



July 10, 2025

Shawn Roberts, E.I.T.  
Assistant Engineer, Remediation Bureau B, Section E  
Division of Environmental Remediation  
New York State Department of Environmental Conservation  
625 Broadway  
Albany, New York 12233-7016

**RE: Remedial Design Work Plan  
399 Exterior Street Site  
BCP Site No. C203139**

Dear Mr. Roberts:

P.W. Grosser Consulting Engineer & Hydrogeologist, P.C. (PWGC) has prepared this Remedial Design Work Plan (RDWP) for the above referenced Site to further detail the remedial elements identified in the Remedial Action Work Plan (RAWP) prepared by PWGC in April 2021. The purpose of this workplan is to outline additional remedial measures as a contingency if Protection of Groundwater Soil Cleanup Objectives (SCOs) are exceeded at endpoint samples collected at 15 feet below grade.

From the April 2021 Remedial Investigation Report (RIR), the contaminants of concern where Protection of Groundwater SCOs are considered are for the following semi-volatile organic compounds (SVOCs):

Compound	AWQS / GV (µg/L)	Maximum Detection (µg/L)
Benzo(a)anthracene	0.002	0.823
Benzo(a)pyrene	Non-detect	0.971
Benzo(b)fluoranthene	0.002	1.04
Benzo(k)fluoranthene	0.002	0.823
Chrysene	0.002	0.846
Indeno(1,2,3-cd)Pyrene	0.002	0.400

These compounds contained an exceedance of New York State Department of Environmental Conservation (NYSDEC) Class GA ambient water quality standards (AWQS) or guidance values (GVs) as specified in the Technical Operation and Guidance Series (TOGS 1.1.1) Ambient Water Quality Standards and Guidance Values and were also detected in vadose zone soils at concentrations exceeding Protection of Groundwater SCOs.

It is typical that estimated (with a J qualifier), low-level concentrations are observed in groundwater samples collected throughout New York City, typically at estimated concentrations less than 0.1 µg/L; however, concentrations detected in MW001 on May 10, 2019 (as shown on the above table) do exceed these typical background concentrations, as well as the results from



MW002 on the same day and MW003 collected on November 20, 2020. A copy of the groundwater SVOC data table and groundwater spider diagram from the RIR have been included as **Attachment A**.

These exceedances do not appear to be the result of a point source of contamination, such as a petroleum release, but are likely the result of the presence of historic fill material that may extend as deep as 25 feet below grade. The static groundwater table depth is approximately 7.9 to 9.5 feet below grade; however, during construction, the site is dewatering to lower the groundwater table to below 15 feet. Many of the endpoint samples to be collected at this site are at depths that would normally be under water.

The RAWP proposed a Track 2 cleanup with the site meeting Restricted-Residential SCOs to a maximum depth of 15 feet and Protection of Groundwater SCOs for contaminants of concern. Although the RIR soil borings did identify that the majority of soil samples met Protection of Groundwater SCOs at depths shallower than 15 feet below grade, some endpoint samples have since failed at these shallower depths. As a contingency, this plan has been developed to allow for continued remediation of the contaminants of concern in soils below 15 feet, if they are to be encountered.

As detailed below, the scope of work at locations where endpoint samples fail for the six compounds of concern will include:

- Installation of nine 2-inch diameter in-situ chemical oxidant (ISCO) injection wells. The wells will be installed within each 30-foot by 30-foot grid of a failed endpoint sample.
- Installation of one 2-inch diameter groundwater monitoring well downgradient of the failed endpoint sample grid.
- Installation of one 2-inch diameter groundwater monitoring well located centrally of all failed endpoint samples.
- Prior to conducting chemical injections, PWGC will submit to the United States Environmental Protection Agency (USEPA) an Underground Injection Control (UIC) Inventory form indicating that the injections will be occurring as soon as 30 days from the submittal date.
- Upon completion of dewatering activities at the site in late July to early August 2025 (estimated), chemical injections will be implemented. The solution will be injected to the subsurface through the ISCO injection wells.
- Groundwater sampling will be conducted six weeks after the chemical injections are conducted to evaluate groundwater quality.

**Figure 1** illustrates the current status of failed and pending endpoint results, as well as areas that have yet to be sampled. As of the date of this report, the majority of the footprint of the building has met the Protection of Groundwater SCOs and the majority of the area outside of the building footprint has not yet been sampled.

#### **ISCO Injection Well Construction**

The injection wells will consist of 2-inch diameter schedule 40 PVC with up to 15-feet of screen. The top of the screened interval will be placed at 10 feet below sidewalk grade and extend the



approximate depth of the remaining historic fill material to a depth of 25 feet below grade. In the event that clay-ey material is encountered prior to 25 feet below grade, the well will be terminated at the clay-ey layer. The injection wells will be finished with 4-inch diameter solid schedule 40 PVC riser to basement grade with locking j-plugs and flush mounted monitoring well covers. Injection wells will be spaced out approximately 10 feet from each other. An example layout of the ISCO injection wells around a failed endpoint sample is included as **Figure 2**.

### **Monitoring Well Construction**

The monitoring wells will consist of 2-inch diameter schedule 40 PVC with 10-feet of screen. The top of the screened interval will be placed at 7 feet below sidewalk grade to intersect the static groundwater table or 1 foot below the bottom of the concrete slab, whichever is deeper. In the event that clay-ey material is encountered prior to the proposed bottom depth of the monitoring well, the wells will be terminated at the clay-ey layer. The monitoring wells will be finished with 4-inch diameter solid schedule 40 PVC riser to basement grade with a locking j-plug and flush mounted monitoring well cover.

One monitoring well will be placed within 10 feet of the downgradient edge of each grid of a failed endpoint sample. An example layout of the monitoring well downgradient of a failed endpoint sample is included as **Figure 2**. Additionally, one monitoring well will be located centrally of all failed endpoint sample grids. An example layout of monitoring wells downgradient of failed grids and a centrally located monitoring well is included as **Figure 3**.

The monitoring well will be developed by over-pumping following well installation, in accordance with the procedures outlined in the NYSDEC-approved April 2021 RAWP, Section 5.4.3.2. Well development will continue until the turbidity of the groundwater is less than or equal to 50 NTUs, or when pH, temperature, and conductivity measurements stabilize. Stabilization is considered achieved when three consecutive readings of these field parameters are within five percent of each other over a period of 15 minutes. Monitoring well development water will be treated utilizing the onsite dewatering treatment system and/or will be properly disposed of off-site.

### **Chemical Injections**

PWGC has consulted with Regenesys to develop an appropriate chemical injection plan to address potential residual SVOC impacts remaining at 15 feet below grade. Following completion of dewatering operations, chemical injections will be conducted until groundwater concentrations reach acceptable concentrations. Data from the Remedial Investigation was utilized to develop this plan.

The plan includes the application of RegenOx® manufactured by Regenesys. RegenOx® is an ISCO reagent that destroys organic contaminants found in groundwater and soil through powerful, yet controlled, chemical reactions. At each grid that contains an endpoint failure at 15 feet below grade, there will be an application of 1,880 pounds of RegenOx® (broken down as 1,240 pounds of RegenOx Part A and 640 pounds of RegenOx Part B) which will be mixed with

4,342 gallons of water for a total of 4,500 gallons of solution per injection grid or 500 gallons of material per well, as per **Attachment B**. Safety Data Sheets for RegenOx® are included as **Attachment C**.

#### **Groundwater Sampling**

A minimum of six weeks after chemical injections are completed, a groundwater sample will be collected from the monitoring well in accordance with the USEPA Low Stress (Low Flow) Purging and Sampling Procedure for The Collection of Groundwater Samples from Monitoring Wells (September 2017). The sample will be analyzed for the six SVOC contaminants of concern by USEPA method 8270 to evaluate if residual soil impact is significantly affecting groundwater quality. Data validation will be conducted in accordance with PWGC's 2021 RAWP.

Additional, contingent groundwater sampling may be conducted, if requested by the NYSDEC.



I, Michael Scanlon, PE, certify that I am currently a New York State registered professional engineer (PE) and that this Remedial Design Work Plan was prepared in accordance with applicable statutes and regulations and in substantial conformance with the NYSDEC's Division of Environmental Remediation's (DER's) Technical Guidance for Site Investigation and Remediation (DER-10).

I certify that the information and statements in this certification are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

103321

07/10/25



New York State PE #

Date

Signature

It is a violation of Article 145 of the 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 145, New York State Education Law.



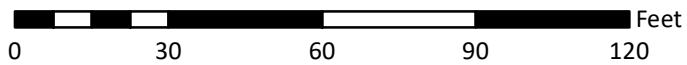
## FIGURES



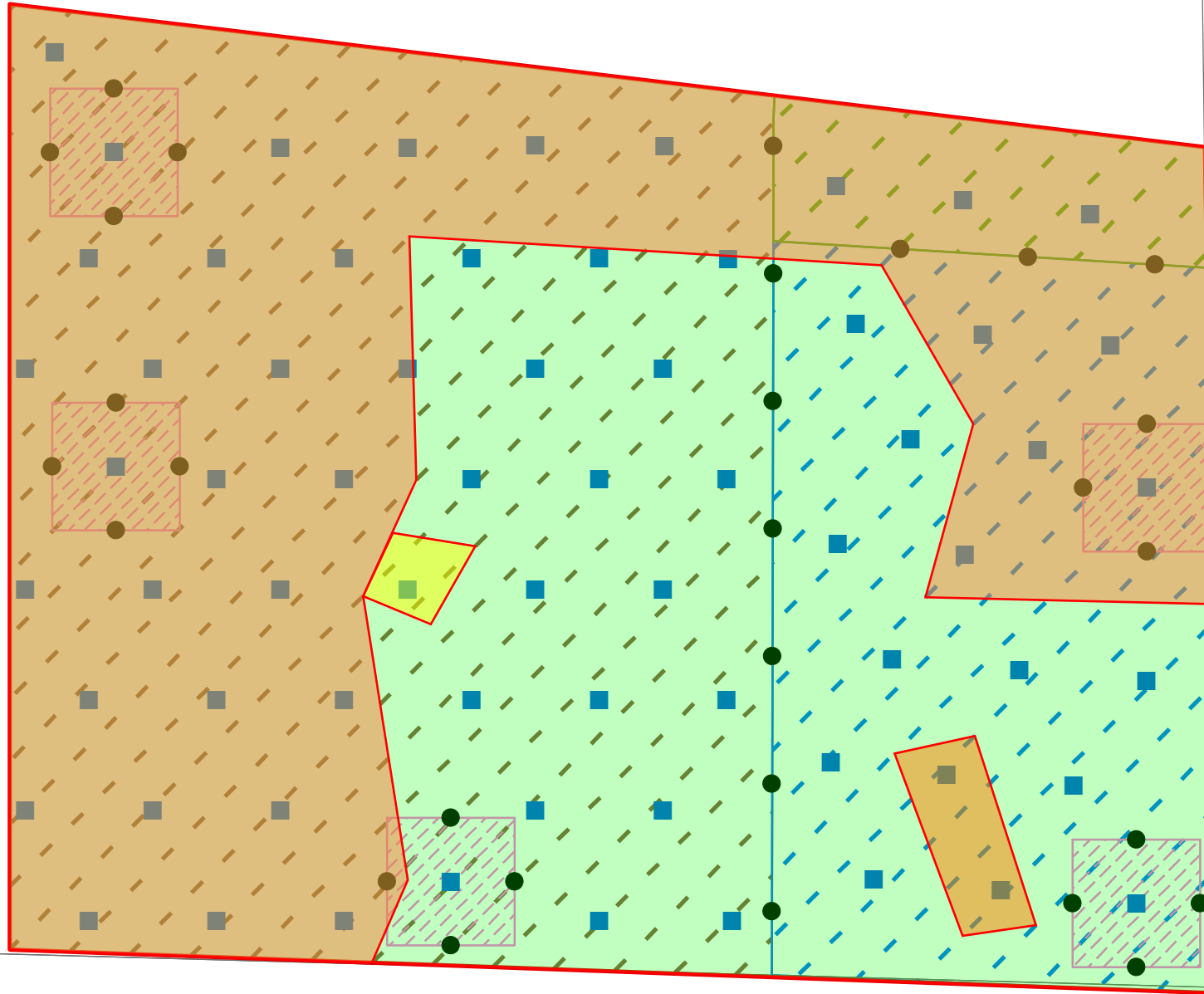


Harlem River

Major Deegan Expy



Document Path: W:\Projects\E-L\LST\1802.A\maps\RAWP\FIG12\_Proposed\_Endpoint\_Plan.mxd



**Endpoint Sample**

- Bottom
- Sidewall

- Site Boundary
- Tax Lot Boundary
- Remediation Area 1
- Remediation Area 2
- Remediation Area 3
- Hotspot Excavation
- Passing Endpoints
- Pending Endpoints
- Unsampled



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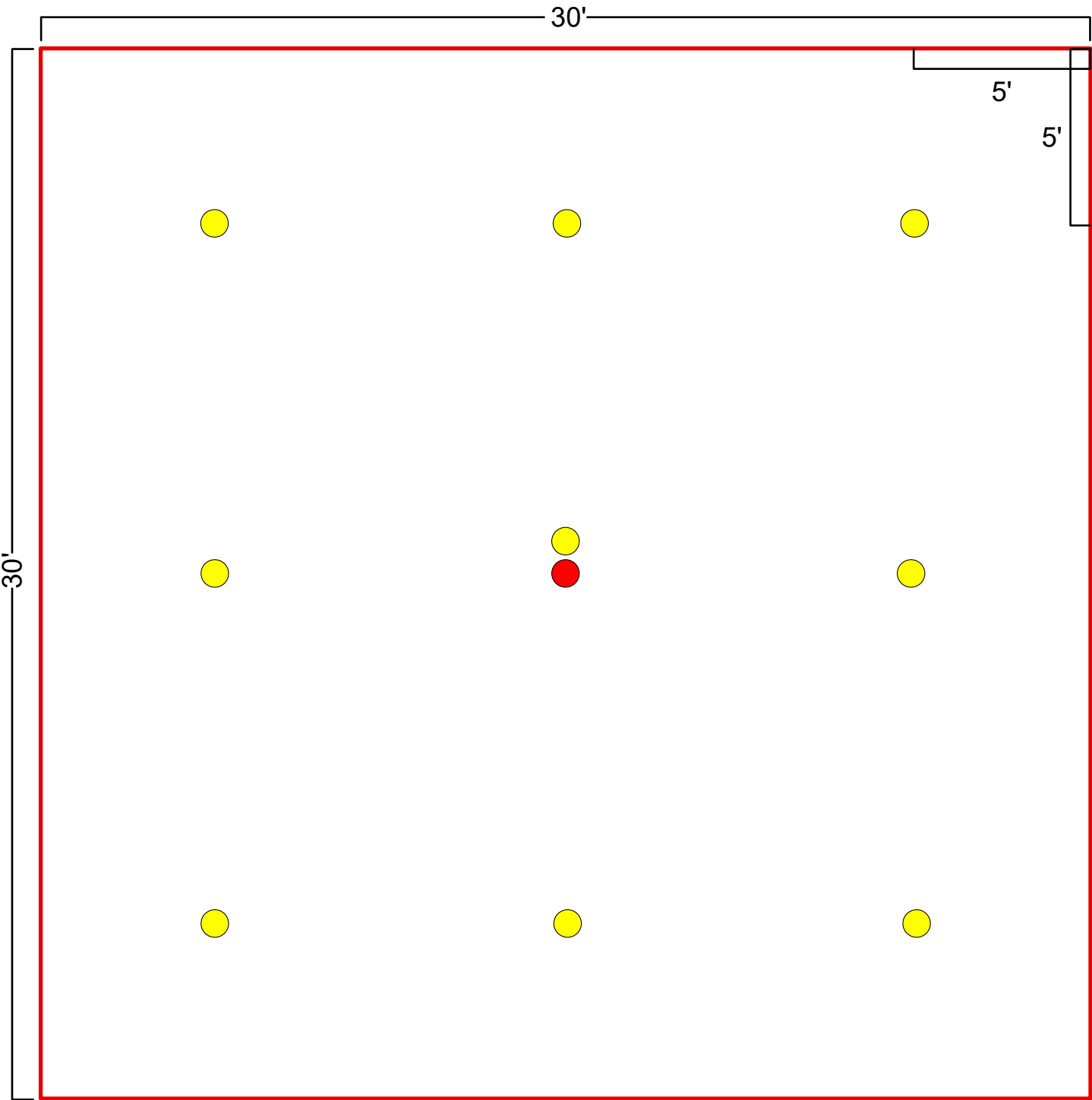
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REVISION	DATE	INITIAL	COMMENTS
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Date:	1/8/2021	Drawn by:	TS
Scale:	AS SHOWN	Approved by:	DE

**Endpoint Status Site  
Plan**  
**As of July 10, 2025**  
  
399 Exterior Street  
Bronx, NY

FIGURE NO:  
  
1

← Regional Groundwater  
Flow Direction



- Failed Endpoint Sample
- Proposed Injection Well
- Proposed Monitoring Well



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Scale:	AS SHOWN	Approved by:	JL

Proposed ISCO Injection  
Site Plan

399 Exterior Street  
Bronx, NY

FIGURE NO:  
  
2



Harlem River

Major Deegan Expy

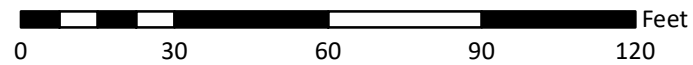
Downgradient Well

Downgradient Well

Failed Endpoint

MW at center point  
between failed  
endpoints

Failed Endpoint



- Endpoint Sample**
- Bottom
  - Sidewall
  - Site Boundary
  - Tax Lot Boundary
  - Remediation Area 1
  - Remediation Area 2
  - Remediation Area 3
  - Hotspot Excavation



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**Proposed Monitoring  
Well Installation for  
Failed Endpoints -  
Example**

399 Exterior Street  
Bronx, NY

FIGURE NO:

3

# ATTACHMENT A







Analyte	MW002	
	Total	Dissolved
Method: 6010 D - Metals - (µg/L)		
Iron	5,680 J	382 U
Magnesium	258,000 J	244,000
Manganese	714.4 J	703.5
Sodium	2,200,000 J	2,130,000 J
Method: 8270 D - Semivolatile Organic Compounds - (µg/L)		
Benzo(k)fluoranthene	0.04 J	-

Analyte	MW001	
	Total	Dissolved
Method: 6010 D - Metals - (µg/L)		
Iron	1,360	655 J
Magnesium	320,000	321,000
Manganese	758.8	760.2
Sodium	2,870,000	2,870,000
Method: 8270 D - Semivolatile Organic Compounds - (µg/L)		
Benzo(a)anthracene	0.05 J	-
Benzo(a)pyrene	0.05 J	-
Benzo(b)fluoranthene	0.04 J	-
Benzo(k)fluoranthene	0.04 J	-
Chrysene	0.04 J	-
Indeno(1,2,3-cd)Pyrene	0.05 J	-

Analyte	MW001	
	Total	Dissolved
Method: 6010 D - Metals - (µg/L)		
Arsenic	28.3 J	11.1 U
Chromium	50.2	5.56 U
Iron	56,800 J	278 U
Lead	711	5.56 U
Magnesium	39,700 J	27,700 J
Manganese	2,770 J	1,520 J
Selenium	20.5 J	11.1 U
Sodium	525,000 J	453,000 J
Method: 8270 D - Semivolatile Organic Compounds - (µg/L)		
Benzo(a)anthracene	0.8230	-
Benzo(a)pyrene	0.971	-
Benzo(b)fluoranthene	1.04	-
Benzo(k)fluoranthene	0.823	-
Chrysene	0.846	-
Indeno(1,2,3-cd)Pyrene	0.400	-

Analyte	Harlem River	
	Total	Dissolved
Method: 6010 D - Metals - (µg/L)		
Magnesium	740,000	748,000
Sodium	6,990,000	6,960,000

Analyte	MW005	
	Total	Dissolved
Method: 6010 D - Metals - (µg/L)		
Iron	10,100	191 U
Magnesium	47,200	44,700
Manganese	1,264	1,200
Sodium	1,230,000	1,200,000
Method: 8082 A - PCBs - (µg/L)		
Aroclor 1260	0.5740	-

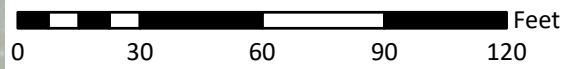
Analyte	MW002	
	Total	Dissolved
Method: 6010 D - Metals - (µg/L)		
Iron	3,940	278 U
Magnesium	265,000	248,000
Manganese	409	393,000
Selenium	84.5	58.9
Sodium	3,030,000	3,250,000
Method: 8270 D - Semivolatile Organic Compounds - (µg/L)		
Benzo(a)anthracene	0.3000	-
Benzo(a)pyrene	0.344	-
Benzo(b)fluoranthene	0.289	-
Benzo(k)fluoranthene	0.267	-
Chrysene	0.311	-
Indeno(1,2,3-cd)Pyrene	0.200	-

Analyte	MW003	
	Total	Dissolved
Method: 6010 D - Metals - (µg/L)		
Antimony	9.61 J	9.73 J
Iron	5,640	382 U
Lead	79.61	6.86 U
Magnesium	468,000	482,000
Manganese	452.5	415.2
Nickel	138.2	115.6
Sodium	4530000	4660000
Thallium	2.86 U	3.01 J
Method: 8270 D - Semivolatile Organic Compounds - (µg/L)		
Benzo(a)anthracene	0.27	-
Benzo(a)pyrene	0.34	-
Benzo(b)fluoranthene	0.35	-
Benzo(k)fluoranthene	0.15	-
Chrysene	0.26	-
Indeno(1,2,3-cd)Pyrene	0.24	-

Analyte	MW004	
	Total	Dissolved
Method: 6010 D - Metals - (µg/L)		
Iron	1,040	432 J
Magnesium	445,000	436,000
Manganese	1,042	1,033
Sodium	4,200,000	4,080,000
Method: 8270 D - Semivolatile Organic Compounds - (µg/L)		
Benzo(a)anthracene	0.07 J	-
Benzo(a)pyrene	0.08 J	-
Benzo(b)fluoranthene	0.09 J	-
Benzo(k)fluoranthene	0.03 J	-
Chrysene	0.05 J	-
Indeno(1,2,3-cd)Pyrene	0.0600 J	-
Method: 8082 A - PCBs - (µg/L)		
Aroclor 1260	0.0960	-

Notes:  
(1) NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1) - Ambient Water Quality Standards and Guidance Values - GA Water Class, Type H(WS) - Source of Drinking Water (Groundwater)  
U - The analyte was analyzed for, but was not detected above the reported sample quantification limit.  
J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.  
**J - Data Validation Qualifier - A QC analysis failed outside the primary acceptance limits and the data may be biased high or low or the direction of the bias may be indeterminate.**  
☐ Analyte not analyzed for by the laboratory.  
Highlighted text denotes concentrations exceeding NYSDEC AWQS or GV for GA Water Class, Type H(WS)

- Site Boundary
- Tax Lot Boundary
- Soil Boring and Monitoring Well
- Surface Water Sample
- Monitoring Well



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## Groundwater/Surface Water Sample Analytical Results

399 Exterior Street  
Bronx, NY

FIGURE NO:

**Table 6**  
Groundwater Surface Water Analytical Summary Tables for Semivolatile Organic Compounds

Phase II Environmental Site Assessment Remedial Investigation

Client Sample ID: Sampling Date: Laboratory ID:	CAS No.	NYS AWQS & GV's June 1998 <sup>(1)</sup>	MW001 5/10/2019 19E0591-31	MW002 5/10/2019 19E0591-32	HARLEM RIVER 11/20/2020 L2051938-09	MW001 11/20/2020 L2051938-01	MW002 11/20/2020 L2051938-02	DUP001 11/20/2020 L2051938-06	MW003 11/20/2020 L2051938-03	MW004 11/20/2020 L2051938-04	MW005 11/20/2020 L2051938-05
Method: 8270 D - Semivolatile Organic Compounds - (µg/L)											
1,1-Biphenyl	92-52-4	5*	2.86 U	2.78 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U
1,2,4,5-Tetrachlorobenzene	95-94-3	5*	2.86 U	2.78 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
1,2,4-Trichlorobenzene	120-82-1	5*	2.86 U	2.78 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	95-50-1	3	2.86 U	2.78 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U
1,2-Diphenylhydrazine	122-66-7	ND	2.86 U	2.78 U	-	-	-	-	-	-	-
1,3-Dichlorobenzene	541-73-1	3	2.86 U	2.78 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,4-Dichlorobenzene	106-46-7	3	2.86 U	2.78 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
2,3,4,6-Tetrachlorophenol	58-90-2	NS	2.86 U	2.78 U	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	95-95-4	NS	2.86 U	2.78 U	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U
2,4,6-Trichlorophenol	88-06-2	NS	2.86 U	2.78 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U
2,4-Dichlorophenol	120-83-2	5*	2.86 U	2.78 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U
2,4-Dimethylphenol	105-67-9	50	2.86 U	2.78 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
2,4-Dinitrophenol	51-28-5	10	2.86 <b>UJ</b>	2.78 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U
2,4-Dinitrotoluene	121-14-2	5*	2.86 <b>UJ</b>	2.78 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
2,6-Dinitrotoluene	606-20-2	5*	2.86 <b>UJ</b>	2.78 U	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U
2-Chloronaphthalene	91-58-7	10	2.86 U	2.78 U	0.02 U	0.02 J	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
2-Chlorophenol	95-57-8	NS	2.86 U	2.78 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U
2-Methylnaphthalene	91-57-6	NS	2.86 U	2.78 U	0.02 U	0.19	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
2-Methylphenol	95-48-7	NS	2.86 U	2.78 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U
2-Nitroaniline	88-74-4	5*	2.86 <b>UJ</b>	2.78 U	0.5 U	0.5 U	- <b>R</b>	0.5 U	0.5 U	0.5 U	0.5 U
2-Nitrophenol	88-75-5	NS	2.86 U	2.78 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U
3,3-Dichlorobenzidine	91-94-1	5*	2.86 U	2.78 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U
3- & 4-Methylphenols	65794-96-9	NS	2.86 U	2.78 U	-	-	-	-	-	-	-
3-Nitroaniline	99-09-2	5*	2.86 U	2.78 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U
4,6-Dinitro-2-methylphenol	534-52-1	NS	2.86 <b>UJ</b>	2.78 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
4-Bromophenyl phenyl ether	101-55-3	NS	2.86 U	2.78 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
4-Chloraniline	106-47-8	5*	2.86 U	2.78 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
4-Chlorophenyl phenyl ether	7005-72-3	NS	2.86 U	2.78 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U
4-Nitroaniline	100-01-6	5*	2.86 <b>UJ</b>	2.78 U	0.8 U	0.8 U	0.8 <b>UJ</b>	0.8 U	0.8 U	0.8 U	0.8 U
4-Nitrophenol	100-02-7	NS	5.71 <b>UJ</b>	5.56 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U
Acenaphthene	83-32-9	20	0.0800	0.0556 U	0.01 U	0.05 J	0.01 U	0.01 U	0.07 J	0.01 U	0.02 J
Acenaphthylene	208-96-8	NS	0.206	0.0556 U	0.01 U	0.03 J	0.01 U	0.01 U	0.02 J	0.01 U	0.01 U
Acetophenone	98-86-2	NS	2.86 U	2.78 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U
Aniline	62-53-3	5*	2.86 U	2.78 U	-	-	-	-	-	-	-
Anthracene	120-12-7	50	0.229	0.100	0.01 U	0.04 J	0.01 U	0.01 U	0.1	0.01 J	0.01 U
Atrazine	1912-24-9	7.5	0.571 U	0.556 U	-	-	-	-	-	-	-
Benzaldehyde	100-52-7	NS	2.86 <b>UJ</b>	2.78 U	-	-	-	-	-	-	-
Benzdine	92-87-5	5*	5.71 <b>UJ</b>	5.56 U	-	-	-	-	-	-	-
Benzo(a)anthracene	56-55-3	0.002	0.823	0.300	0.02 U	0.05 J	0.02 U	0.03 J	0.27	0.07 J	0.02 U
Benzo(a)pyrene	50-32-8	ND	0.971	0.344	0.02 U	0.05 J	0.02 U	0.02 J	0.34	0.08 J	0.02 U
Benzo(b)fluoranthene	205-99-2	0.002	1.04	0.289	0.01 U	0.04 J	0.01 U	0.02 J	0.35	0.09 J	0.01 U
Benzo(ghi)perylene	191-24-2	NS	0.434	0.222	0.01 U	0.05 J	0.01 U	0.02 J	0.23	0.06 J	0.01 U
Benzo(k)fluoranthene	207-08-9	0.002	0.823	0.267	0.01 U	0.04 J	0.01 U	0.01 U	0.15	0.03 J	0.01 U
Benzoic acid	65-85-0	NS	- <b>R</b>	2.78 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U
Benzyl alcohol	100-51-6	NS	2.86 U	2.78 U	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U
Biphenyl	92-52-4	NS	-	-	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U
Bis(2-chloroethoxy)methane	111-91-1	5*	2.86 U	2.78 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bis(2-chloroethyl)ether	111-44-4	1.0	1.14 <b>UJ</b>	1.11 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bis(2-ethylhexyl)phthalate	117-81-7	5	0.571 U	0.556 U	2.5 J	1.5 U	1.5 <b>UJ</b>	1.5 U	2.8 J	2.6 J	1.5 U
Bis(2-chloroisopropyl)ether	108-60-1	5*	2.86 U	2.78 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U
Benzyl butyl phthalate	85-68-7	50	2.86 <b>UJ</b>	2.78 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
Caprolactam	105-60-2	NS	2.86 U	2.78 U	-	-	-	-	-	-	-
Carbazole	86-74-8	NS	2.86 U	2.78 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U
Chrysene	218-01-9	0.002	0.846	0.311	0.01 U	0.04 J	0.01 U	0.02 J	0.26	0.05 J	0.01 U
Dibenzo(a,h)anthracene	53-70-3	NS	0.171	0.0889	0.01 U	0.04 J	0.01 U	0.01 U	0.05 J	0.01 U	0.01 U
Dibenzofuran	132-64-9	NS	2.86 U	2.78 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Diethyl phthalate	84-66-2	50	2.86 U	2.78 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
Dimethyl phthalate	131-11-3	50	2.86 U	2.78 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Di-n-butyl phthalate	84-74-2	50	2.86 <b>UJ</b>	2.78 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U
Di-n-octyl phthalate	117-84-0	50	2.86 U	2.78 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Fluoranthene	206-44-0	50	1.69	0.611	0.02 J	0.05 J	0.02 U	0.03 J	0.57	0.09 J	0.02 U
Fluorene	86-73-7	50	0.0914	0.0556 U	0.01 U	0.04 J	0.01 U	0.01 U	0.07 J	0.01 U	0.01 U
Hexachlorobenzene	118-74-1	0.04	0.0229	0.0222 U	0.01 U	0.04 J	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Hexachlorobutadiene	87-68-3	0.5	0.571 U	0.556 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Hexachlorocyclopentadiene	77-47-4	5*	5.71 U	5.56 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U
Hexachloroethane	67-72-1	5*	0.571 U	0.556 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
Indeno(1,2,3-cd)Pyrene	193-39-5	0.002	0.400	0.200	0.01 U	0.05 J	0.01 U	0.02 J	0.24	0.06 J	0.01 U
Isophorone	78-59-1	50	2.86 U	2.78 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
Naphthalene	91-20-3	10	0.0914	0.122	-	-	-	-	-	-	-
NDPA/DPA	86-30-6	50	2.86 U	2.78 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U
Nitrobenzene	98-95-3	0.4	0.286 U	0.278 U	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U
N-nitrosodi-n-propylamine	621-64-7	NS	2.86 U	2.78 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U
N-Nitrosodimethylamine	62-75-9	NS	- <b>R</b>	0.556 U	-	-	-	-	-	-	-
p-Chloro-m-cresol	59-50-7	NS	2.86 U	2.78 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
Pentachlorophenol	87-86-5	1	0.286 U	0.278 U	0.01 U	0.61 J	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Phenanthrene	85-01-8	50	0.903	0.289	0.02 U	0.06 J	0.02 <b>U</b>	0.02 J	0.34	0.04 J	0.04 J
Phenol	108-95-2	1	2.86 U	2.78 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U
Pyrene	129-00-0	50	1.49	0.744	0.03 J	0.05 J	0.02 U	0.04 J	0.61	0.17	0.02 J
Pyridine	110-86-1	50	2.86 U	2.78 U	-	-	-	-	-	-	-
Method: 8270-SIM - 1,4-Dioxane - (µg/L)											
1,4-Dioxane	123-91-1	5*	-	-	0.071 J	0.0339 U	0.113 J	0.129 J	0.0339 U	0.0339 U	0.0339 U

Notes:

ND - Not detected

NS - No standard

(1) NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1) - Ambient Water Quality Standards and Guidance Values - GA Water Class, Type H(WS) - Source of Drinking Water (Groundwater)

\* The principal organic contaminant standard for groundwater of 5µg/L applies to this substance.

(-) Analyte not analyzed for by the laboratory.

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

U - Indicates the analyte was analyzed for but not detected.

**R - Data Validation Qualifier - Rejected due to low LCS and/or MS percent recovery.**

**UJ - Data Validation Qualifier - The data may be biased low.**

**Highlighted text denotes concentrations exceeding NYSDEC AWQS or GV for GA Water Class, Type H(WS)**



# ATTACHMENT B



# REMEDIAL DESIGN OUTPUT

Project Information		
399 Exterior St.		
Bronx, NY		
Scaleable Unit Area		
Prepared For:		
P.W. Grosser		
Target Treatment Zone (TTZ) Info	Unit	Value
Treatment Area	ft <sup>2</sup>	900
Top Treatment Depth	ft	10.0
Bottom Treatment Depth	ft	20.0
Vertical Treatment Interval	ft	10.0
Treatment Zone Volume	cy	333
Soil Type	---	silty sand
Porosity	cm <sup>3</sup> /cm <sup>3</sup>	0.40
Effective Porosity	cm <sup>3</sup> /cm <sup>3</sup>	0.20
Treatment Zone Pore Volume	gals	26,930
Treatment Zone Effective Pore Volume	gals	13,465
Soil Density	g/cm <sup>3</sup>	1.6
Hydraulic Conductivity	ft/day	10.0
Hydraulic Conductivity	cm/sec	3.53E-03
Hydraulic Gradient	ft/ft	0.005
GW Velocity	ft/yr	91
Application Design Summary		
Treatment Area	ft <sup>2</sup>	900
Top Treatment Depth	ft bgs	10.0
Bottom Treatment Depth	ft bgs	20.0
Application Method	-	Injection Wells
Spacing Within Rows	ft	10.0
Spacing Between Rows	ft	10.0
Injection Wells (per app.)	-	9
Total RegenOx to be Applied	lbs	1,880
RegenOx Part A	lbs	1,240
RegenOx Part B	lbs	640
Number of Part A Applications	-	2
Number of Part B Applications	-	2
Part A Mix Water Volume	gals	3,490
Part B Mix Water Volume	gals	882
Total Volume Water	gals	4,372
Total Solution Volume	gals	4,500
Total Volume per Well (per app)	gals	250
Injection Volume per Foot	gals	25
Technical Notes		
Part A and Part B should be applied separately (Part B first). We recommend to flush after application of A and B with 2 gal/ft of well screen. Input special application instructions here as needed.		
Application Dosing		
RegenOx to be Applied	lbs	1,880
RegenOx Part A to be Applied	lbs	1,240
RegenOx Part B to be Applied	lbs	640
Prepared By: Ian Doliana - Design Specialist		
Date: 5/23/2025		

# ATTACHMENT C



# SAFETY DATA SHEET

## 1. Identification

<b>Product identifier</b>	<b>RegenOx® Part A</b>
<b>Other means of identification</b>	None.
<b>Recommended use</b>	Soil and Groundwater Remediation.
<b>Recommended restrictions</b>	None known.
<b>Manufacturer/Importer/Supplier/Distributor information</b>	
<b>Company Name</b>	Regenesiis
<b>Address</b>	1011 Calle Sombra San Clemente, CA 92673 USA
<b>General information</b>	949-366-8000
<b>E-mail</b>	CustomerService@regenesiis.com
<b>Emergency phone number</b>	For Hazardous Materials Incidents ONLY (spill, leak, fire, exposure or accident), call CHEMTREC 24/7 at:
<b>USA, Canada, Mexico</b>	1-800-424-9300
<b>International</b>	1-703-527-3887

## 2. Hazard(s) identification

<b>Physical hazards</b>	Oxidizing solids	Category 2
<b>Health hazards</b>	Acute toxicity, oral	Category 4
	Serious eye damage/eye irritation	Category 1
<b>Environmental hazards</b>	Hazardous to the aquatic environment, acute hazard	Category 2
<b>OSHA defined hazards</b>	Not classified.	
<b>Label elements</b>		



<b>Signal word</b>	Danger
<b>Hazard statement</b>	May intensify fire; oxidizer. Harmful if swallowed. Causes serious eye damage. Toxic to aquatic life.
<b>Precautionary statement</b>	
<b>Prevention</b>	Keep away from heat. Keep/Store away from clothing and other combustible materials. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/eye protection/face protection. Avoid release to the environment.
<b>Response</b>	If swallowed: Call a poison center/doctor if you feel unwell. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. Rinse mouth. In case of fire: Use appropriate media to extinguish.
<b>Storage</b>	Store away from incompatible materials.
<b>Disposal</b>	Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Hazard(s) not otherwise classified (HNOC)</b>	None known.
<b>Supplemental information</b>	None.

## 3. Composition/information on ingredients

### Mixtures



Chemical name	CAS number	%
Sodium Carbonate Peroxyhydrate	15630-89-4	≥95
Silicic Acid, Sodium Salt, Sodium Silicate	1344-09-8	<1

**Composition comments** All concentrations are in percent by weight unless otherwise indicated.

## 4. First-aid measures

<b>Inhalation</b>	Move to fresh air. Call a physician if symptoms develop or persist.
<b>Skin contact</b>	IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes. Wash off with soap and water. Get medical attention if irritation develops and persists.
<b>Eye contact</b>	Do not rub eyes. Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.
<b>Ingestion</b>	Never give anything by mouth to a victim who is unconscious or is having convulsions. Rinse mouth. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical advice/attention if you feel unwell.
<b>Most important symptoms/effects, acute and delayed</b>	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Dusts may irritate the respiratory tract, skin and eyes.
<b>Indication of immediate medical attention and special treatment needed</b>	Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
<b>General information</b>	Take off all contaminated clothing immediately. Contact with combustible material may cause fire. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.

## 5. Fire-fighting measures

<b>Suitable extinguishing media</b>	Water spray, fog (flooding amounts).
<b>Unsuitable extinguishing media</b>	Dry chemical, CO <sub>2</sub> , halon. Foam.
<b>Specific hazards arising from the chemical</b>	Greatly increases the burning rate of combustible materials. Containers may explode when heated. During fire, gases hazardous to health may be formed. Combustion products may include: carbon oxides and metal oxides.
<b>Special protective equipment and precautions for firefighters</b>	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
<b>Fire fighting equipment/instructions</b>	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk. Use water spray to cool unopened containers.
<b>Specific methods</b>	Cool containers exposed to flames with water until well after the fire is out.
<b>General fire hazards</b>	May intensify fire; oxidizer. Contact with combustible material may cause fire.

## 6. Accidental release measures

<b>Personal precautions, protective equipment and emergency procedures</b>	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep away from clothing and other combustible materials. Wear appropriate protective equipment and clothing during clean-up. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
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<b>Methods and materials for containment and cleaning up</b>	<p>Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Collect dust using a vacuum cleaner equipped with HEPA filter. Keep combustibles (wood, paper, oil, etc.) away from spilled material. Ventilate the contaminated area. This product is miscible in water. Stop the flow of material, if this is without risk. Absorb in vermiculite, dry sand or earth and place into containers.</p> <p>Large Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal. Shovel the material into waste container. Minimize dust generation and accumulation. Avoid the generation of dusts during clean-up. Prevent product from entering drains. Following product recovery, flush area with water.</p> <p>Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.</p> <p>Never return spills to original containers for re-use. Place all material into loosely covered plastic containers for later disposal. For waste disposal, see section 13 of the SDS. Wear appropriate protective equipment and clothing during clean-up.</p>
<b>Environmental precautions</b>	Avoid discharge into drains, water courses or onto the ground.
<b>7. Handling and storage</b>	
<b>Precautions for safe handling</b>	Minimize dust generation and accumulation. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Keep away from heat. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from clothing and other combustible materials. Take any precaution to avoid mixing with combustibles. Do not get this material in contact with eyes. Do not taste or swallow. When using, do not eat, drink or smoke. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices.
<b>Conditions for safe storage, including any incompatibilities</b>	Keep away from heat. Store in a cool, dry place out of direct sunlight. Store at temperatures not exceeding 40°C/104°F. Store in original tightly closed container. Store in a well-ventilated place. Do not store near combustible materials. Store away from incompatible materials (see Section 10 of the SDS). Protect from contamination.

## 8. Exposure controls/personal protection

<b>Occupational exposure limits</b>	No exposure limits noted for ingredient(s).
<b>Biological limit values</b>	No biological exposure limits noted for the ingredient(s).
<b>Appropriate engineering controls</b>	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. If material is ground, cut, or used in any operation which may generate dusts, use appropriate local exhaust ventilation to keep exposures below the recommended exposure limits. Provide eyewash station.
<b>Individual protection measures, such as personal protective equipment</b>	
<b>Eye/face protection</b>	Unvented, tight fitting goggles should be worn in dusty areas.
<b>Skin protection</b>	
<b>Hand protection</b>	Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier. Frequent change is advisable. Rubber, neoprene or PVC gloves are recommended.
<b>Skin protection</b>	
<b>Other</b>	Wear appropriate chemical resistant clothing.
<b>Respiratory protection</b>	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Recommended use:
<b>Thermal hazards</b>	Wear appropriate thermal protective clothing, when necessary.
<b>General hygiene considerations</b>	Keep from contact with clothing and other combustible materials. Remove and wash contaminated clothing promptly. Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

## 9. Physical and chemical properties

<b>Appearance</b>	
<b>Physical state</b>	Solid.
<b>Form</b>	Powder.
<b>Color</b>	White.

<b>Odor</b>	Odorless.
<b>Odor threshold</b>	Not available.
<b>pH</b>	10.5 (3% solution/water)
<b>Melting point/freezing point</b>	Not available.
<b>Initial boiling point and boiling range</b>	Not available.
<b>Flash point</b>	Not available.
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Oxidizer.
<b>Upper/lower flammability or explosive limits</b>	
<b>Flammability limit - lower (%)</b>	Not available.
<b>Flammability limit - upper (%)</b>	Not available.
<b>Explosive limit - lower (%)</b>	Not available.
<b>Explosive limit - upper (%)</b>	Not available.
<b>Vapor pressure</b>	Not available.
<b>Vapor density</b>	Not available.
<b>Relative density</b>	Not available.
<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	14.5 g/100g water @ 20 °C (minimum)
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	122 °F (50 °C)
<b>Viscosity</b>	Not available.
<b>Other information</b>	
<b>Bulk density</b>	0.9 - 1.2 g/ml

## 10. Stability and reactivity

<b>Reactivity</b>	Greatly increases the burning rate of combustible materials.
<b>Chemical stability</b>	Product may be unstable at temperatures above: 50°C/122°F. Decomposes on heating.
<b>Possibility of hazardous reactions</b>	Reacts slowly with water.
<b>Conditions to avoid</b>	Moisture. Heat. Avoid temperatures exceeding the decomposition temperature. Contact with incompatible materials.
<b>Incompatible materials</b>	Acids. Bases. Salts of heavy metals. Reducing agents. Combustible material.
<b>Hazardous decomposition products</b>	Oxygen. Steam. Heat.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Inhalation</b>	Dust may irritate respiratory system.
<b>Skin contact</b>	Dust or powder may irritate the skin.
<b>Eye contact</b>	Causes serious eye damage.
<b>Ingestion</b>	Harmful if swallowed.

<b>Symptoms related to the physical, chemical and toxicological characteristics</b>	Severe eye irritation. Dusts may irritate the respiratory tract, skin and eyes. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.
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### Information on toxicological effects

<b>Acute toxicity</b>	Harmful if swallowed.
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Components	Species	Test Results
Silicic Acid, Sodium Salt, Sodium Silicate (CAS 1344-09-8)		
<u>Acute</u>		
<b>Oral</b>		
LD50	Mouse	1100 mg/kg
	Rat	1.1 g/kg
<b>Skin corrosion/irritation</b>	Prolonged skin contact may cause temporary irritation.	
<b>Serious eye damage/eye irritation</b>	Causes serious eye damage.	
<b>Respiratory or skin sensitization</b>		
<b>Respiratory sensitization</b>	Not a respiratory sensitizer.	
<b>Skin sensitization</b>	This product is not expected to cause skin sensitization.	
<b>Germ cell mutagenicity</b>	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.	
<b>Carcinogenicity</b>	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.	
<b>IARC Monographs. Overall Evaluation of Carcinogenicity</b>		
Not listed.		
<b>NTP Report on Carcinogens</b>		
Not listed.		
<b>OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)</b>		
Not regulated.		
<b>Reproductive toxicity</b>	This product is not expected to cause reproductive or developmental effects.	
<b>Specific target organ toxicity - single exposure</b>	Not classified.	
<b>Specific target organ toxicity - repeated exposure</b>	Not classified.	
<b>Aspiration hazard</b>	Not an aspiration hazard.	
<b>12. Ecological information</b>		
<b>Ecotoxicity</b>	Toxic to aquatic life.	
<b>Components</b>	<b>Species</b>	<b>Test Results</b>
Silicic Acid, Sodium Salt, Sodium Silicate (CAS 1344-09-8)		
<b>Aquatic</b>		
Crustacea	EC50	Water flea (Ceriodaphnia dubia) 0.28 - 0.57 mg/l, 48 hours
Fish	LC50	Western mosquitofish (Gambusia affinis) 1800 mg/l, 96 hours
<b>Persistence and degradability</b>	Decomposes in the presence of water. The product contains inorganic compounds which are not biodegradable.	
<b>Bioaccumulative potential</b>	The product does not contain any substances expected to be bioaccumulating.	
<b>Mobility in soil</b>	This product is water soluble and may disperse in soil.	
<b>Other adverse effects</b>	None known.	
<b>13. Disposal considerations</b>		
<b>Disposal instructions</b>	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.	
<b>Local disposal regulations</b>	Dispose in accordance with all applicable regulations.	
<b>Hazardous waste code</b>	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.	
<b>Waste from residues / unused products</b>	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).	
<b>Contaminated packaging</b>	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.	

## 14. Transport information

### DOT

UN number	UN3378
UN proper shipping name	Sodium carbonate peroxyhydrate
Transport hazard class(es)	
Class	5.1
Subsidiary risk	-
Label(s)	5.1
Packing group	II
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	IB8, IP2, IP4, T3, TP33
Packaging exceptions	152
Packaging non bulk	212
Packaging bulk	240

### IATA

UN number	UN3378
UN proper shipping name	Sodium carbonate peroxyhydrate
Transport hazard class(es)	
Class	5.1
Subsidiary risk	-
Packing group	II
Environmental hazards	No.
ERG Code	5L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

### IMDG

UN number	UN3378
UN proper shipping name	SODIUM CARBONATE PEROXYHYDRATE
Transport hazard class(es)	
Class	5.1
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	F-A, S-Q
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Not applicable.

Annex II of MARPOL 73/78 and  
the IBC Code

## 15. Regulatory information

**US federal regulations** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.  
All components are on the U.S. EPA TSCA Inventory List.

### TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

### CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

### SARA 304 Emergency release notification

Not regulated.

### OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not regulated.

### Superfund Amendments and Reauthorization Act of 1986 (SARA)

#### SARA 302 Extremely hazardous substance

Not listed.

**SARA 311/312 Hazardous  
chemical** Yes

**Classified hazard  
categories** Oxidizer (liquid, solid, or gas)  
Acute toxicity (any route of exposure)  
Serious eye damage or eye irritation

**SARA 313 (TRI reporting)**

Not regulated.

**Other federal regulations****Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Not regulated.

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)**

Not regulated.

**Safe Drinking Water Act (SDWA)**

Not regulated.

**US state regulations****US. Massachusetts RTK - Substance List**

Not regulated.

**US. New Jersey Worker and Community Right-to-Know Act**

Not listed.

**US. Pennsylvania Worker and Community Right-to-Know Law**

Not listed.

**US. Rhode Island RTK**

Not regulated.

**California Proposition 65**

California Safe Drinking Water and Toxic Enforcement Act of 2016 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

**International Inventories**

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

**16. Other information, including date of preparation or last revision**

<b>Issue date</b>	26-March-2015
<b>Revision date</b>	19-November-2017
<b>Version #</b>	02
<b>Further information</b>	HMIS® is a registered trade and service mark of the American Coatings Association (ACA).
<b>HMIS® ratings</b>	Health: 3 Flammability: 0 Physical hazard: 2

**NFPA ratings**



**Disclaimer**

Regenesis cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

# SAFETY DATA SHEET

## 1. Identification

**Product identifier** RegenOx® Part B  
**Other means of identification** None.  
**Recommended use** Soil and Groundwater Remediation.  
**Recommended restrictions** None known.

### Manufacturer/Importer/Supplier/Distributor information

**Company Name** RegenesiS  
**Address** 1011 Calle Sombra  
 San Clemente, CA 92673 USA  
**General information** 949-366-8000  
**E-mail** CustomerService@regenesiS.com

**Emergency phone number** For Hazardous Materials Incidents ONLY (spill, leak, fire, exposure or accident), call CHEMTREC 24/7 at:  
**USA, Canada, Mexico** 1-800-424-9300  
**International** 1-703-527-3887

## 2. Hazard(s) identification

**Physical hazards** Not classified.  
**Health hazards** Skin corrosion/irritation Category 2  
 Serious eye damage/eye irritation Category 2A  
**OSHA defined hazards** Not classified.

### Label elements



**Signal word** Warning  
**Hazard statement** Causes skin irritation. Causes serious eye irritation.

### Precautionary statement

**Prevention** Wash thoroughly after handling. Wear protective gloves. Wear eye/face protection.  
**Response** If on skin: Wash with plenty of water. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse.

**Storage** Store away from incompatible materials.

**Disposal** Dispose of waste and residues in accordance with local authority requirements.

**Hazard(s) not otherwise classified (HNOC)** None known.

**Supplemental information** None.

## 3. Composition/information on ingredients

### Mixtures

Chemical name	CAS number	%
Silicic Acid, Sodium Salt, Sodium Silicate	1344-09-8	25-40
Silicon dioxide (amorphous silica gel)	63231-67-4	<10

Ferrous sulfate	7720-78-7	2-5
Composition comments	All concentrations are in percent by weight unless otherwise indicated.	
4. First-aid measures		
Inhalation	Move to fresh air. Keep victim at rest in a position comfortable for breathing. Call a physician if symptoms develop or persist.	
Skin contact	Remove contaminated clothing. Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse.	
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.	
Ingestion	Never give anything by mouth to a victim who is unconscious or is having convulsions. Rinse mouth. Get medical attention if symptoms occur.	
Most important symptoms/effects, acute and delayed	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. Spray mist may irritate the respiratory system. Symptoms may include coughing, difficulty breathing and shortness of breath.	
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.	
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.	
5. Fire-fighting measures		
Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).	
Unsuitable extinguishing media	None known.	
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed. Combustion products may include: silicon oxides, metal oxides, sulfur oxides.	
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.	
Fire fighting equipment/instructions	Move containers from fire area if you can do so without risk.	
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.	
General fire hazards	No unusual fire or explosion hazards noted.	
6. Accidental release measures		
Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.	
Methods and materials for containment and cleaning up	Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.  Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.  Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.	
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.	
7. Handling and storage		
Precautions for safe handling	Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.	
Conditions for safe storage, including any incompatibilities	Store in original tightly closed container. Store in a cool, dry, well-ventilated place. Maintain storage temperatures between 50°F to 140°F (10°C to 60°C). Store away from incompatible materials (see Section 10 of the SDS). Recommended storage containers: steel or plastic. Do not use containers made of aluminum, fiberglass, copper, brass, zinc or galvanized containers.	

## 8. Exposure controls/personal protection

### Occupational exposure limits

#### US. OSHA Table Z-3 (29 CFR 1910.1000)

Components	Type	Value
Silicon dioxide (amorphous silica gel) (CAS 63231-67-4)	TWA	0.8 mg/m <sup>3</sup>
		20 mppcf

#### US. ACGIH Threshold Limit Values

Components	Type	Value
Ferrous sulfate (CAS 7720-78-7)	TWA	1 mg/m <sup>3</sup>

#### US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Ferrous sulfate (CAS 7720-78-7)	TWA	1 mg/m <sup>3</sup>
Silicon dioxide (amorphous silica gel) (CAS 63231-67-4)	TWA	6 mg/m <sup>3</sup>

### Biological limit values

No biological exposure limits noted for the ingredient(s).

### Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

### Individual protection measures, such as personal protective equipment

**Eye/face protection** To avoid contact with eyes, wear chemical goggles or shielded safety glasses.

#### Skin protection

**Hand protection** Wear appropriate chemical resistant gloves.

#### Skin protection

**Other** Wear appropriate chemical resistant clothing.

#### Respiratory protection

If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Recommended use: Wear NIOSH approved respirator appropriate for airborne exposure at the point of use.

#### Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

### General hygiene considerations

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

## 9. Physical and chemical properties

### Appearance

**Physical state** Liquid.  
**Form** Liquid.  
**Color** Green to dark blue.

**Odor** Odorless.

**Odor threshold** Not available.

**pH** 11 (10% solution/water)

**Melting point/freezing point** Not available.

**Initial boiling point and boiling range** Not available.

**Flash point** Not available.

**Evaporation rate** Not available.

**Flammability (solid, gas)** Not applicable.

**Upper/lower flammability or explosive limits**

**Flammability limit - lower (%)** Not available.

**Flammability limit - upper (%)** Not available.

**Explosive limit - lower (%)** Not available.

**Explosive limit - upper (%)** Not available.

**Vapor pressure** Not available.

**Vapor density** Not available.

**Relative density** 1.2 - 1.4

**Solubility(ies)**

**Solubility (water)** Miscible.

**Partition coefficient (n-octanol/water)** Not available.

**Auto-ignition temperature** Not available.

**Decomposition temperature** Not available.

**Viscosity** < 10,000cP

**10. Stability and reactivity**

**Reactivity** The product is stable and non-reactive under normal conditions of use, storage and transport.

**Chemical stability** Material is stable under normal conditions.

**Possibility of hazardous reactions** No dangerous reaction known under conditions of normal use.

**Conditions to avoid** Contact with incompatible materials.

**Incompatible materials** Hydrogen fluoride. Fluorine. Oxygen difluoride. Chlorine trifluoride. Strong acids. Strong bases. Oxidizers. Aluminum metal. Copper. Brass. Zinc. Galvanized metals.

**Hazardous decomposition products** Thermal decomposition or combustion may produce: silicon oxides, metal oxides, sulfur oxides.

**11. Toxicological information****Information on likely routes of exposure**

**Inhalation** Prolonged inhalation may be harmful. Spray mists may cause respiratory tract irritation.

**Skin contact** Causes skin irritation.

**Eye contact** Causes serious eye irritation.

**Ingestion** Ingestion may cause irritation and malaise.

**Symptoms related to the physical, chemical and toxicological characteristics** Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. Inhalation may irritate lungs causing coughing and/or shortness of breath.

**Information on toxicological effects**

**Acute toxicity** Not available.

**Skin corrosion/irritation** Causes skin irritation.

**Serious eye damage/eye irritation** Causes serious eye irritation.

**Respiratory or skin sensitization**

**Respiratory sensitization** Not a respiratory sensitizer.

**Skin sensitization** This product is not expected to cause skin sensitization.

**Germ cell mutagenicity** No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

**Carcinogenicity** This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

**IARC Monographs. Overall Evaluation of Carcinogenicity**

Silicon dioxide (amorphous silica gel) (CAS 63231-67-4) 3 Not classifiable as to carcinogenicity to humans.

**NTP Report on Carcinogens**

Not listed.

## OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not regulated.

<b>Reproductive toxicity</b>	This product is not expected to cause reproductive or developmental effects.
<b>Specific target organ toxicity - single exposure</b>	Not classified.
<b>Specific target organ toxicity - repeated exposure</b>	Not classified.
<b>Aspiration hazard</b>	Not an aspiration hazard.
<b>Chronic effects</b>	Prolonged inhalation may be harmful.

## 12. Ecological information

<b>Ecotoxicity</b>	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
<b>Persistence and degradability</b>	No data is available on the degradability of this product.
<b>Bioaccumulative potential</b>	No data available.
<b>Mobility in soil</b>	This product is water soluble and may spread in the water system.
<b>Other adverse effects</b>	None known.

## 13. Disposal considerations

<b>Disposal instructions</b>	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Local disposal regulations</b>	Dispose in accordance with all applicable regulations.
<b>Hazardous waste code</b>	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
<b>Waste from residues / unused products</b>	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
<b>Contaminated packaging</b>	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

## 14. Transport information

### DOT

Not regulated as dangerous goods.

### IATA

Not regulated as dangerous goods.

### IMDG

Not regulated as dangerous goods.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not established.

## 15. Regulatory information

**US federal regulations** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.  
All components are on the U.S. EPA TSCA Inventory List.

### TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

### CERCLA Hazardous Substance List (40 CFR 302.4)

Ferrous sulfate (CAS 7720-78-7) Listed.

### SARA 304 Emergency release notification

Not regulated.

### OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not regulated.

### Superfund Amendments and Reauthorization Act of 1986 (SARA)

#### SARA 302 Extremely hazardous substance

Not listed.



**SARA 311/312 Hazardous chemical** Yes

**Classified hazard categories** Skin corrosion or irritation  
Serious eye damage or eye irritation

**SARA 313 (TRI reporting)**  
Not regulated.

#### Other federal regulations

**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**  
Not regulated.

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)**  
Not regulated.

**Safe Drinking Water Act (SDWA)** Not regulated.

#### US state regulations

**US. Massachusetts RTK - Substance List**  
Ferrous sulfate (CAS 7720-78-7)

**US. New Jersey Worker and Community Right-to-Know Act**  
Ferrous sulfate (CAS 7720-78-7)

**US. Pennsylvania Worker and Community Right-to-Know Law**  
Ferrous sulfate (CAS 7720-78-7)

**US. Rhode Island RTK**  
Ferrous sulfate (CAS 7720-78-7)

**California Proposition 65**  
California Safe Drinking Water and Toxic Enforcement Act of 2016 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

#### International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

## 16. Other information, including date of preparation or last revision

**Issue date** 02-April-2015

**Revision date** 19-November-2017

**Version #** 03

**Further information** HMIS® is a registered trade and service mark of the American Coatings Association (ACA).

**HMIS® ratings** Health: 2  
Flammability: 0  
Physical hazard: 0

**NFPA ratings****Disclaimer**

Regenesis cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.