Buffalo River is of concern, potentially threatening those who use the river despite warnings and advisements. The exposure of subsurface soil, surface soil and groundwater is limited to construction workers. Due to the low frequency of exposures and proper safety precautions, they are not at risk. The groundwater data indicates the likelihood that contaminants from Buffalo Color Corporation have leached into the Buffalo River. However, data from sediments and fish tissue show that the contaminants of concern in the Buffalo River are not the contaminants found at the BCC site. Moreover, exposures can not be reasonably expected to be significant due to the high flow rate of the Buffalo River and the ultimate dilution and dispersal of BCC contaminants .

[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.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRAInfo code (CA725)

S 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):

Current Human Exposures Under Control
Environmental Indicator (EI) RCRAInfo code (CA725)

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

__X__ YE - Yes. "Current Human Exposures Under Control EI" 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 Buffalo Color Corporation LLC facility, EP ID # NYD08033052 , located at 100 Lee Street, Buffalo, NY under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

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

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

Completed by: (signature) _____ Date _____
(print)_____
(title)_____

Supervisor _____ Date _____
_____
_____
_____

Director: Original signed by: Date: 9-30-2004
Edwin Dassatti, P.E.
Bureau of Hazardous Waste and Radiation Management
Division of Solid and Hazardous Materials

Locations where References may be found:

Region 9
New York State Department of Environmental Conservation
270 Michigan Avenue
Buffalo, New York 14203-2999

Contact telephone and e-mail numbers:

(Name) _____Mr. Stanley Radon_____
(Phone #)____716/851-7220_____
(E-mail)_____sfradon@gw.dec.state.ny.us_____

FINAL NOTE: **T**HE **H**UMAN **E**XPOSURES 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.

Attachment 1: Groundwater

Analytes	**Contaminant**	**Max Detected** µg/l	* **Level of Concern/ Standard** µg/l
Volatile Organic Compounds	benzene	110	1
	ethybenzene	40	5
	toluene	69	5
	M+P-xylene	140	5 each isomer
	o-xylene	69	5
	acetone	460	5
	chloroform	160	7
	2-butanone(MEK)	56	50
	styrene	10	50
Semi-Volatile Organic Compounds	BIS (2-ethylexyl) phthalate	6.2	50
	naphthalene	2300	10
	2-methylnaphthalene	460	40
Metals	arsenic	1170	25
	cadmium	7770	5
	chromium	362	50
	copper	1130	200
	iron	4040000	300
	lead	439	25
	manganese	42700	300
	mercury	1.48	0.7
Analytes	**Contaminant**	**Max Detected** µg/l	* **Level of Concern/ Standard** µg/l

	nickel	9100	100
	zinc	381000	2000
	selenium	18	10
	** silver	10	50
Inorganics	chloride	466000	250000
	nitrate nitrogen	76600	10000
	nitrate/nitrite nitrogen	76700	10000
	sulfate	23800000	250000
	** hexavalent chromium	233	50

* Value derived from 6 NYCRR 703.5 Standard
** found in second testing

- Data collected from the Addendum to final report on RCRA facility investigation, prepared by Golder Associates, December 1998.