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March 13, 2015

Ms. Ioana Munteanu-Ramnic
Division of Environmental Remediation
New York State Department of Environmental Conservation
47-40 21st Street
Long Island City, New York 11101

Re: Supplemental Permeable Reactive Barrier Injection Work Plan
Kent & Wythe Owners LLC
Site Number C224159
149 Kent Avenue, Brooklyn, New York

Dear Ms. Munteanu-Ramnic:

On behalf of Kent & Wythe Owners LLC, 149 Kent Avenue LLC, and The Western Carpet and Linoleum Co. Inc. (collectively, Volunteer), Roux Associates, Inc. and Remedial Engineering, P.C., have prepared this supplemental permeable reactive barrier (PRB) work plan for the property located at 149 Kent Avenue, Brooklyn, New York (Site). The attached United States Geological Survey (USGS) topographical quadrangle map (Figure 1) shows the Site location.

The Volunteer entered into a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) in August 2012, to investigate and remediate a 0.92-acre Site under the Brownfield Cleanup Program (BCP). For details regarding Site background, proposed Site use (restricted residential) and the overall preferred remedy for the Site, refer to the Remedial Action Work Plan (RAWP), dated December 7, 2013. The original PRB was installed in April 2014 in accordance with the "Revised Permeable Reactive Barrier Design", dated March 31, 2014, which was approved by NYSDEC on April 2, 2014. The original PRB installed in 2014 consisted of 10 zero valent iron (ZVI) injection points (IP-5 through IP-14), with a total of 28,500 pounds of ZVI.

Rationale for the Supplemental Injections

This work plan describes supplemental PRB injections intended to improve the performance of a section of the original PRB. The supplemental PRB injections will be completed in the sidewalk of North 5th Street adjacent to previous injections IP-13 an IP-14 (see Figure 2). The supplemental PRB injections are required because concentrations of chlorinated volatile organic compounds (CVOCs) in offsite well OW-5 did not decline after the injections were completed in April 2014, and have instead increased. Groundwater sampling results for volatile organic compounds (VOCs) from the baseline sampling round and five post remediation rounds are included in Table 1 (detections only). Groundwater sampling results for other parameters evaluated as part of the PRB performance monitoring (metals, total organic carbon [TOC], sulfate and nitrate) are included in Tables 2 and 3 (detections only).

The reason that the injections in this area of the Site were not as effective as the PRB injections upgradient of OW-4 is not fully understood. IP-13 and IP-14, which are upgradient of OW-5, were the most difficult to inject. In addition, dewatering during construction and deep excavations at the hot spots temporarily changed the groundwater flow directions, all of which may have contributed, in whole or in part, to the injections at IP-13 and IP-14 not being as effective as it was elsewhere.

Supplemental PRB Materials and Procedures

The reagent to be used for the supplemental PRB injections is comprised of zero valent iron (ZVI) and emulsified vegetable oil (EVO). The product is sold under the trade name of Ferox Plus™.

Ferox Plus™ is designed to stimulate both chemical reduction and anaerobic reductive dechlorination in a long-lasting and easily distributable format. The EVO, which was not included during the 2014 injection program, serves as an electron donor to enhance *in situ* bioremediation of CVOCs by anaerobic degradation, resulting in benign end products. ZVI promotes the degradation of CVOCs in groundwater through a variety of abiotic and biological processes. ZVI has been known to treat CVOCs by:

- Direct reduction at the metal surface;
- Reduction by ferrous iron; and
- Reduction by hydrogen with catalysis.

Approximately 5,500 pounds of Ferox Plus™ are proposed to be injected into the six injection points. The Ferox Plus™ will be provided by and injected into the subsurface by ARS Technologies, Inc. (ARS) of New Brunswick, New Jersey.

This supplemental PRB injection plan involves six injection points in the sidewalk of North 5th Street. The aerial extent of the injections is intended to encompass the area between the previously anticipated injection zones of IP-13 and IP-14 (approximately 36 feet). The PRB injections will be located 6 feet-on-center, in order to provide significant overlap, even if injection conditions are difficult similar to last year. The anticipated actual radius of influence is five to eight feet.

The vertical injection zone at each injection point will be 20 feet (from elevation +2 feet to -18 feet as referenced to the Brooklyn Borough Topographic/ Highway Datum). Approximately 5,500 pounds of Ferox Plus™ are proposed to be injected into the six injection points in accordance with ARS' recommended dosage. ARS' recommended dosage is based upon a 1.5% Ferox Plus™ to soil mass ratio, which equates to roughly 0.5% ZVI to soil mass ratio and a 0.5 % EVO to soil mass ratio. This dosage provides more than enough ZVI and EVO to accomplish the dechlorination of the CVOCs in groundwater, taking into consideration the Site-specific groundwater chemistry established through the ongoing sampling. A United States Environmental Protection Agency (USEPA) underground injection control (UIC) notification was submitted to USEPA on March 13, 2015 and is included as Attachment 1.

Performance monitoring for the supplemental PRB injections (OW-5) will provide sufficient data to assess whether the supplemental Ferox Plus™ injections were successful at meeting the Remedial Action Objectives for groundwater discussed in the RAWP.

Groundwater Monitoring

To assess the performance of the supplemental PRB injections, the groundwater monitoring program will be continued. To date, the baseline sampling round in April 2014 and five post-injection groundwater sampling rounds (May, July and October 2014 and January and March 2015) have been completed. The March 6, 2015 sampling round was completed to confirm the January 29, 2015 results and to provide a baseline for the supplemental PRB injections. The sampling, sample handling, decontamination, and field instrument calibration procedures will be performed in accordance with the NYSDEC-approved Quality Assurance Project Plan (QAPP) for the Site.

Following the supplemental PRB injections, four additional rounds of quarterly sampling will be completed at offsite monitoring well OW-5 (eight quarterly rounds total following implementation of the original PRB, not including the March 2015 round), at which time the Volunteer will request to discontinue sampling if concentration reductions are observed. As stated in the approved RAWP, if during the monitoring period an increase in concentrations is observed at wells OW-4 and OW-5 located near the corner of Kent Avenue and North 5th Street after concentrations were observed to decrease in these wells, it will not be the responsibility of the Volunteer to pursue any additional remedial activities (due to the likelihood of an ongoing upgradient source at 135 Kent Avenue). Any modification to the sampling schedule and any decision to discontinue groundwater monitoring will be subject to NYSDEC and New York State Department of Health (NYSDOH) approval.

Well OW-5 will be sampled and analyzed for VOCs, TOC and sulfate. Sampling for semivolatile organic compounds (SVOCs), metals, pesticides, and polychlorinated biphenyls (PCBs) will not be conducted, as these are not constituents of concern onsite. Prior to sample and data collection, the monitoring wells will be purged via low-flow means using a bladder pump. Samples and parameter readings will be collected using a flow-through cell to prevent sample contact with atmospheric air.

All laboratory samples will be submitted to a New York Environmental Laboratory Approval Program (ELAP) certified laboratory for analysis. All groundwater samples will be placed in the laboratory-supplied containers, stored on ice, and transported to the laboratory under chain of custody procedures in accordance with the QAPP. The data will be reported in Category B Deliverables and Target Compound List VOC data will be validated with a Data Usability Summary Report (DUSR) prepared.

Data Evaluation and Reporting

Progress updates will be provided to the NYSDEC in Daily Reports in accordance with the RAWP. Data from each of the ongoing performance monitoring events will be submitted with the appropriate monthly report. All of the performance monitoring data and associated DUSRs will be included in the Final Engineering Report.

SCHEDULE

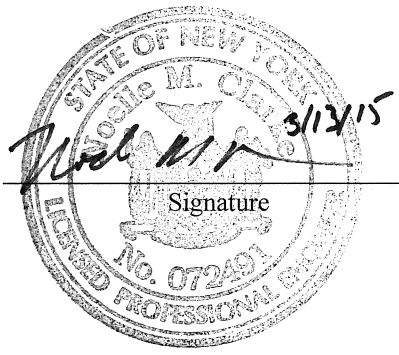
The anticipated schedule for the supplemental PRB installation is as follows:

- Supplemental PRB Injection Event – March 30, 2015 to April 3, 2015
- First Quarter Performance Monitoring Sampling Event (approximately one month following the supplemental PRB injections) – May 2015
- Second Quarter Performance Monitoring Sampling Event – August, 2015
- Third Quarter Performance Monitoring Sampling Event – November 2015
- Fourth Quarter Performance Monitoring Sampling Event – February 2016

The above schedule may be altered based on the performance monitoring results. Please contact Noelle M. Clarke, P.E., or David Bligh, P.E., by telephone at 631-232-2600 or by email at nclarke@rouxinc.com or dbligh@rouxinc.com if you have any questions or require additional information.

CERTIFICATION

I, Noelle M. Clarke, P.E., am currently a registered professional engineer licensed by the State of New York. I certify that this Supplemental Permeable Reactive Barrier Injection Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities will be performed in full accordance with DER-approved work plans and any DER-approved modifications.



Noelle M. Clarke, P.E.	March 13, 2015	Signature
NYS Professional Engineer #072491	Date	

It is a violation of Article 145 of New York State Education Law for any person to alter this document in any way without the express written verification of adoption by any New York State licensed engineer in accordance with Section 7209(2), Article 130, New York State Education Law.

cc: Jane O'Connell, New York State Department of Environmental Conservation
Albert DeMarco, New York State Department of Health
Tell Metzger, Kent & Wythe Owners LLC
Joseph Duminuco, Roux Associates, Inc.

Attachments

Table 1. Summary of Volatile Organic Compounds in Groundwater, 149 Kent Avenue, New York, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	**Sample Designation:** **Sample Date:**	OW-3 1/23/2014	OW-3 3/10/2014	OW-3 DUP 3/10/2014	OW-3 4/14/2014	OW-3 7/23/2014	OW-3 10/30/2014
1,2-Dichloropropane	1		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	50		3.4 J	5.0 U	5.0 U	5.0 U	2.9 J	1.8 J
Benzene	1		0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloroform	7		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
cis-1,2-Dichloroethene	5		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Tetrachloroethene	5		2.9	0.50 U	0.50 U	0.50 U	0.64	0.76
Trichloroethene	5		0.63	0.50 U	0.50 U	0.50 U	0.50 U	0.58
Trichlorofluoromethane	5		2.5 U	4.7	4.7	3.5	2.5 U	2.5 U
Vinyl chloride	2		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

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1,2-Dichloropropane	1		1.0 U	500 U	500 U	400 U	400 U	250 U
Acetone	50		5.0 U	2500 U	2500 U	**930 J**	**850 J**	1200 U
Benzene	1		0.5 U	250 U	250 U	200 U	**260**	120 U
Chloroform	7		2.5 U	1200 U	1200 U	1000 U	1000 U	620 U
cis-1,2-Dichloroethene	5		2.5 U	1200 U	1200 U	**340 J**	**350 J**	**240 J**
Tetrachloroethene	5		2.4	**23000**	**31000**	**37000**	**38000**	**32000**
Trichloroethene	5		0.5 U	250 U	250 U	**170 J**	**160 J**	**130**
Trichlorofluoromethane	5		2.5 U	1200 U	1200 U	1000 U	1000 U	620 U
Vinyl chloride	2		1.0 U	500 U	500 U	400 U	400 U	250 U

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1,2-Dichloropropane	1		50 U	25 U	20 U	20 U	20 U	4.0 U
Acetone	50		250 U	120 U	30 J	100 U	100 U	20. U
Benzene	1		25 U	12 U	10 U	10 U	10 U	2.0 U
Chloroform	7		120 U	62 U	50 U	50 U	50 U	10 U
cis-1,2-Dichloroethene	5		**670**	**590**	**650**	**670**	**650**	10. U
Tetrachloroethene	5		**2000**	**1600**	**1300**	**1600**	**1500**	**200**
Trichloroethene	5		**99**	**130**	**150**	**140**	**130**	**7.2**
Trichlorofluoromethane	5		120 U	62 U	50 U	50 U	50 U	10. U
Vinyl chloride	2		50 U	**16 J**	**10 J**	**8.0 J**	**6.7 J**	NA

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1,2-Dichloropropane	1		**9.9**	**80**	**89**	40 U	40 U	50 U
Acetone	50		10 J	24 J	100 U	200 U	200 U	250 U
Benzene	1		2.5 U	10. U	10. U	20 U	20 U	25 U
Chloroform	7		3.8 J	50. U	50. U	100 U	100 U	120 U
cis-1,2-Dichloroethene	5		12 U	**310**	**290**	**120**	**120**	**350**
Tetrachloroethene	5		**670**	**1600**	**1600**	**1300**	**1500**	**3100**
Trichloroethene	5		**7.7**	**120**	**110**	**52**	**56**	**110**
Trichlorofluoromethane	5		12. U	50. U	50. U	100 U	100 U	120 U
Vinyl chloride	2		12. U	50. U	50. U	100 U	100 U	50 U

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1,2-Dichloropropane	1		100 U	50 U
Acetone	50		500 U	250 U
Benzene	1		50 U	25 U
Chloroform	7		250 U	120 U
cis-1,2-Dichloroethene	5		**400**	**370**
Tetrachloroethene	5		**4200**	**5200**
Trichloroethene	5		**140**	**140**
Trichlorofluoromethane	5		250 U	120 U
Vinyl chloride	2		100 U	50 U

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Table 2. Summary of Metals in Groundwater, 149 Kent Avenue, New York, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	**Sample Designation:** **Sample Date:**	OW-3 1/23/2014	OW-3 1/23/2014 Filtered	OW-3 3/10/2014	OW-3 3/10/2014 Filtered	OW-3 DUP 3/10/2014	OW-3 DUP 3/10/2014 Filtered	OW-3 4/14/2014
Iron	300		**9990**	172	**1310**	**531**	**1480**	**565**	**17400**
Manganese	300		**2511**	**2358**	**3931**	**3946**	**4224**	**3896**	**5136**

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Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	**Sample Designation:** / **Sample Date:**	OW-3 4/14/2014 Filtered	OW-3 10/30/2014	OW-3 10/30/2014 Filtered	OW-3 1/29/2015 Total	OW-3 1/29/2015 Filtered	OW-4 4/14/2014	OW-4 4/14/2014 Filtered
Iron	300		1000 U	**23000**	26 J	**2970**	22.8 J	223	1000 U
Manganese	300		**4898**	**2198**	**1629**	**743**	**493.4**	**2998**	**2972**

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Table 2. Summary of Metals in Groundwater, 149 Kent Avenue, New York, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	**Sample Designation:** **Sample Date:**	OW-4 DUP 4/14/2014	OW-4 DUP 4/14/2014 Filtered	OW-4 5/14/2014	OW-4 5/14/2014 Filtered	OW-4 DUP 5/14/2014	OW-4 DUP 5/14/2014 Filtered	OW-4 7/23/2014
Iron	300		280	1000 U	**4490**	100 U	**2730**	100 U	**4950**
Manganese	300		**2996**	**2836**	**11940**	**13340**	**11610**	**11140**	**10070**

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Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	**Sample Designation:** / **Sample Date:**	OW-4 7/23/2014 Filtered	OW-4 10/30/2014	OW-4 10/30/2014 Filtered	OW-5 4/14/2014	OW-4 1/29/2015 Total	OW-4 1/29/2015 Filtered	OW-5 4/14/2014 Filtered
Iron	300		**329**	**1530**	47.1 J	**500**	**548**	145	1000 U
Manganese	300		**10870**	**8928**	**7176**	**1195**	**8680**	**8160**	**1075**

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Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	**Sample Designation:** **Sample Date:**	OW-5 5/14/2014	OW-5 5/14/2014 Filtered	OW-5 7/23/2014	OW-5 7/23/2014 Filtered	OW-5 DUP 7/23/2014	OW-5 DUP 7/23/2014 Filtered	OW-5 10/30/2014
Iron	300		**5470**	100 U	**14400**	138	**5140**	179	**3550**
Manganese	300		**2179**	**1995**	**2780**	**2050**	**2494**	**2171**	**2904**

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Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	**Sample Designation:** **Sample Date:**	OW-5 10/30/2014 Filtered	OW-5 DUP 10/30/2014	OW-5 DUP 10/30/2014 Filtered	OW-5 1/29/2015 Total	OW-5 1/29/2015 Filtered	OW-5 DUP 1/29/2015 Total	OW-5 DUP 1/29/2015 Filtered
Iron	300		100 U	966	23.5 J	**1520**	100 U	**902**	24.2 J
Manganese	300		**2586**	**2748**	**2629**	**2008**	**2062**	**1873**	**2060**

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Table 3. Summary of General Chemistry in Groundwater, 149 Kent Avenue, New York, New York

Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	**Sample Designation:** **Sample Date:**	OW-3 1/23/2014	OW-3 3/10/2014	OW-3 DUP 3/10/2014	OW-3 4/14/2014	OW-3 10/30/2014	OW-3 1/29/2015
Nitrate	--		53 J	100 U	100 U	65 J	64 J	129
Sulfate	250000		56000	86000	86000	88000	135000	51000
Total Organic Carbon	--		10500	11000	11000	8800	8790	4960

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Nitrate	--		926	1560	4750	4560	6670	410
Sulfate	250000		110000	100000	120000	130000	91000	117000
Total Organic Carbon	--		5900	5800	5890	5670	14700	10500

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Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	**Sample Designation:** **Sample Date:**	OW-4 1/29/2015	OW-5 4/14/2014	OW-5 5/14/2014	OW-5 7/23/2014	OW-5 DUP 7/23/2014	OW-5 10/30/2014
Nitrate	--		57 J	10500	4530	1890	1900	2200
Sulfate	250000		89000	96000	94000	91000	88000	150000
Total Organic Carbon	--		5120	2500	2500	3660	3780	5400

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Parameter (Concentrations in µg/L)	NYSDEC AWQSGVs (µg/L)	**Sample Designation:**	OW-5 DUP	OW-5	OW-5 DUP
		Sample Date:	10/30/2014	1/29/2015	1/29/2015
Nitrate	--		2500	1640	1800
Sulfate	250000		150000	81000	81000
Total Organic Carbon	--		5200	3590	3110

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QUADRANGLE LOCATION

SOURCE:
USGS; 1995, BROOKLYN, NY
7.5 Minute Topographic Quadrangle

N

0 1000'

Title:

SITE LOCATION MAP

149 KENT AVENUE
BROOKLYN, NEW YORK

Prepared for:

KENT & WYTHE OWNERS LLC

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: D.T.B.	Date: 10MAR15	FIGURE
Prepared by: J.A.D.	Scale: AS SHOWN	1
Project Mgr.: J.D.	Project No.: 2158.0001Y004	
File: 2158.0002Y202.01.CDR		

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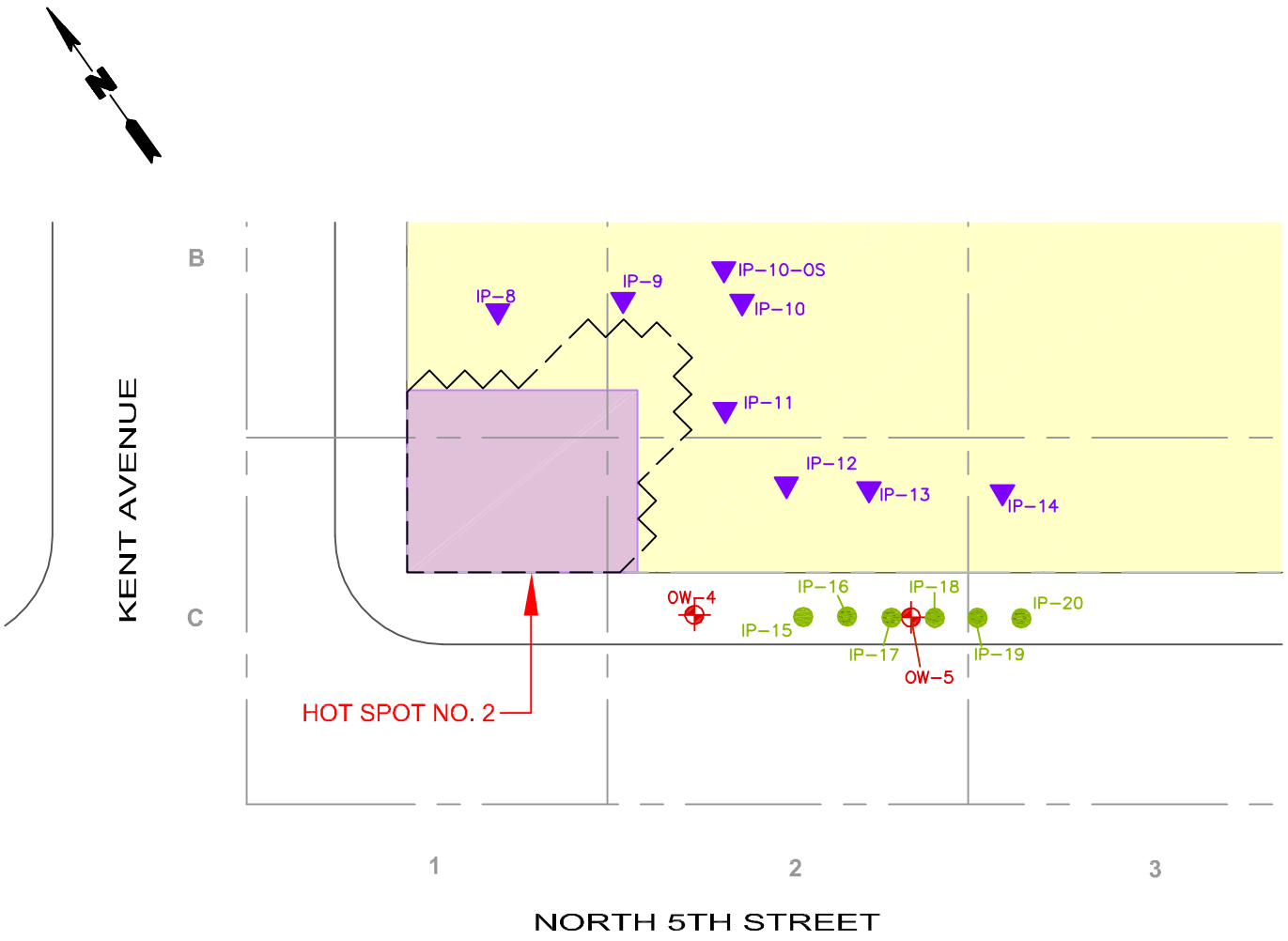

LEGEND

IP-8 ▼	2014 IN SITU ZERO VALENT IRON INJECTION POINT
IP-15 ●	2015 PROPOSED SUPPLEMENTAL PRB INJECTION POINT
OW-4 ⊕	LOCATION OF EXISTING OFFSITE MONITORING WELL
▭	LIMITS OF EXCAVATION AND BACKFILL REQUIRED FOR REMEDIATION PURPOSES TO –19 FEET ELEVATION
▭	LIMITS OF SITE COVER SYSTEM AND EXCAVATION
— — —	ACTUAL LIMITS OF EXCAVATION AND BACKFILL TO –19 FEET ELEVATION IN HOT SPOT 2
— - —	ALPHA–NUMERIC GRID LINE
PRB	PERMEABLE REACTIVE BARRIER

NOTE

ELEVATIONS ARE REFERENCED TO BROOKLYN BOROUGH TOPOGRAPHIC/ HIGHWAY DATUM

25' 0 25'

Title:

PROPOSED SUPPLEMENTAL PRB INJECTIONS

149 KENT AVENUE
BROOKLYN, NEW YORK

Prepared For:

KENT & WYTHE OWNERS LLC

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: N.C.	Date: 10MAR15	FIGURE
Prepared by: J.A.D.	Scale: AS SHOWN	2
Project Mgr: D.B.	Project: 2158.0001Y004	
File: 2158.0001Y202.02.DWG		

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ATTACHMENT 1

USEPA
Underground Injection Control (UIC)
Notification

ENVIRONMENTAL CONSULTING & MANAGEMENT
ROUX ASSOCIATES INC

209 SHAFTER STREET
Islandia, New York 11749-5074 TEL 631-232-2600 FAX 631-232-9898

March 13, 2015

Ms. Nicole Kraft
Chief – Groundwater Compliance Section
United States Environmental Protection Agency
290 Broadway, 20th Floor
New York, New York 10007-1866

Re: Zero Valent Iron and Emulsified Vegetable Oil Injection Program
Kent & Wythe Owners LLC
149 Kent Avenue, Brooklyn, New York

Dear Ms. Kraft:

Roux Associates, Inc. (Roux Associates) and Remedial Engineering, P.C. (Remedial Engineering), on behalf of Kent & Wythe Owners LLC, 149 Kent Avenue LLC, and The Western Carpet and Linoleum Co. Inc. (collectively, Volunteer) have proposed to utilize a supplemental injection program to further remediate the subsurface at 149 Kent Avenue, Brooklyn, New York (Site).

This letter and the enclosed application form were prepared in accordance with 40 CFR Part 144 of the United States Environmental Protection Agency's (USEPA) Underground Injection Control (UIC) program. The application form is enclosed as Attachment 1.

The Site is in the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) and the proposed injection program is being implemented in accordance with the Site's remedial action work plan. The Site is represented by NYSDEC BCP Site No.C224159. The NYSDEC case manager for the Site is Ms. Ioana Munteanu-Ramnic (718-482-4065).

Site Background

A single building constructed of concrete block, exposed steel beams and exposed aluminum sheeting roof encompassed the entire Site from 1988 to 2013. The Site building, located at 149 Kent Avenue, Brooklyn, New York, was a slab on-grade vacant structure that was demolished in January 2014 prior to redevelopment. The redevelopment process is currently underway, with construction of the concrete foundation nearly completed.

Prior investigations identified multiple contaminants of concern including chlorinated volatile organic compounds (CVOC) in soil, groundwater, and soil vapor. A significant portion of the most heavily impacted soil in the property was removed during anticipated

remedial excavation. An injection program was completed in April 2014 in the area of North 5th Street and Kent Avenue as detailed in the UIC submittal dated December 4, 2013. The original injection program consisted of injecting 28,500 pounds of zero valent iron (ZVI) into ten injection points. Performance monitoring of groundwater monitoring wells OW-4 and OW-5 indicates that the April 2014 injection program was successful at treating groundwater contamination at OW-4 but well OW-5 requires additional treatment. Application of this supplemental *in situ* injection program is proposed to address the remaining groundwater impacts around monitoring well OW-5 as shown on Figure 1.

Injection Material and Procedures

The reagent to be used for these supplemental injections is comprised of ZVI and emulsified vegetable oil (EVO). The product is sold under the trade name of Ferox Plus™. A material safety data sheet for Ferox Plus™ is included as Attachment 2.

Ferox Plus™ is designed to stimulate both chemical reduction and anaerobic reductive dechlorination in a long-lasting and easily distributable format. The EVO serves as an electron donor to enhance *in situ* bioremediation of CVOCs by anaerobic degradation, resulting in benign end products. ZVI promotes the degradation of CVOCs in groundwater through a variety of abiotic and biological processes. ZVI has been known to treat CVOCs by:

- Direct reduction at the metal surface;
- Reduction by ferrous iron; and
- Reduction by hydrogen with catalysis.

Approximately 5,500 pounds of Ferox Plus™ are proposed to be injected into the six injection points. The Ferox Plus™ will be provided by and injected into the subsurface by ARS Technologies, Inc. (ARS) of New Brunswick, New Jersey.

This injection plan involves six injection points in the sidewalk of North 5th Street. The injections will be located 6 feet-on-center, in order to provide significant overlap, even if injection conditions are difficult. The anticipated actual radius of influence is five to eight feet.

The vertical injection zone at each injection point will be 20 feet (from elevation +2 feet to -18 feet as referenced to the Brooklyn Borough Topographic/ Highway Datum).

Data Evaluation and Reporting

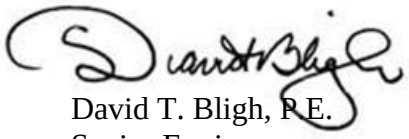
To date, the baseline sampling round in April 2014 and five post-injection groundwater sampling rounds (May, July and October 2014 and January and March 2015) have been completed. The March 6, 2015 sampling round was completed to confirm the January 29, 2015 results and to provide a baseline for the supplemental injections.

Following the supplemental injections, four additional rounds of quarterly sampling will be completed at offsite monitoring well OW-5 (eight quarterly rounds total following implementation of the original injection program, not including the March 2015 round), at which time the Volunteer will request to discontinue sampling if concentration reductions are observed.

Please call if you have any questions or require additional information.

Sincerely,

ROUX ASSOCIATES, INC.



David T. Bligh, P.E.
Senior Engineer

cc: Ioana Munteanu-Ramnic, NYSDEC
Tell Metzger, Kent & Wythe Owners LLC
Noelle Clarke, P.E., Roux Associates, Inc.
Joseph Duminuco, Roux Associates, Inc.

USEPA — Inventory of Injection Wells

Type or print all information. See reverse for instructions. OMB No. 2040-0042 Approval Expires 4/30/07

INVENTORY OF INJECTION WELLS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF GROUND WATER AND DRINKING WATER

(This information is collected under the authority of the Safe Drinking Water Act)

1. DATE PREPARED *(Year, Month, Day)*: 15-03-13

2. FACILITY ID NUMBER:

PAPERWORK REDUCTION ACT NOTICE

The public reporting burden for this collection of information is estimated at about 0.5 hour per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, 2136, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460, and to the Office of Management and Budget, Paperwork Reduction Project, Washington, DC 20503.

3. TRANSACTION TYPE *(Please mark one of the following)*

- [ ] Deletion
- [x] First Time Entry
- [ ] Entry Change
- [ ] Replacement

4. FACILITY NAME AND LOCATION

A. NAME *(last, first, and middle initial)*: Kent & Wythe Owners LLC

B. STREET ADDRESS/ROUTE NUMBER: 149 Kent Avenue

C. LATITUDE

DEG	MIN	SEC
40	43	8.27

D. LONGITUDE

DEG	MIN	SEC
73	57	43.48

E. TOWNSHIP/RANGE

TOWNSHIP	RANGE	SECT	1/4 SECT

F. CITY/TOWN: Brooklyn

G. STATE: NY

H. ZIP CODE: 11249

I. NUMERIC COUNTY CODE: 47

J. INDIAN LAND *(mark "x")*: [ ] Yes [x] No

5. LEGAL CONTACT:

A. TYPE *(mark "x")*: [x] Owner [ ] Operator

B. NAME *(last, first, and middle initial)*: Kent & Wythe Owners LLC c/o Tell Metzger

C. PHONE *(area code and number)*: (914) 469-1873

D. ORGANIZATION: Kent & Wythe Owners LLC

E. STREET/P.O. BOX: 1865 Palmer Avenue, Suite 203

F. CITY/TOWN: Larchmont

G. STATE: NY

H. ZIP CODE: 10538

I. OWNERSHIP *(mark "x")*

- [x] PRIVATE
- [ ] PUBLIC
- [ ] SPECIFY OTHER
- [ ] STATE
- [ ] FEDERAL

6. WELL INFORMATION:

A. CLASS AND TYPE		B. NUMBER OF WELLS		C. TOTAL NUMBER OF WELLS	D. WELL OPERATION STATUS				
		COMM	NON-COMM		UC	AC	TA	PA	AN
5	B		6	6	6				
				0					
				0					
				0					
				0					
				0					
				0					

COMMENTS *(Optional)*:

The accompanying cover letter provides additional details about the injection program.

KEY:

DEG = Degree
MIN = Minute
SEC = Second
SECT = Section
1/4 SECT = Quarter Section

COMM = Commercial
NON-COMM = Non-Commercial
AC = Active
UC = Under Construction
TA = Temporarily Abandoned
PA = Permanently Abandoned and Approved by State
AN = Permanently Abandoned and not Approved by State

SECTION 1. DATE PREPARED: Enter date in order of year, month, and day.

SECTION 2. FACILITY ID NUMBER: In the first two spaces, insert the appropriate U.S. Postal Service State Code. In the third space, insert one of the following one letter alphabetic identifiers:

D - DUNS Number,
G - GSA Number, or
S - State Facility Number.

In the remaining spaces, insert the appropriate nine digit DUNS, GSA, or State Facility Number. For example, A Federal facility (GSA - 123456789) located in Virginia would be entered as : VAG123456789.

SECTION 3. TRANSACTION TYPE: Place an "x" in the applicable box. See below for further instructions.

Deletion. Fill in the Facility ID Number.

First Time Entry. Fill in all the appropriate information.

Entry Change. Fill in the Facility ID Number and the information that has changed.

Replacement.

SECTION 4. FACILITY NAME AND LOCATION:

A. Name. Fill in the facility's official or legal name.

B. Street Address. Self Explanatory.

C. Latitude. Enter the facility's latitude (all latitudes assume North Except for American Samoa).

D. Longitude. Enter the facility's longitude (all longitudes assume West except Guam).

E. Township/Range. Fill in the complete township and range. The first 3 spaces are numerical and the fourth is a letter (N,S,E,W) specifying a compass direction. A township is North or South of the baseline, and a range is East or West of the principal meridian (e.g., 132N, 343W).

F. City/Town. Self Explanatory.

G. State. Insert the U.S. Postal Service State abbreviation.

H. Zip Code. Insert the five digit zip code plus any extension.

SECTION 4. FACILITY NAME & LOCATION (CONT'D.):

I. Numeric County Code. Insert the numeric county code from the Federal Information Processing Standards Publication (FIPS Pub 6-1) June 15, 1970, U.S. Department of Commerce, National Bureau of Standards. For Alaska, use the Census Division Code developed by the U.S. Census Bureau.

J. Indian Land. Mark an "x" in the appropriate box (Yes or No) to indicate if the facility is located on Indian land.

SECTION 5. LEGAL CONTACT:

A. Type. Mark an "x" in the appropriate box to indicate the type of legal contact (Owner or Operator). For wells operated by lease, the operator is the legal contact.

B. Name. Self Explanatory.

C. Phone. Self Explanatory.

D. Organization. If the legal contact is an individual, give the name of the business organization to expedite mail distribution.

E. Street/P.O. Box. Self Explanatory.

F. City/Town. Self Explanatory.

G. State. Insert the U.S. Postal Service State abbreviation.

H. Zip Code. Insert the five digit zip code plus any extension.

I. Ownership. Place an "x" in the appropriate box to indicate ownership status.

SECTION 6. WELL INFORMATION:

A. Class and Type. Fill in the Class and Type of injection wells located at the listed facility. Use the most pertinent code (specified below) to accurately describe each type of injection well. For example, 2R for a Class II Enhanced Recovery Well, or 3M for a Class III Solution Mining Well, etc.

B. Number of Commercial and Non-Commercial Wells. Enter the total number of commercial and non-commercial wells for each Class/Type, as applicable.

C. Total Number of Wells. Enter the total number of injection wells for each specified Class/Type.

D. Well Operation Status. Enter the number of wells for each Class/Type under each operation status (see key on other side).

CLASS I Industrial, Municipal, and Radioactive Waste Disposal Wells used to inject waste below the lowermost Underground Source of Drinking Water (USDW).

TYPE		
	1I	Non-Hazardous Industrial Disposal Well.
	1M	Non-Hazardous Municipal Disposal Well.
	1H	Hazardous Waste Disposal Well injecting below the lowermost USDW.
	1R	Radioactive Waste Disposal Well.
	1X	Other Class I Wells.

CLASS II Oil and Gas Production and Storage Related Injection Wells.

TYPE		
	2A	Annular Disposal Well.
	2D	Produced Fluid Disposal Well.
	2H	Hydrocarbon Storage Well.
	2R	Enhanced Recovery Well.
	2X	Other Class II Wells.

CLASS III Special Process Injection Wells.

TYPE		
	3G	*In Situ* Gassification Well
	3M	Solution Mining Well.

CLASS III (CONT'D.)

TYPE		
	3S	Sulfur Mining Well by Frasch Process.
	3T	Geothermal Well.
	3U	Uranium Mining Well.
	3X	Other Class III Wells.

CLASS IV Wells that inject hazardous waste into/above USDWs.

TYPE		
	4H	Hazardous Facility Injection Well.
	4R	Remediation Well at RCRA or CERCLA site.

CLASS V Any Underground Injection Well not included in Classes I through IV.

TYPE		
	5A	Industrial Well.
	5B	Beneficial Use Well.
	5C	Fluid Return Well.
	5D	Sewage Treatment Effluent Well.
	5E	Cesspools (non-domestic).
	5F	Septic Systems.
	5G	Experimental Technology Well.
	5H	Drainage Well.
	5I	Mine Backfill Well.
	5J	Waste Discharge Well.

PAPERWORK REDUCTION ACT The public reporting and record keeping burden for this collection of information is estimated to average 0.5 hours per response. Burden means the total time, effort, or financial resource expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal Agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to the collection of information; search data sources; complete and review the collection of information; and, transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques to Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822), 1200 Pennsylvania Ave., NW., Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed forms to this address.

Material Safety Data Sheet

for Ferox Plus™

Hepure Technologies Inc

Committed to Comprehensive Environmental Solutions

Ferox Plus

MATERIAL SAFETY DATA SHEET

According to OSHA and ANSI

Reviewed on 5/1/2013

1. Identification of Substance

Trade Name: Ferox Plus

Supplier: Hepure Technologies, Inc.
63 Main Street, Suite 203B
Flemington, NJ 08822

Emergency Information: 908-510-3835 Dr. Robert Kelley

2. Composition/Data on Components

Ingredient	CAS #	Weight%	Hazardous
Food grade edible soy bean oil	8001-22-7	30-40%	No
Iron	7439-89-6	10-40%	No
Emulsifiers, thickeners, and proprietary nutrient package containing nitrogen, phosphorus and vitamin B_{12}	Mixture	3 - 6%	No
Sodium Lactate	867-56-1	2 - 4%	Yes
Water	7732-18-5	10 - 55%	No

3. Hazards Identification

Hazard Description:
Information pertaining to particular dangers for man and environment

R 36/37 Irritating to eyes and respiratory system.

4. First Aid Measures

After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Seek medical advice.

After skin contact

Immediately wash with water and soap and rinse thoroughly. Seek immediate medical advice.

After eye contact

Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing

Seek immediate medical advice.

Information for doctor

The following symptoms may occur: Nausea, Cramp, Gastric or intestinal disorders

5. Fire Fighting Measures

Suitable extinguishing agents: Extinguishing powder, dry chemical, sand, or graphite to smother fire. Use water only in mist/fog application to avoid spreading power/acclimated dust in surrounding area.

For safety reasons unsuitable extinguishing agents: Water, Carbon dioxide, Halogenated extinguisher

Protective equipment: Wear self-contained respirator. Wear fully protective impervious suit.

6. Accidental Release Measures

Person-related safety precautions:

Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation. Keep away from ignition sources.

Measures for cleaning/collecting:
Ensure adequate ventilation.
Keep away from ignition sources.

Additional information:
See section 7 for information on safe handling.
See section 8 for information on personal protection equipment.
See section 13 for disposal information.

7. Handing and Storage

Handling
Information for safe handling:
Keep container tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation at the workplace.

Information about protection against explosions and fires:
Keep ignition sources away.

Storage
Requirements to be met by storerooms and receptacles:
No special requirements.

Information about storage in one common facility:
Do not store together with oxidizing and acidic materials.
Store away from halogens.
Further information about storage containers:
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.

8. Exposure Controls and Personal Protection

Additional information about design of technical systems:
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per mile.

Components with limit values that require monitoring at the workplace: None required.

Additional Information: No data

Personal protective equipment

General protective and hygienic measures
The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages, and feed.
Remove all soiled and contaminated clothing immediately.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.

Breathing Equipment: Use suitable respirator when high concentrations are present.

Protection of hands: Impervious gloves

Eye protection: Safety glasses, full face protection.

Body protection: Protective work clothing.

9. Physical and Chemical Properties

Form: Viscous Liquid
Color: Grey
Odor: Odorless

Change in condition
Melting point / Melting range: - 20º C
Boiling point / Boiling range: >300º C
Sublimation temperature / start: Not determined
Flash point: >250º C
Ignition temperature: Not determined
Decomposition temperature: Not determined

Explosion limits:
Lower: Not determined
Upper: Not determined

Vapor pressure at 20º C: 1 mm Hg
Density at 20º C (68º F): 1.44 g/cc

Solubility in / Miscibility with water: Insoluble

10. Stability and Reactivity

Thermal decomposition / conditions to be avoided:
Decomposition will not occur if used and stored according to specifications.
Materials to be avoided:
Acids, Water / moisture, Oxidizing agents, Halogens

Reacts with strong oxidizing agents
Dangerous products of decomposition: Metal oxide fume

11. Toxicological Information

Acute toxicity:

LD / LC50 values that are relevant for classification:		
Oral	LD50	20000 mg/kg (gpg) 30000 mg/kg (rat)
	LDLo	20 mg/kg (rbt)

Primary irritant effect:

On the skin: Irritant to skin and mucous membranes.
On the eye: Irritating effect.
Sensitization: No sensitizing effects known.

Other information (about experimental toxicity):

Tumorigenic effects have been observed with laboratory animals.

Subacute to chronic toxicity:

Iron compounds may cause vomiting, diarrhea, pink urine, black stool, and liver damage. May cause damage to the kidneys. Irritating to the respiratory tract, they may cause pulmonary fibrosis if dusts are inhaled.

Additional toxicological information:

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.
The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for components in this product.
No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA, or ACGIH.

12. Ecological Information

General notes:

Do not allow material to be released to the environment without proper governmental permits.

13. Disposal Considerations

Product:
Recommendation:

Consult state, local or national regulations for proper disposal.

Uncleaned Packagings:

Recommendation:

Disposal must be made according to official regulations.

14. Transport Information

Shipping Information:

Not regulated as a hazardous material by DOT, IMO, or IATO.

Proper shipping-name (technical name): Emulsified Zero Valent Iron

15. Regulations

Product related hazard information:

Hazard symbols:

IX Irritant

Risk phrases:

36 / 37 Irritating to eyes and respiratory system.

Safety phrases:

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical Substance Inventory.

Information about limitation of use:

For use only by technically qualified individuals.

16. Other Information

Employees should use this information only as a supplement to other information gathered by them, and should make independent judgment of suitability of this information to ensure proper use and protect the healthy and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.