DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)
Current Human Exposures Under Control

Facility Name:	**Neville Chemical Company**
Facility Address:	**2800 Neville Road, Pittsburgh, PA 15225**
Facility EPA ID #:	**PAD 004 334 157**

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

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

____ If no - re-evaluate existing data, or

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

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

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

Definition of "Current Human Exposures Under Control" EI

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

Relationship of EI to Final Remedies

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

Duration / Applicability of EI Determinations

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

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be **"contaminated"**[1] above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	Yes	No	?	Rationale / Key Contaminants
Groundwater	X			Organics and inorganics detected in groundwater
Air (indoors)[2]		X		Not known or reasonably expected to be contaminated above appropriate levels.
Surface Soil (e.g., <2 ft)		X		Detected levels below regulatory standards for industrial use.
Surface Water		X		Most recent results indicated that surface water is not impacted by the onsite groundwater contamination.
Sediment		X		Risk Assessment concludes that no risk to human health and the ecology.
Subsurf. Soil (e.g., >2 ft)	X			Detected contaminants above appropriate levels
Air (outdoors)		X		Corrective measures implemented to address VOCs emission sources. Area-wide air study will be conducted to evaluate air quality at Neville Island.

____ 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):

Groundwater:

A site-wide groundwater sampling was conducted as part of the Phase II Groundwater Quality Assessment in 1994. The investigation identified the presence of organic constituents in groundwater. Contamination is due to historic spills and leaks of organics from storage tanks, pump packings, piping and valves, and a former lagoon. A Light Non-Aqueous Phase Liquid (LNAPL) was identified in six of the twenty-two monitoring wells as well as six recovery wells. A central Benzene, Toluene, Ethylbenzene, and Xylene (BTEX)-plume and a chlorinated plume exist near the northwest corner of the property. The plume migrates northward and discharges to the Ohio River from a number of historic release areas. In some locations, LNAPL pure products were as thick as 3.5 feet. The following table summarizes the groundwater and LNAPL data from the six sampling events as part of Phase II Groundwater Quality Assessment:

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

Monitoring Wells	Benzene (ug/L) Range	Total VOCs (ug/L) Range	LNAPL Thickness (ft) Range
MW-1	0	0	0.59-1.97
MW-2S	2,600-25,000	41,085-375,000	
MW-2D	3,900-7,400	14,088-26,610	
MW- 3S	1,300-1,800	9,877-15,500	
MW-3D	0	0-16	
MW-4	9-170	87-433	
MW-5S	0-90	0-110	
MW-5D	0	0-35	
MW-6S	0-400	2-585	
MW-6D	0-450	0-674	
MW-7S	6,100-12,000	22,550-44,700	0.37-1.23
MW-7D	0-400	37-3,600	
MW-8S	1,900-4,000	3,700-22,622	0.23-1.27
MW-8D	0-590	0-1,367	
MW-9S	0	0-44	
MW-9D	0-150	0-184	
MW-10S	3,700-6,100	22,080-79,370	0-0.86
MW-10D	0-2,800	7,160-53,315	
MW-11S	9,500-13,000	52,000-309,500	0.6-2.02
MW-11D	880-5,400	1,850-24,830	
MW-12S	1,500-4,300	7,363-19,540	0.22-1.37
MW-12D	0-430	0-764	
WW-2	Not Sampled	Not Sampled	0-1.3
WW-3	Not Sampled	Not Sampled	0-1.13
RW-7B	Not Sampled	Not Sampled	0.34-1.28
RW-2C	Not Sampled	Not Sampled	0-1.74
RW-2B	Not Sampled	Not Sampled	1.26-2.92
RW-8B	Not Sampled	Not Sampled	0-0.4

Groundwater sampling was collected in May 2003 for which the EI report was based. A brief summary of the groundwater results are presented below: (EI Report, 2003)

Constituents	Act 2 Standards (ug/L)	MW-2D (ug/L)	MW-3S (ug/L)	MW-4 (ug/L)	MW-10S (ug/L)	MW-12S (ug/L)
Benzene	5	**2,010**	**88**	**484**	**4,320**	**4,080**
Styrene	100	--	24	**1,360**	--	**5,090**
Naphthalene	100	**6,270**	--	--	**33,700**	**3,800**

Indoor Air:
Indoor air is not known or reasonably expected to be contaminated above appropriate levels. Most of the facility's operations occur outdoors. The facility conducted an air pathway analysis to identify potential health risks posed by volatilization of compounds from contaminated soils, groundwater, and LNAPL. The study concluded that the cancer risk to industrial workers did not exceed PADEP's hazard index level of exposure. (EI Report, 2003)

Surface Soil:
In 1994 and 2001, the Facility collected several surface soil samples to determine the potential human health risk at current soil conditions. None of the soil samples exceeded PADEP regulatory limits for industrial use. (Neville Chemical Risk Assessment Report June 2001, Phase II Groundwater Quality Assessment, 1994)

Constituents	PADEP Act 2 Non-Residential (mg/kg)	Maximum Detected Concentrations (mg/kg)
Volatile Organic Componds		
Chlorobenzene	10,000	1.46
Chloroform	72	1.12
Ethyl Benzene	10,000	< 0.5
1,1,2,2-Tetrachloroethane	28	5.11
Tetrachloroethane	1,500	1.36
Toluene	10,000	< 0.5
Trichloroethane	970	16
Xylenes (total)	990	120
Semi-Volatile Organics (mg/kg)		
Acenaphthene	4,700	15.4 J
Benzo (a) anthracene	110	2.18
Benzo (a) pyrene	11	2.54

Benzo (b) fluoranthene	110	2.96
Benzo (k) fluoranthene	1,100	2.33
Bis (2-ethylhexyl) phthalate	5,700	3.99
Chrysene	11,000	2.78
Di-n-octyl phthalate	10,000	0.365
Fluoranthene	110,000	5.09
Fluorene	110,000	12.8 J
2-Methlynapthlene	10,000	3.53
Naphthalene	56,000	389
Phenanthrene	10,000	28.3 J
Pyrene	84,000	7.47
m&p-Cresol	920	2.1
Phenol	190,000	1.65
Coumarone	--	80.9
Ethyltoluene(s)	--	1,450
Trimethylbenzene(s)	--	946
Indene	--	414
Metals (mg/kg)		
Arsenic	53	40.1
Barium	190,000	269
Boron	60	17.4
Chromium	14,000	78.6
Copper	10,000	83.9
Cyanide	200	12.8J
Lead	1,000	306
Mecury	240	1.7
Silver	14,000	0.573
Zinc	12,000	81.7

Note:
Act 2 Standards (Medium Specific Concentrations for non-residential soils (0-2 feet) direct contact).
J – Compound is present, but below the listed detection limit.

Surface Water:
On May 1, 2002, a release of contaminated groundwater / LNAPL was discovered along the Ohio River. A sheen was observed along the river. The presence of sheen was due to the lack of hydraulic capture at Well #4 to control contaminated groundwater migration. Booms were placed in the Ohio River to contain the plume sheen. Subsequent surface water samples were collected along the Ohio River. Below are the results:

Constituents	PADEP Water Quality Criteria	6/27/02	6/28/02	6/29/02	6/30/02
Benzene (mg/L)	0.0022	**0.005**	ND	ND	ND
Ethyl benzene (mg/L)	3.1	0.007	ND	ND	ND
Naphthalene (mg/L)		0.005	ND	ND	ND
Toluene (mg/L)	6.8	0.035	ND	ND	ND
1,2,4 - Trimethyl benzene (mg/L)		0.007	ND	ND	ND
Tot. Xylenes (mg/L)		0.033	ND	ND	ND

ND: non-detects

None of results detected levels above the PADEP water quality criteria. On April 7, 2004, Neville Chemical signed a new Consent Order and Agreement with PADEP to improve the effectiveness of current groundwater remediation. Under the provisions of the Order, the facility will perform routine surface water monitoring and if necessary modify the groundwater pump and treat system to control groundwater migration and to prevent the discharge of contaminants to the Ohio River. As additional surface water monitoring data are submitted, EPA and PADEP will re-evaluate the surface water quality.

Sediment:
In 1999, Neville Chemical assessed the potential impact of Chemicals of Potential Ecological Concern (CPECs) to the sediments of the Ohio River adjacent to the facility. The main concern was that organic carbon in the Ohio River sediments could adsorb organic contaminants and thus, result in exposure to three fish species of concern (skipjack herring, longnose gar, and red riverhorse). An ecological risk assessment was conducted. It was determined that the majority of the sediments along the shore of the facility are not suitable for the fish species to lay eggs. It was further noted that sediment areas where fish species may lay their eggs are coarse-grained in nature and are not likely to accumulate organic contaminants. In 2000, the facility assessed the accumulation of contaminants in the coarse-grained sediment areas. The Total Organic Carbon (TOC) content at the coarse-grained sediment areas was less than 0.2% and therefore, sorption of contaminants to the sediments is negligible. The assessment concludes that levels of sediment contamination in the main channel of the Ohio River along the Neville Chemical property line do not pose a human health risk nor a risk to the ecological species of concern.

Subsurface Soil:
The most recent site-wide subsurface soil sampling results were collected during the Phase II Groundwater Quality Assessment in 1994. The results exceeded several regulatory limits for the constituents of concern. The following table summarizes the range of detections for the constituents that are above PADEP Act 2 Standards.

Constituents	Act 2 Stds.(mg/kg)	Range of Concs (mg/kg)
Toluene	100	124-2,360
Ethylbenzene	70	72-858

Benzene	0.5	1-35
Napthalene	25	36- 1,630
Styrene	24	31-412
Boron	60	91.8-135
Xylene (total)	1,000	2,160

Air (outdoors):

The Facility has several sources of VOC and NOx emissions, which are listed in the following table:

Source	Percentage of Total VOC Emissions from the facility
Fugitive Emissions	43.7%
Storage and Blend Tanks	18.0%
Heat Polymerizations Units	14.6%
Continuous Polymerization Processes Unit 20 Unit 21	 1.3% 0.01%
C-5 Process	3.2%
Resin Rework Tanks	2.5%
#3 and #4 Stills	0.07%
Packaging Centers	6.2%
Wastewater Treatment Plant	2.5%
Groundwater Air Stripping Unit	0.7%
Screen Cleaning	1.6%

The Facility has had a history of intermittent air emission problems related to the above referenced sources over the years. In 2002 and 2003, the Facility conducted outdoor air sampling. The results indicated no outdoor air concern at that time. To ensure that outdoor air VOCs emission continue to be under control, the Facility, under the guidance of Allegheny County Health Department (ACHD) and the Pennsylvania Department of Environmental Protection (PADEP), submitted a compliance plan to address the aforementioned emission sources. Neville Chemical has already implemented several corrective measures outlined in the compliance plan and will implement the remaining measures to address the resin rework area, wastewater treatment tanks, and line clearing activities by the end of 2005.

In addition to the corrective measures, ACHD and Carnegie Mellon University will jointly conduct an area-wide air study to investigate the sources, concentrations, and human exposures of air toxics in Alleghney County. The three-year study will begin by early 2006 and will focus on mobile source emissions and background concentrations at Neville Island. As the data are submitted, EPA and PADEP will evaluate the regional air quality as it relates to the

Facility's operations.

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 that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

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

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

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 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.
Note: 'IN' determinations for surface soil and surface water.

Rationale and Reference(s):

Groundwater:
There are no groundwater wells in the vicinity of the Neville Chemical site that are used for drinking water purposes. A well survey conducted west of facility identified one supply well. The supply well is used for sanitary purposes only. The surrounding groundwater is not used for potable purposes and therefore, human exposures is not reasonably expected under the current conditions.

Subsurface Soil (> 2 ft.):

Contaminated subsurface soil areas are either capped with new construction or are paved over. The "caps" serve as a protective barrier that eliminates direct exposures to subsurface soil contamination. Under the current land use conditions, human exposures to subsurface soil contamination are not reasonably expected.

Surface Water:

Limited surface water data collected in 2002 indicated non-detects for the constituents of concern. The sampling was restricted to the boom area where an oil sheen was discovered and later remediated. On April 7, 2004, Neville Chemical signed a new Consent Order and Agreement with PADEP to address the groundwater remediation. Under the requirements of the Order, Neville Chemical will conduct surface water monitoring along the Ohio River. As additional surface water monitoring data are submitted, EPA and PADEP will re-evaluate surface water quality. Regardless of future surface water conditions, surface water in the vicinity of Neville Island is not a source for drinking water nor is it conducive for recreational use. Under current conditions, human exposures to any potential surface water contamination are not reasonably expected.

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

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

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

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

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

Rationale and Reference(s):

[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):

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

X YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the **Neville Chemical Company** facility, EPA ID # **PAD 004 334 157**, located at **2800 Neville Road, Pittsburgh, PA 15225** 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) /s/ Date 6/29/05
(print) Khai M. Dao
(title) RCRA Project Manager

Supervisor (signature) /s/ Date 6/29/05
(print) Paul Gotthold
(title) Branch Chief, RCRA Corrective Action, PA Operations
(EPA Region or State) Region 3

Locations where References may be found:

US EPA
Region III
Waste and Chemical Mgmt. Division
1650 Arch Street
Philadelphia, PA 19103

PADEP
400 Waterfront Dr.
Pittsburgh, PA 15222

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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.