New Jersey Department of Environmental Protection
Site Remediation Program

ALTERNATIVE OR NEW REMEDIATION STANDARD AND/OR SCREENING LEVEL APPLICATION FORM

Date Stamp
(For Department use only)

NOTE: This form shall be completed for all contaminants for which a direct contact exposure pathway alternative or new remediation standard, alternative impact to ground water soil remediation standard, alternative vapor intrusion screening level, ecological risk-based remediation goal, and/or ecological risk management decision goal is being implemented and/or requested for a site or area of concern. The form shall be used regardless of whether Department pre-approval is required.

SECTION A. SITE NAME AND LOCATION

Site Name: HUDSON COUNTY CHROMATE 65

List all AKAs:

Street Address: Burma Road and Morris Pesin Drive

Municipality: Jersey City (Township, Borough or City)

County: Hudson Zip Code: 07035

Program Interest (PI) Number(s): G000008693

Case Tracking Number(s):

SECTION B. REMEDIATION STANDARD NOTIFICATION SPREADSHEET

Complete and attach the Remediation Standard Notification Spreadsheet which can be found at: http://www.nj.gov/dep/srp/srra/forms/. This form will not be processed by the NJDEP if the spreadsheet is not attached.

SECTION C. PURPOSE FOR SUBMISSION

Pre-Approval Required:

- ☒ Ingestion/Dermal Alternative Soil Remediation Standard
- ☐ Inhalation Alternative Soil Remediation Standard (New Toxicity Data, New Modeling, etc.)
- ☐ Development of New Remediation Standard
- ☐ Ecological Risk Based Remediation Goal
- ☐ Ecological Risk Management Decision Goal

No Pre-Approval Required:

- ☐ Inhalation Alternative Soil Remediation Standard (Calculation Spreadsheet)
- ☒ Impact to Groundwater Alternative Soil Remediation Standard
- ☐ Vapor Intrusion Alternative Screening Level
- ☐ Development of New Vapor Intrusion Screening Level

SECTION D. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION INFORMATION AND CERTIFICATION

Full Legal Name of the Person Responsible for Conducting the Remediation: PPG

Representative First Name: Mark Representative Last Name: Terril

Title: Corporate Director, Environmental Affairs

Phone Number: (412) 434-2078 Ext: Fax:

Mailing Address: One PPG Place

City/Town: Pittsburgh State: PA Zip Code: 15272

Email Address: terril@ppg.com

This certification shall be signed by the person responsible for conducting the remediation who is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: Mark Terril Date: 9/6/2018

Name/Title: Mark E. Terril/Corporate Director

No changes to contact information since last submittal ☒

SECTION E. LICENSED SITE REMEDIATION PROFESSIONAL INFORMATION AND STATEMENT

LSRP ID Number: _____

First Name: _____ Last Name: _____

Phone Number: _____ Ext: _____ Fax: _____

Mailing Address: _____

City/Town: _____ State: _____ Zip Code: _____

Email Address: _____

This statement shall be signed by the LSRP who is submitting this notification in accordance with N.J.S.A. 58:10C-14, and N.J.S.A. 58:10B-1.3b(1) and (2).

I certify that I am a Licensed Site Remediation Professional authorized pursuant to N.J.S.A. 58:10C to conduct business in New Jersey. As the Licensed Site Remediation Professional of record for this remediation, I:

[SELECT ONE OR BOTH OF THE FOLLOWING AS APPLICABLE]:

☐ *directly oversaw and supervised all of the referenced remediation, and\or*

☐ *personally reviewed and accepted all of the referenced remediation presented herein.*

I believe that the information contained herein, and including all attached documents, is true, accurate and complete.

It is my independent professional judgment and opinion that the remediation conducted at this site, as reflected in this submission to the Department, conforms to, and is consistent with, the remediation requirements in N.J.S.A. 58:10C-14.

My conduct and decisions in this matter were made upon the exercise of reasonable care and diligence, and by applying the knowledge and skill ordinarily exercised by licensed site remediation professionals practicing in good standing, in accordance with N.J.S.A. 58:10C-16, in the State of New Jersey at the time I performed these professional services.

I am aware pursuant to N.J.S.A. 58:10C-17 that for purposely, knowingly or recklessly submitting false statement, representation or certification in any document or information submitted to the board or Department, etc., that there are significant civil, administrative and criminal penalties, including license revocation or suspension, fines and being punished by imprisonment for conviction of a crime of the third degree.

LSRP Signature: _____ Date: _____

LSRP Name/Title: _____

Company Name: _____

Completed forms should be sent to:

Bureau of Case Assignment & Initial Notice
Site Remediation Program
NJ Department of Environmental Protection
401-05H
PO Box 420
Trenton, NJ 08625-0420

New Jersey Department of Environmental Protection
Site Remediation Program

Instructions | Clear Form

REMEDIATION STANDARD NOTIFICATION SPREADSHEET

Site Name: Hudson County Chromate Site 65

Program Interest Number: G00008693

ALTERNATIVE STANDARDS OR SCREENING LEVELS REQUESTED/IMPLEMENTED

Chemical Name	**CAS**	**Concentration Range on Site** (include units)	**ARS / Screening Level**	**Scenario**	**Type of Standard**	**Default Remediation Standard / Screening level** (include units)	**Proposed Remediation Standard / Screening level** (include units)
Nickel	7440-02-0	Non Detect - 364 mg/kg	Impact to Ground Water – SPLP	NA	Alternative	48 mg/kg	205 mg/kg
Vanadium	7440-62-2	Non Detect - 543 mg/kg	Ingestion-Dermal Exposure Pathway	Residential	Alternative	78 mkg/kg	390 mg/kg

APTIM
200 Horizon Center
Trenton, New Jersey 08691
Phone: 609-588-8900
Fax: 609-588-6300
www.aptim.com

Memorandum

To	631236150 Project File
CC	
Subject	Alternative Remediation Standard for Nickel and Vanadium
From	Crystal L. Leavey, LSRP

Site Background

In 1990, PPG and the New Jersey Department of Environmental Protection (NJDEP) entered into an Administrative Consent Order (ACO) to investigate and remediate locations where chromate chemical production waste (CCPW) or CCPW-impacted materials related to former PPG operations may be present. On June 26, 2009, NJDEP, PPG and the City of Jersey City entered into a Partial Consent Judgment Concerning the PPG Sites, also referred to as the Judicial Consent Order (JCO), with the purpose of assessing the groundwater and sources of contamination at these Hudson County Chromate (HCC) sites as expeditiously as possible. The goal of the JCO was to complete the investigation and soil remediation activities at the PPG sites within five years.

On January 9, 2018, the NJDEP, PPG, the City of Jersey City, and the Jersey City Municipal Utilities Authority (JCMUA) entered into a Settlement Agreement regarding HCC Site 65 (the Site). The Settlement Agreement was executed to redefine the boundaries of the Site and memorialize PPG's responsibilities for the remediation of contamination encountered during subsurface utility work involving the 16-inch municipal water line by the City of Jersey City and/or the JCMUA within the boundaries of the Site.

Soil investigations completed to date have documented the presence of chromate chemical production waste (CCPW) or CCPW-impacted materials and analytical exceedances of the NJDEP's Soil Remediation Standards (SRS) and/or the Chromium Soil Cleanup Criteria (CrSCC).

Pursuant to the Settlement Agreement, the Parties involved agreed that the soils remedy to be implemented by PPG for the Site would be a restricted use remedy consisting of the following:

- The asphalt road surface covering Site 65 shall function as an engineering control to prevent direct contact exposure; the maintenance of which shall be borne by the City.
- A Notice in Lieu of Deed Notice will be filed because contaminants will be left in place in Site 65 soils that exceed NJDEP soil remediation criteria and/or standards.

Repairs, alterations and/or replacement to the 16-inch water line, in whole or part, within the boundaries of the Site will be managed by the JCMUA as a linear construction project governed by the NJDEP's Linear Construction guidance pursuant to the terms and conditions of the Settlement Agreement. Periodic monitoring, inspections, and reporting with respect to the integrity of the asphalt road surface are to be managed by PPG.

Site-Specific Impact to Groundwater Soil Remediation Standard (IGWSRS) for Nickel

Pursuant to NJDEP email correspondence dated July 27, 2018, the use of the site-specific IGWSRS established for nickel at HCC Site 63 may be applied to vadose zone samples at Site 65 due to the determination that CCPW contamination on HCC Site 65 emanated from HCC Site 63.

A site-specific IGWSRS was calculated for adjacent HCC Site 63 nickel using the Synthetic Precipitation Leaching Procedure (SPLP) methodology and the NJDEP's SPLP Spreadsheet (V3.1, November 2013). Three soil samples were collected from the Site on October 4, 2013 and submitted for total nickel analysis and SPLP nickel analysis.

Based on the NJDEP's guidance, the Default Leachate Criterion for Class II Ground Water for nickel is 2,000 micrograms per liter (ug/l). Option 1 of the NJDEP's guidance allows for the determination of a site-specific IGWSRS from a direct comparison of field leachate concentrations against the Default Leachate Criterion. The results of the total and SPLP nickel analyses were entered into the NJDEP SPLP Spreadsheet for the calculation of field leachate concentrations. Calculated field leachate concentrations were observed to be below the Default Leachate Criterion of 2,000 ug/l and ranged from 10 ug/l to 17.8 ug/l. Option 1 allows the highest total contaminant concentration to be used as the site-specific IGWSRS. The highest total nickel concentration was observed in sample B013R 0.0'-0.5'. As a result, the site-specific IGWSRS for nickel is 205 milligrams per kilogram (mg/kg).

Soil samples used for the calculation of a site-specific IGWSRS for nickel, including B013R 0.0'-0.5', were removed during soil excavation activities. Following the completion of RA activities for soil at HCC Site 63, nickel concentrations remaining on the site range from 7.8 mg/kg to 96.3 mg/kg.

Ingestion/Dermal Alternative Soil Remediation Standard for Vanadium

In correspondence dated July 15, 2016, the NJDEP indicated that a change in the Technical Regulations for Site Remediation (N.J.A.C. 7:26E) that required analysis for metals using the Target Analyte List (TAL) rather than Priority Pollutant (PP) metals, has resulted in the NJDEP receiving a larger data set for vanadium than in the past. Background soil studies conducted in NJ have typically shown vanadium concentrations of 25 mg/kg, and the NJDEP has indicated that recent data sets are indicating a wide range of naturally elevated vanadium with no use or discharges of vanadium at sites within the Site Remediation Program.

Vanadium concentrations in soil samples collected in connection with HCC Site 65 and in Burma Road, Morris Pesin Drive, and the traffic circle ranged from non-detect to 543 mg/kg.

The USEPA has developed Regional Soil Screening Level of 390 mg/kg for residential exposure for vanadium and compounds (https://www.epa.gov/risk/regional-screening-levels-rsls-users-guide-november-2015) as listed in the Generic Tables (May 2016 - https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016) with a target cancer risk (TR) of 1E-06 and a target hazard quotients (THQ) of 1.0. PPG proposes to use 390 mg/kg as the Ingestion Alternative Soil Remediation Standard for vanadium for this site.

NJDEP SPLP Spreadsheet, V3.1, November 2013

Case name/area of concern:	Hudson County Chrome Site 63
Case number:	G000008691
Sampling date:	10/4/2013
Contaminant:	Nickel (total)
CAS No:	7440-02-0
Water solubility (mg/L)	NA
Aqueous reporting limit (µg/L):	4.00E+00
Soil reporting limit (mg/kg):	4.00E+00
Health-based GWQC (µg/L)	1.00E+02
DAF (20, or site-specific if approved):	**20**
Leachate Criterion (µg/L):	2.00E+03
Henry's law constant (dimensionless):	0.00E+00

NOTE:
USE ONE PAGE PER CONTAMINANT, do not leave empty rows between samples
Do not enter samples with soil concentrations at or below the reporting limit
When leachate concentration is non-detect, enter the aqueous reporting limit
Enter site-specific dilution-attenuation factor (DAF) if desired

Data entry cells (do not skip rows)
Optional data entry
Calculated or locked cells
Indicates that Alternative Remediation Standard needs to be recalculated

Sample ID	Soil sample weight (kg)	Leachate Volume (L)	Total Soil Concentration (mg/kg)	SPLP Leachate Concentration (µg/L)	Final pH of Leachate (except VOCs)	Optional data				Kd (L/kg)	% Contaminant in Leachate	Field leachate concentration (µg/L)	Pass or fail?
						Sampling Depth (ft)	Soil Type	Organic Carbon (mg/kg)	Organic Carbon (%)				
B013R 0.0'-0.5'	0.0811	2.008	205	10	7.87					20475.2	0.12	10.01	PASS
C013R 0.0'-0.5'	0.081	2	162	10	8.13					16175.3	0.15	10.02	PASS
C005R 2.5'-3.0'	0.0748	2.004	193	17.8	10.67					10815.9	0.25	17.84	PASS

SPLP RESULTS for

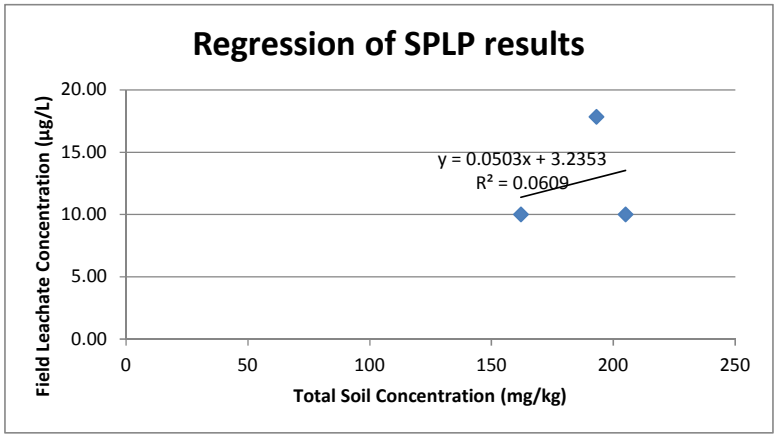
OPTION 1a: All adjusted leachate concentrations are below the leachate criterion

REMEDIATION STANDARD = 205 mg/kg

OPTION 1b: Simple inspection of tabulated results to find highest acceptable standard
EVERYTHING PASSED, OPTION 1b NOT VALID

OPTION 2: Remediation standard using site-specific Kd value
Kd ratio = 1.89, AVERAGING Kds OK
Kd USED FOR CALCULATING STANDARD = 15822.15 L/kg
result before rounding = 31644.6095 mg/kg
REMEDIATION STANDARD = 200 mg/kg (controlled by maximum soil concentration)

OPTION 3: Remediation standard using linear regression
Number of points = 3
Soil concentration midrange = 183.5
Number of points above midrange = 2
Enough points above midrange? YES
R-Square high enough? NO
Leachate criterion within range of leachate concentrations? NO
OPTION 3 NOT VALID



Key: I = IRIS; P = PPRTV; A = ATSDR; C = Cal EPA; X = APPENDIX PPRTV SCREEN (See FAQ #27); H = HEAST; F = See FAQ; J = New Jersey; O = EPA Office of Water; E = see user guide Section 2.3.5; L = see user guide on lead; M = mutagen; S = see user guide Section 5; V = volatile; R = RBA applied (See User Guide for Arsenic notice) ; c = cancer; n = noncancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; SSL values are based on DAF=1; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide)

Toxicity and Chemical-specific Information												Contaminant		Screening Levels										Protection of Ground Water SSLs		
SFO (mg/kg-day)$^{-1}$	key	IUR (ug/m^3)$^{-1}$	key	RfD_o (mg/kg-day)	key	RfC_i (mg/m^3)	key	volatile	muta-gen	GIABS	ABS	C_{sat} (mg/kg)	Analyte	CAS No.	Resident Soil (mg/kg)	key	Industrial Soil (mg/kg)	key	Resident Air (ug/m^3)	key	Industrial Air (ug/m^3)	key	Tapwater (ug/L)	key	MCL (ug/L)	Risk-based SSL (mg/kg)	key	MCL-based SSL (mg/kg)
7.0E-03	X			3.0E-05	X					1	0.1		Trichloroaniline, 2,4,6-	634-93-5	1.9E+00	n	2.5E+01	n					4.0E-01	n		3.6E-03	n	
				8.0E-04	X			V		1			Trichlorobenzene, 1,2,3-	87-61-6	6.3E+01	n	9.3E+02	n					7.0E+00	n				
2.9E-02	P			1.0E-02	I	2.0E-03	P	V		1		4.0E+02	Trichlorobenzene, 1,2,4-	120-82-1	2.4E+01	c**	1.1E+02	c**	2.1E+00	n	8.8E+00	n	1.2E+00	c**	7.0E+01	3.4E-03	c**	2.0E-01
				2.0E+00	I	5.0E+00	I	V		1		6.4E+02	Trichloroethane, 1,1,1-	71-55-6	8.1E+03	ns	3.6E+04	ns	5.2E+03	n	2.2E+04	n	8.0E+03	n	2.0E+02	2.8E+00	n	7.0E-02
5.7E-02	I	1.6E-05	I	4.0E-03	I	2.0E-04	X	V		1		2.2E+03	Trichloroethane, 1,1,2-	79-00-5	1.1E+00	c**	5.0E+00	c**	1.8E-01	c**	7.7E-01	c**	2.8E-01	c**	5.0E+00	8.9E-05	c**	1.6E-03
4.6E-02	I	4.1E-06	I	5.0E-04	I	2.0E-03	I	V	M	1		6.9E+02	Trichloroethylene	79-01-6	9.4E-01	c**	6.0E+00	c**	4.8E-01	c**	3.0E+00	c**	4.9E-01	c**	5.0E+00	1.8E-04	c**	1.8E-03
				3.0E-01	I			V		1		1.2E+03	Trichlorofluoromethane	75-69-4	2.3E+04	ns	3.5E+05	nms					5.2E+03	n		3.3E+00	n	
				1.0E-01	I					1	0.1		Trichlorophenol, 2,4,5-	95-95-4	6.3E+03	n	8.2E+04	n					1.2E+03	n		4.0E+00	n	
1.1E-02	I	3.1E-06	I	1.0E-03	P					1	0.1		Trichlorophenol, 2,4,6-	88-06-2	4.9E+01	c**	2.1E+02	c**	9.1E-01	c	4.0E+00	c	4.1E+00	c**		4.0E-03	c**	
				1.0E-02	I					1	0.1		Trichlorophenoxyacetic Acid, 2,4,5-	93-76-5	6.3E+02	n	8.2E+03	n					1.6E+02	n		6.8E-02	n	
				8.0E-03	I					1	0.1		Trichlorophenoxypropionic acid, -2,4,5	93-72-1	5.1E+02	n	6.6E+03	n					1.1E+02	n	5.0E+01	6.1E-02	n	2.8E-02
				5.0E-03	I			V		1		1.3E+03	Trichloropropane, 1,1,2-	598-77-6	3.9E+02	n	5.8E+03	ns					8.8E+01	n		3.5E-02	n	
3.0E+01	I			4.0E-03	I	3.0E-04	I	V	M	1		1.4E+03	Trichloropropane, 1,2,3-	96-18-4	5.1E-03	c	1.1E-01	c	3.1E-01	n	1.3E+00	n	7.5E-04	c		3.2E-07	c	
				3.0E-03	X	3.0E-04	P	V		1		3.1E+02	Trichloropropene, 1,2,3-	96-19-5	7.3E-01	n	3.1E+00	n	3.1E-01	n	1.3E+00	n	6.2E-01	n		3.1E-04	n	
				2.0E-02	A					1	0.1		Tricresyl Phosphate (TCP)	1330-78-5	1.3E+03	n	1.6E+04	n					1.6E+02	n		1.5E+01	n	
				3.0E-03	I					1	0.1		Tridiphane	58138-08-2	1.9E+02	n	2.5E+03	n					1.8E+01	n		1.3E-01	n	
						7.0E-03	I	V		1		2.8E+04	Triethylamine	121-44-8	1.2E+02	n	4.8E+02	n	7.3E+00	n	3.1E+01	n	1.5E+01	n		4.4E-03	n	
				2.0E+00	P					1	0.1		Triethylene Glycol	112-27-6	1.3E+05	nm	1.6E+06	nm					4.0E+04	n		8.8E+00	n	
						2.0E+01	P	V		1		4.8E+03	Trifluoroethane, 1,1,1-	420-46-2	1.5E+04	ns	6.2E+04	ns	2.1E+04	n	8.8E+04	n	4.2E+04	n		1.3E+02	n	
7.7E-03	I			7.5E-03	I			V		1			Trifluralin	1582-09-8	9.0E+01	c**	4.2E+02	c*					2.6E+00	c*		8.4E-02	c*	
2.0E-02	P			1.0E-02	P					1	0.1		Trimethyl Phosphate	512-56-1	2.7E+01	c*	1.1E+02	c*					3.9E+00	c*		8.6E-04	c*	
						5.0E-03	P	V		1		2.9E+02	Trimethylbenzene, 1,2,3-	526-73-8	4.9E+01	n	2.1E+02	n	5.2E+00	n	2.2E+01	n	1.0E+01	n		1.5E-02	n	
						7.0E-03	P	V		1		2.2E+02	Trimethylbenzene, 1,2,4-	95-63-6	5.8E+01	n	2.4E+02	ns	7.3E+00	n	3.1E+01	n	1.5E+01	n		2.1E-02	n	
				1.0E-02	X			V		1		1.8E+02	Trimethylbenzene, 1,3,5-	108-67-8	7.8E+02	ns	1.2E+04	ns					1.2E+02	n		1.7E-01	n	
				1.0E-02	X			V		1		3.0E+01	Trimethylpentene, 2,4,4-	25167-70-8	7.8E+02	ns	1.2E+04	ns					6.5E+01	n		2.2E-01	n	
				3.0E-02	I					1	0.019		Trinitrobenzene, 1,3,5-	99-35-4	2.2E+03	n	3.2E+04	n					5.9E+02	n		2.1E+00	n	
3.0E-02	I			5.0E-04	I					1	0.032		Trinitrotoluene, 2,4,6-	118-96-7	2.1E+01	c**	9.6E+01	c**					2.5E+00	c**		1.5E-02	c**	
				2.0E-02	P					1	0.1		Triphenylphosphine Oxide	791-28-6	1.3E+03	n	1.6E+04	n					3.6E+02	n		1.5E+00	n	
				2.0E-02	A					1	0.1		Tris(1,3-Dichloro-2-propyl) Phosphate	13674-87-8	1.3E+03	n	1.6E+04	n					3.6E+02	n		8.0E+00	n	
				1.0E-02	X					1	0.1		Tris(1-chloro-2-propyl)phosphate	13674-84-5	6.3E+02	n	8.2E+03	n					1.9E+02	n		6.5E-01	n	
2.3E+00	C	6.6E-04	C					V		1		4.7E+02	Tris(2,3-dibromopropyl)phosphate	126-72-7	2.8E-01	c	1.3E+00	c	4.3E-03	c	1.9E-02	c	6.8E-03	c		1.3E-04	c	
2.0E-02	P			7.0E-03	P					1	0.1		Tris(2-chloroethyl)phosphate	115-96-8	2.7E+01	c*	1.1E+02	c*					3.8E+00	c*		3.8E-03	c*	
3.2E-03	P			1.0E-01	P					1	0.1		Tris(2-ethylhexyl)phosphate	78-42-2	1.7E+02	c*	7.2E+02	c					2.4E+01	c*		1.2E+02	c*	
				8.0E-04	P					1			Tungsten	7440-33-7	6.3E+01	n	9.3E+02	n					1.6E+01	n		2.4E+00	n	
				3.0E-03	I	4.0E-05	A			1			Uranium (Soluble Salts)	NA	2.3E+02	n	3.5E+03	n	4.2E-02	n	1.8E-01	n	6.0E+01	n	3.0E+01	2.7E+01	n	1.4E+01
1.0E+00	C	2.9E-04	C						M	1	0.1		Urethane	51-79-6	1.2E-01	c	2.3E+00	c	3.5E-03	c	4.2E-02	c	2.5E-02	c		5.6E-06	c	
				5.0E-03	S	1.0E-04	A			0.026			Vanadium and Compounds	7440-62-2	3.9E+02	n	5.8E+03	n	1.0E-01	n	4.4E-01	n	8.6E+01	n		8.6E+01	n	
				2.5E-02	I					1	0.1		Vinclozolin	50471-44-8	1.6E+03	n	2.1E+04	n					4.4E+02	n		3.4E-01	n	
				1.0E+00	H	2.0E-01	I	V		1		2.8E+03	Vinyl Acetate	108-05-4	9.1E+02	n	3.8E+03	ns	2.1E+02	n	8.8E+02	n	4.1E+02	n		8.7E-02	n	
		3.2E-05	H			3.0E-03	I	V		1		2.5E+03	Vinyl Bromide	593-60-2	1.2E-01	c*	5.2E-01	c*	8.8E-02	c*	3.8E-01	c*	1.8E-01	c*		5.1E-05	c*	
7.2E-01	I	4.4E-06	I	3.0E-03	I	1.0E-01	I	V	M	1		3.9E+03	Vinyl Chloride	75-01-4	5.9E-02	c	1.7E+00	c	1.7E-01	c	2.8E+00	c	1.9E-02	c	2.0E+00	6.5E-06	c	6.9E-04
				3.0E-04	I					1	0.1		Warfarin	81-81-2	1.9E+01	n	2.5E+02	n					5.6E+00	n		5.9E-03	n	
				2.0E-01	S	1.0E-01	S	V		1		3.9E+02	Xylene, P-	106-42-3	5.6E+02	ns	2.4E+03	ns	1.0E+02	n	4.4E+02	n	1.9E+02	n		1.9E-01	n	
				2.0E-01	S	1.0E-01	S	V		1		3.9E+02	Xylene, m-	108-38-3	5.5E+02	ns	2.4E+03	ns	1.0E+02	n	4.4E+02	n	1.9E+02	n		1.9E-01	n	
				2.0E-01	S	1.0E-01	S	V		1		4.3E+02	Xylene, o-	95-47-6	6.5E+02	ns	2.8E+03	ns	1.0E+02	n	4.4E+02	n	1.9E+02	n		1.9E-01	n	
				2.0E-01	I	1.0E-01	I	V		1		2.6E+02	Xylenes	1330-20-7	5.8E+02	ns	2.5E+03	ns	1.0E+02	n	4.4E+02	n	1.9E+02	n	1.0E+04	1.9E-01	n	9.9E+00
				3.0E-04	I					1			Zinc Phosphide	1314-84-7	2.3E+01	n	3.5E+02	n					6.0E+00	n			n	
				3.0E-01	I					1			Zinc and Compounds	7440-66-6	2.3E+04	n	3.5E+05	nm					6.0E+03	n		3.7E+02	n	
				5.0E-02	I					1	0.1		Zineb	12122-67-7	3.2E+03	n	4.1E+04	n					9.9E+02	n		2.9E+00	n	
				8.0E-05	X					1			Zirconium	7440-67-7	6.3E+00	n	9.3E+01	n					1.6E+00	n		4.8E+00	n	

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Site Remediation and Waste Management Program
DIVISION OF ENFORCEMENT, TECHNICAL & FINANCIAL SUPPORT
BUREAU OF ENVIRONMENTAL EVALUATION AND RISK ASSESSMENT
401 East State Street
P.O. Box 420, Mail Code 401-05W
Trenton, NJ 08625-0420
Tel: (609) 633-7413
Fax: (609) 633-2360

PHIL MURPHY
Governor

SHEILA OLIVER
Lt. Governor

CATHERINE MCCABE
Commissioner

MEMORANDUM

TO: *David Doyle, Remediation Oversight Element*

FROM: *Erica Snyder, Research Scientist, BEERA/ETRA*

SUBJECT: *Hudson County Chrome Site 65*
Alternative Soil Remediation Standards for Vanadium and Nickel
PI# G000008693

DATE: *September 19, 2018*

As requested, ETRA has evaluated an Alternative or New Soil Remediation Standard (ARS) Application Form (dated September 10, 2018) submitted to the Department for the above Hudson County Chrome Site 65 at Burma Road and Morris Pesin Drive, Jersey City, New Jersey. The property is under direct oversight pursuant to an Administrative Consent Order (ACO)/Judicial Consent Order (JCO) and does not have a Licensed Site Remediation Professional (LSRP) assigned to the site. ARS were requested for vanadium, based on the ingestion-dermal pathway, and nickel, based on the impact to ground water (IGW) pathway. See comments for each contaminant below.

Vanadium

The submittal requested that an ARS for vanadium of 390 mg/kg for residential use is appropriate based on updated toxicity information found in EPA's *Integrated Risk Information System (IRIS)* and recorded in EPA's *Regional Screening Level (RSL) Tables (May 2018).* The concentration of vanadium on site ranged up to 543 mg/kg, which exceeds the current vanadium residential standard (78 mg/kg) and the vanadium ARS of 390 mg/kg for residential use that is being requested.

The justification memo submitted with the vanadium ARS application states, "pursuant to the settlement agreement, the parties involved agreed that the soils remedy to be implemented by PPG for HCC Site 65 would be a restricted use remedy. An asphalt road surface covering Site 65 shall function as an engineering control and a Notice in Lieu of Deed Notice shall function as

an institutional control". With proper institutional and engineering controls in place, along with a remedial action permit, the non-residential Direct Contact Soil Remediation Standard (SRS) for vanadium of 1,100 mg/kg would apply to this site. The maximum concentration of vanadium (543 mg/kg) found at HCC Site 65 is well below the non-residential SRS.

The submittal has been reviewed and an ARS for vanadium of 390 mg/kg for residential use is approved on a site-specific basis using DEP standard exposure assumptions. If the decision is made to apply the residential ARS for vanadium (390 mg/kg) to the site rather than the non-residential SRS of 1,100 mg/kg, vanadium concentrations above 390 mg/kg must be addressed in accordance with N.J.A.C. 7:26C, 7:26E, and the *Technical Guidance for the Attainment of Remediation Standards and Site-Specific Criteria.*

Nickel

The SPLP spreadsheet included with the submission was reviewed and provided that the sampling is representative of the Area of Concern (AOC) and the QA/QC is acceptable, the proposed IGWSRS of 205 mg/kg for nickel is approved.

If you have any questions regarding this notice, you may contact Erica Snyder at (609) 984-0325 for issues related to the ingestion-dermal pathway or Swati Toppin at (609) 777-1950 for issues related to the IGW pathway.

c: Kevin Schick, Bureau Chief, BEERA
Swati Toppin, BEERA/ETRA