April 17, 2026

Haala Al-Hadithy
NYSDEC Region 2 Division of Environmental Remediation
47-40 21st Street
Long Island City, New York 11101

Re: Treatability Study Work Plan
172 Montrose Avenue
Brooklyn, New York
BCP Site No. C224417
Langan Project No. 170824801

Dear Haala Al-Hadithy,

This Treatability Study Work Plan (TSWP) was prepared by Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C. (Langan) on behalf of Montrose Meserole Owner LLC and Montrose Meserole Borrower LLC (the Participants) for property located at 172 Montrose Avenue in the East Williamsburg neighborhood of Brooklyn, New York (the site). A site location map is provided as Figure 1. The site is a part of the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP), Site No. C224417. Langan prepared this TSWP describing the scope of a treatability study to support the design of a groundwater treatment program as part of the remedial action for the site, pursuant to email correspondence from the NYSDEC dated April 8, 2026. The treatability study will evaluate groundwater treatment feasibility using in-situ chemical oxidation (ISCO) and determine preliminary design parameters for the groundwater treatment of target volatile organic compounds (VOCs). The treatability study objectives are to:

- Identify natural oxidant demand; and
- Develop recommendations for field application.

This TSWP describes the scope of work required for the collection of soil and groundwater samples from within the site. Treatability test setup and monitoring will be performed at Langan's treatability facility at New Jersey Institute of Technology (NJIT) in Newark, New Jersey.

SITE BACKGROUND

The approximately 0.39-acre site consists of a vacant one-story former bus depot garage and warehouse with temporary office space in the eastern part of the site. The Participant plans to remediate the site in conjunction with a new affordable housing development under the New York State Brownfield Cleanup Program (BCP) pursuant to the Brownfield Cleanup Agreement (BCA), Index No. C224417-05-25, for Site No. C224417, with the NYSDEC, executed on June 9, 2025 and amended on March 19, 2026. A Draft Remedial Action Work Plan (RAWP) and Final Remedial Investigation Report (RIR) were submitted to NYSDEC on March 6, and April 2, 2026, respectively.

Soil and Groundwater Analytical Data

The groundwater treatment objective is to treat impacts to soil and reduce concentrations of petroleum-related compounds in groundwater, consistent with the NYSDEC Program Policy DER-10: Technical Guidance for Site Investigation and Remediation (DER-10).

The RIR identified the following contaminants of concern in soil at concentrations above Protection of Groundwater (PGW) Soil Cleanup Objectives (SCO), and in groundwater at concentrations above NYSDEC Technical Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards (AWQS) and Guidance Values for Class GA Water (collectively referred to as "SGVs"):

- 1,2,4-Trimethylbenzene
- 1,3,5-Trimethylbenzene
- Benzene
- Ethylbenzene
- Naphthalene
- n-Butylbenzene
- n-Propylbenzene
- Total xylenes

The RI soil sample analytical results for VOCs and the RI groundwater sample analytical results are shown on Figure 2 and Figure 3, respectively. The bench-scale treatability study discussed in this TSWP will be used to determine the natural oxidant demand needed for ISCO treatment as a remedial option to address the VOC concentrations in groundwater above the NYSDEC SGVs.

FIELD INVESTIGATION

The proposed bench-scale treatability study will require the advancement of one soil boring and the collection of soil and groundwater samples. The field investigation will be performed in accordance with this section and samples will be submitted to a treatability laboratory. The bench-scale treatability study is anticipated to be completed by Langan's Treatability Facility at NJIT located in Newark, New Jersey.

The field investigation will be performed in accordance with this TSWP and the March 2026 Draft RAWP, including the Quality Assurance Project Plan (QAPP) and the Construction Health and Safety Plan (CHASP) included as Appendix F and Appendix C of the Draft RAWP, respectively.

Community Air Monitoring Plan (CAMP)

Air monitoring will be implemented during ground-intrusive activities in accordance with the site-specific CAMP included as Appendix D of the March 2026 Draft RAWP. The CAMP will include one upwind and one downwind air monitoring station.

Treatability Study Sample Collection

The bench-scale ISCO treatability study will require the collection of bulk soil and groundwater samples as described in this section. Soil and groundwater from outside the proposed treatment area will be used for the treatability study to determine the natural oxidant demand (consumption of oxidant by native inorganic and organic matrix constituents), without interference from site contaminants. Natural oxidant demand is typically the main driver for oxidant required for field implementation and must be determined with bench-scale testing. The oxidant required for degradation of contaminants present within the treatment area can be estimated based on stoichiometry. The proposed sample locations are shown on Figure 4.

Soil Sampling

An environmental drilling contractor will advance one soil boring (TS01) from surface grade to a planned depth of approximately 35 feet below ground surface (bgs) using a Geoprobe direct-push drill rig. The proposed location of soil boring TS01 is shown on Figure 4.

Additional adjacent borings may be advanced to the proposed sample depth until a minimum of 1 kilogram (kg) of soil for a bulk soil sample from approximately 28 to 35 feet bgs is collected. A Langan field representative will log the soil boring, screen the soil for environmental impacts, and collect the soil sample. Soil will be screened continuously to the boring termination depth for VOCs using a photoionization detector (PID) equipped with a 10.6 electron volt (eV) bulb, and for visual and olfactory indications of environmental impacts. The soil boring log will include a soil description, a description of environmental impacts (if encountered), and the depth intervals where bulk soil samples are collected for the bench-scale treatability study. To the extent practicable, bulk soil sample will be biased to intervals exhibiting the least degree of environmental impacts (based on visual, and olfactory indications, and PID readings) within the targeted treatment interval.

Gravel and/or cobbles measuring greater than 0.5 inches in diameter and anthropogenic material (i.e., concrete, brick, metal pieces, etc.) will be removed from the bulk soil sample. The bulk soil sample will be homogenized by manual mixing, placed into labeled Ziploc® bags, secured in coolers and transported to Langan's Treatability Facility at NJIT under standard chain-of-custody (COC) procedures.

Groundwater Sampling

A bulk groundwater sample will be collected from the existing permanent groundwater monitoring well RIMW21 The location of the monitoring well is shown on Figure 4.

Prior to sampling, the monitoring well will be gauged for static water levels, headspace PID readings, and purged. A minimum of 2 liters (L) of groundwater will be collected from the monitoring well using low-flow sampling methods and stored in two 1L high density polyethylene jars, without any head space. The bulk groundwater sample will be transported to Langan's treatability facility at NJIT under standard chain-of-custody (COC) procedures and stored at 4 degrees Celsius (°C) until analysis.

Management of Investigation-Derived Waste

Investigation-derived waste (IDW), including soil cuttings, purged groundwater, and decontamination fluids, will be containerized in properly labeled and sealed United Nations (UN)/Department of Transportation (DOT)-approved 55-gallon drums for future waste characterization and off-site disposal at a facility permitted to accept the waste. The drums will be staged in a secure area on-site, pending receipt of laboratory data and off-site disposal to an appropriate facility.

BENCH-SCALE TREATABILITY STUDY

Bench-scale treatability studies will be conducted to determine the natural oxidant demand (NOD) needed for ISCO treatment as a remedial option and for the development of a full-scale remedial design. All analyses will be performed at Langan's treatability facility at NJIT.

ISCO Treatment

This section provides the methodology for deriving alkali demand for persulfate activation and NOD tests.

Alkali Demand

A titration test will be performed to determine the alkali demand of the groundwater and soil collected from the site. Titrations will be performed with 10 Normal (N) sodium hydroxide (NaOH) solution to reach a pH >10.5 standard units (S.U.), which is essential for the activation of persulfate.

NOD Test

The NOD test will be set up to determine oxidant dosage using groundwater, homogenized soil, and sodium persulfate reagent Klozur® SP (products of Evonik Active Oxygens, LLC in Philadelphia, PA), and a hydroxide alkali reagent, such as 10N NaOH. The specification and safety data sheets (SDS) for the reagents that will be used in the treatability study are provided in Attachment 1. At two and seven days post-setup, aqueous phase samples from the NOD test jars will be monitored for pH and oxidation reduction potential (ORP) and analyzed for residual persulfate concentration using a spectrophotometric method.

REPORTING

A summary of drilling activities, soil and groundwater sampling, and CAMP implementation will be documented in daily reports, which will be submitted to NYSDEC. The results of the treatability study will be described in a brief treatability study memorandum, which will describe the completed scope of work and present the results of the treatability study. The treatability study memorandum will be included as an appendix to the forthcoming remedial design work plan, which will detail proposed remedial design.

CLOSING

We respectfully request approval of this TSWP. Please call 212.479.5486 if you have any questions and if necessary, for further discussion.

Sincerely,
Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.

Kimberly Semon, PE
Senior Project Manager

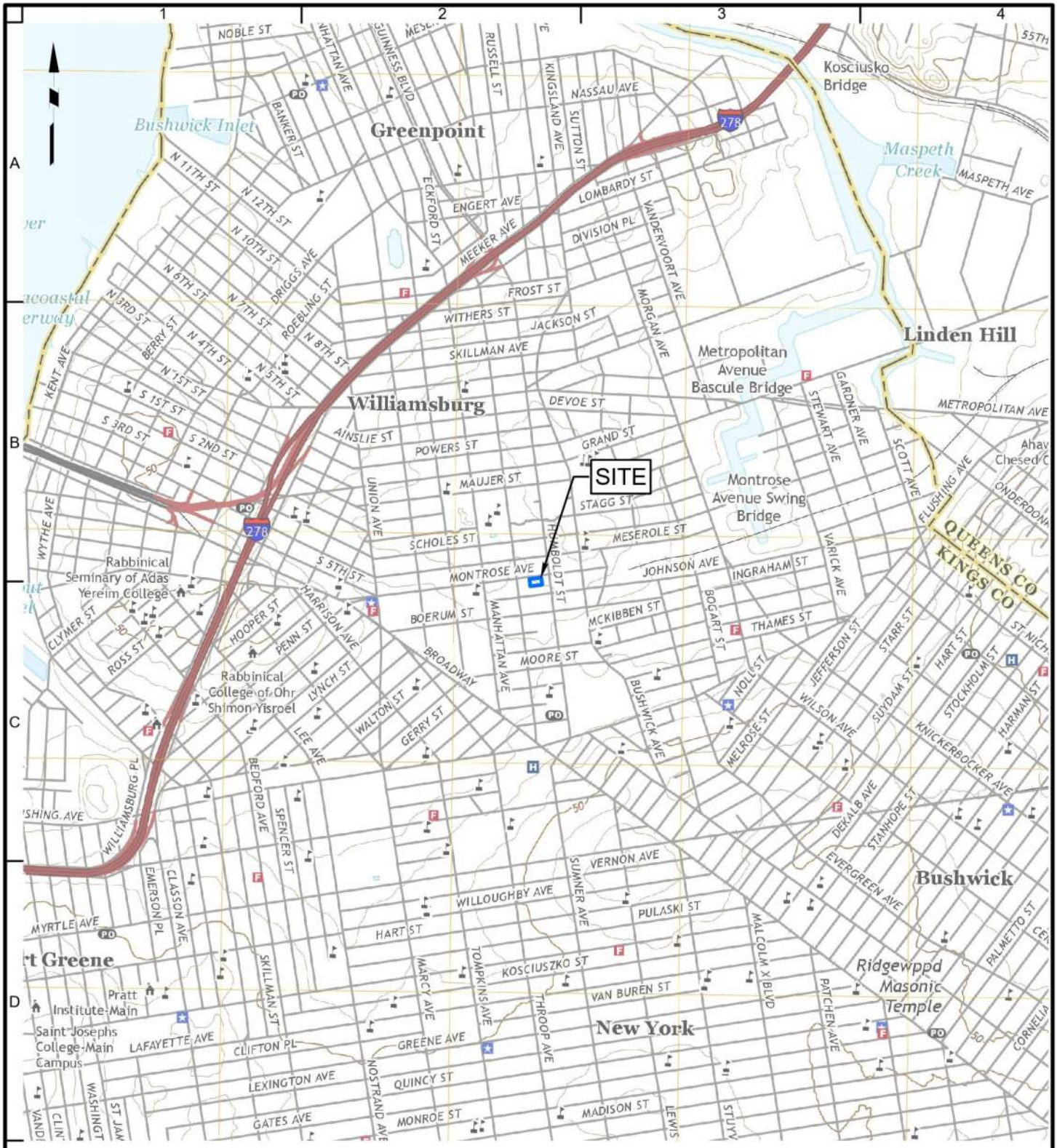
Gerry Nicholls, PE
Principal

Enclosure(s): Figure 1 – Site Location Map
Figure 2 – RI Soil Sample Analytical Results Map - VOCs
Figure 3 – RI Groundwater Sample Analytical Results Map
Figure 4 – Proposed Groundwater Treatability Soil Boring Location Plan

Attachment 1 Material Specification and Safety Data Sheets

cc: W. Zheng, A. Obligado (NYSDEC)
D. Schwartz, J. Valladares, C. Lee – Slate
B. Gochenaur, K. Semon, S. Fernholz, C. Devin – Langan

FIGURES



Legend

Approximate Site Boundary

2,000 0 2,000

SCALE IN FEET

Notes:

1. Basemap adapted from United States Geological Survey (USGS) 7.5-Minute Series Topographical Maps, Brooklyn, New York, Quadrangle.

LANGAN

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Langan International LLC

Collectively known as Langan

Project

172 MONTROSE AVENUE

BLOCK No. 3062, LOT No. 12

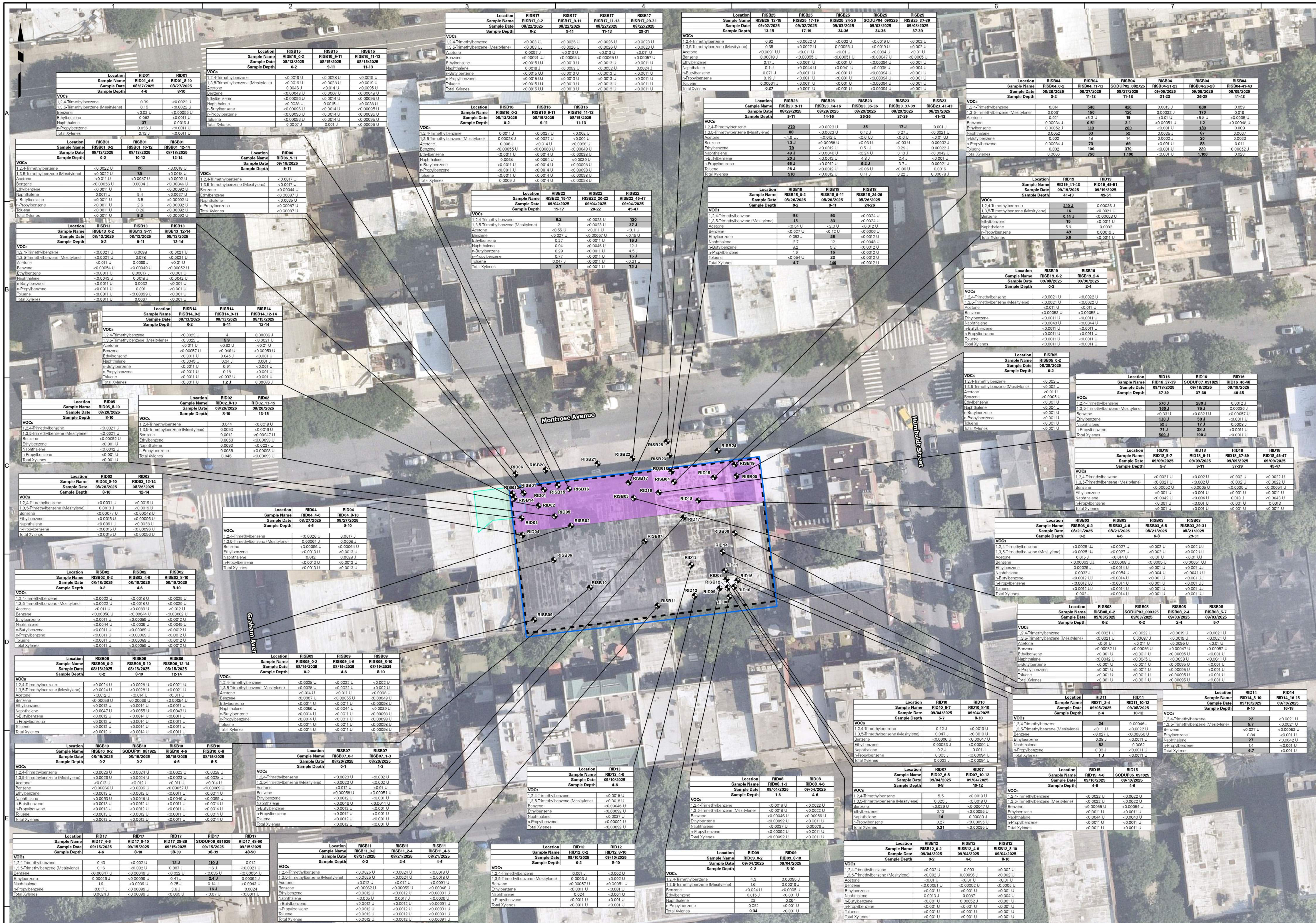
BROOKLYN NEW YORK

Figure Title

SITE LOCATION MAP

Project No. 170824801	Figure No. 1
Date 7/22/2024	
Scale 1"=2,000'	
Drawn By MG	
Submission Date	

Path: \\langan.com\data\NYC\data8\170824801\Project Data\ArcGIS\APRX\170824801 - RIWP\170824801 - RIWP.aprx Date: 7/22/2024 User: mgeorgalas Time: 12:33 PM



Location	RID01	RID01
Sample Name	RID01_4-6	RID01_8-10
Sample Date	08/27/2025	08/27/2025
Sample Depth	4-6	8-10
VOCs		
1,2,4-Trimethylbenzene	0.39	<0.0022 U
1,3,5-Trimethylbenzene (Mesitylene)	0.15	<0.0022 U
Benzene	<0.03 U	<0.00055 U
Ethylbenzene	0.082	<0.0011 U
Naphthalene	37	0.0016 J
n-Propylbenzene	0.036 J	<0.0011 U
Total Xylenes	0.12 J	<0.0011 U

Location	RISB15	RISB15	RISB15
Sample Name	RISB15_0-2	RISB15_9-11	RISB15_11-13
Sample Date	08/13/2025	08/15/2025	08/15/2025
Sample Depth	0-2	9-11	11-13
VOCs			
1,2,4-Trimethylbenzene	<0.0019 U	<0.0028 U	<0.0019 U
1,3,5-Trimethylbenzene (Mesitylene)	<0.0019 U	<0.0028 U	<0.0019 U
Acetone	0.0046 J	<0.014 U	<0.0095 U
Benzene	<0.00048 U	<0.0007 U	<0.00048 U
Ethylbenzene	<0.00096 U	<0.0014 U	<0.00095 U
Naphthalene	<0.0038 U	0.0015 J	<0.0038 U
n-Butylbenzene	<0.00096 U	<0.0014 U	<0.00095 U
n-Propylbenzene	<0.00096 U	<0.0014 U	<0.00095 U
Toluene	<0.00096 U	<0.0014 U	<0.00095 U
Total Xylenes	0.0007 J	0.001 J	<0.00095 U

Location	RISB17	RISB17	RISB17	RISB17
Sample Name	RISB17_0-2	RISB17_9-11	RISB17_11-13	RISB17_29-31
Sample Date	08/22/2025	08/22/2025	08/22/2025	08/22/2025
Sample Depth	0-2	9-11	11-13	29-31
VOCs				
1,2,4-Trimethylbenzene	<0.003 UJ	<0.0026 U	<0.0026 U	<0.0023 U
1,3,5-Trimethylbenzene (Mesitylene)	<0.003 UJ	<0.0026 U	<0.0026 U	<0.0023 U
Acetone	0.0097 J	<0.013 U	<0.013 U	<0.011 U
Benzene	<0.00074 UJ	<0.00065 U	<0.00065 U	<0.00057 U
Ethylbenzene	<0.0015 UJ	<0.0013 U	<0.0013 U	<0.0011 U
Naphthalene	0.0019 J	<0.0052 U	<0.0052 U	0.0024 J
n-Butylbenzene	<0.0015 UJ	<0.0013 U	<0.0013 U	<0.0011 U
n-Propylbenzene	<0.0015 UJ	<0.0013 U	<0.0013 U	<0.0011 U
Toluene	<0.0015 UJ	<0.0013 U	<0.0013 U	<0.0011 U
Total Xylenes	<0.0015 UJ	<0.0013 U	<0.0013 U	<0.0011 U

Location	RISB25	RISB25	RISB25	RISB25	RISB25
Sample Name	RISB25_13-15	RISB25_17-19	RISB25_34-36	SODUP04_090325	RISB25_37-39
Sample Date	09/02/2025	09/02/2025	09/03/2025	09/03/2025	09/03/2025
Sample Depth	13-15	17-19	34-36	34-36	37-39
VOCs					
1,2,4-Trimethylbenzene	0.92	<0.0022 U	<0.002 U	<0.0019 U	<0.002 U
1,3,5-Trimethylbenzene (Mesitylene)	0.35	<0.0022 U	0.00055 J	<0.0019 U	<0.002 U
Acetone	<0.0091 UJ	<0.011 U	<0.01 U	<0.0094 U	<0.01 U
Benzene	0.00018 J	<0.00055 U	<0.00051 U	<0.00047 U	<0.0005 U
Ethylbenzene	0.17 J	<0.0011 U	<0.001 U	<0.00094 U	<0.001 U
Naphthalene	0.1 J	<0.0044 U	<0.0041 U	<0.0038 U	<0.004 U
n-Butylbenzene	0.071 J	<0.0011 U	<0.001 U	<0.00094 U	<0.001 U
n-Propylbenzene	0.19 J	<0.0011 U	<0.001 U	<0.00094 U	<0.001 U
Toluene	0.00061 J	<0.0011 U	<0.001 U	<0.00094 U	<0.001 U
Total Xylenes	0.37	<0.0011 U	<0.001 U	<0.00094 U	<0.001 U

Location	RISB04	RISB04	RISB04	RISB04	RISB04	RISB04
Sample Name	RISB04_0-2	RISB04_11-13	SODUP02_082725	RISB04-21-23	RISB04-26-28	RISB04-41-43
Sample Date	08/26/2025	08/27/2025	08/27/2025	09/05/2025	09/05/2025	09/05/2025
Sample Depth	0-2	11-13	11-13	21-23	26-28	41-43
VOCs						
1,2,4-Trimethylbenzene	0.014	540	420	0.0013 J	600	0.059
1,3,5-Trimethylbenzene (Mesitylene)	0.0061	150	120	0.00032 J	170	0.016
Acetone	0.021	<5.3 U	19	<0.01 U	<5.8 U	<0.0095 U
Benzene	0.00034 J	0.51	3.1	<0.00051 U	1.2	<0.00048 U
Ethylbenzene	0.00052 J	110	200	<0.001 U	180	0.009
Naphthalene	0.0052	63	52	0.0035 J	87	0.0067
n-Butylbenzene	0.002	18	14	0.0002 J	20	0.0033
n-Propylbenzene	0.00034 J	73	69	<0.001 U	88	0.011
Toluene	0.002	100	370	<0.001 U	220	0.00052 J
Total Xylenes	0.0066	750	1,100	<0.001 U	1,100	0.028

Location	RISB16	RISB16	RISB16
Sample Name	RISB16_0-2	RISB16_9-11	RISB16_11-13
Sample Date	08/13/2025	08/15/2025	08/15/2025
Sample Depth	0-2	9-11	11-13
VOCs			
1,2,4-Trimethylbenzene	0.0011 J	<0.0027 U	<0.002 U
1,3,5-Trimethylbenzene (Mesitylene)	0.00028 J	<0.0027 U	<0.002 U
Acetone	0.008 J	<0.014 U	<0.0098 U
Benzene	<0.00055 U	<0.00068 U	<0.00049 U
Ethylbenzene	<0.0011 U	<0.0014 U	<0.00098 U
Naphthalene	0.0068	<0.0054 U	<0.0039 U
n-Butylbenzene	<0.0011 U	<0.0014 U	<0.00098 U
n-Propylbenzene	<0.0011 U	<0.0014 U	<0.00098 U
Toluene	<0.0011 U	<0.0014 U	<0.00098 U
Total Xylenes	0.0009 J	<0.0014 U	<0.00098 U

Location	RISB23	RISB23	RISB23	RISB23	RISB23
Sample Name	RISB23_9-11	RISB23_14-16	RISB23_35-36	RISB23_37-39	RISB23_41-43
Sample Date	08/29/2025	08/29/2025	08/29/2025	08/29/2025	08/29/2025
Sample Depth	9-11	14-16	35-36	37-39	41-43
VOCs					
1,2,4-Trimethylbenzene	270	<0.0023 U	35	17 J	0.001 J
1,3,5-Trimethylbenzene (Mesitylene)	88	<0.0023 U	0.12 J	0.27 J	<0.0021 U
Acetone	<4.9 UJ	<0.012 U	<0.6 UJ	<0.6 U	<0.01 UJ
Benzene	1.3 J	<0.00058 U	<0.03 U	<0.03 U	0.00032 J
Ethylbenzene	79	<0.0012 U	0.51 J	0.29 J	0.00022 J
Naphthalene	49 J	<0.0046 U	<0.24 U	0.13 J	<0.0042 U
n-Butylbenzene	20 J	<0.0012 U	4.8 J	2.4 J	<0.001 U
n-Propylbenzene	65 J	<0.0012 U	6.2 J	3.7 J	0.00021 J
Toluene	26 J	<0.0012 U	<0.06 U	<0.06 U	0.0016
Total Xylenes	510	<0.0012 U	0.11 J	0.22 J	0.00078 J

Location	RISB01	RISB01	RISB01
Sample Name	RISB01_0-2	RISB01_10-12	RISB01_12-14
Sample Date	08/13/2025	08/13/2025	08/18/2025
Sample Depth	0-2	10-12	12-14
VOCs			
1,2,4-Trimethylbenzene	<0.0022 U	26	<0.0018 U
1,3,5-Trimethylbenzene (Mesitylene)	<0.0022 U	7.8	<0.0018 U
Acetone	<0.011 U	<0.0087 U	<0.0092 U
Benzene	<0.00056 U	0.0004 J	<0.00046 U
Ethylbenzene	<0.0011 U	1	<0.00092 U
Naphthalene	0.0011 J	9.4	<0.0037 U
n-Butylbenzene	<0.0011 U	3.5	<0.00092 U
n-Propylbenzene	<0.0011 U	2.6	<0.00092 U
Toluene	<0.0011 U	0.28	<0.00092 U
Total Xylenes	<0.0011 U	9.3	<0.00092 U

Location	RID06
Sample Name	RID06_9-11
Sample Date	09/18/2025
Sample Depth	9-11
VOCs	
1,2,4-Trimethylbenzene	<0.0017 U
1,3,5-Trimethylbenzene (Mesitylene)	<0.0017 U
Benzene	<0.00044 U
Ethylbenzene	<0.00087 U
Naphthalene	<0.0035 U
n-Propylbenzene	<0.00087 U
Total Xylenes	<0.00087 U

Location	RISB22	RISB22	RISB22
Sample Name	RISB22_15-17	RISB22_20-22	RISB22_45-47
Sample Date	09/04/2025	09/04/2025	09/04/2025
Sample Depth	15-17	20-22	45-47
VOCs			
1,2,4-Trimethylbenzene	6.2	<0.0023 U	130
1,3,5-Trimethylbenzene (Mesitylene)	2	<0.0023 U	37 J
Acetone	<0.55 U	<0.011 U	<3.1 U
Benzene	<0.027 U	<0.00057 U	<0.15 U
Ethylbenzene	0.27	<0.0011 U	15 J
Naphthalene	0.94	<0.0046 U	12 J
n-Butylbenzene	0.29	<0.0011 U	4.5 J
n-Propylbenzene	0.77	<0.0011 U	15 J
Toluene	0.047 J	<0.0011 U	<0.31 U
Total Xylenes	2.7	<0.0011 U	72 J

Location	RISB18	RISB18	RISB18
Sample Name	RISB18_0-2	RISB18_9-11	RISB18_24-26
Sample Date	08/26/2025	08/26/2025	08/26/2025
Sample Depth	0-2	9-11	24-26
VOCs			
1,2,4-Trimethylbenzene	53	93	<0.0024 U
1,3,5-Trimethylbenzene (Mesitylene)	15	33	<0.0024 U
Acetone	<0.54 U	<2.3 U	<0.012 U
Benzene	<0.027 U	<0.12 U	<0.0006 U
Ethylbenzene	0.053 J	25	<0.0012 U
Naphthalene	2.7	12	<0.0048 U
n-Butylbenzene	8.2	5.2	<0.0012 U
n-Propylbenzene	1.9	15	<0.0012 U
Toluene	<0.054 U	23	<0.0012 U
Total Xylenes	4.7	140	<0.0012 U

Location	RID19	RID19
Sample Name	RID19_41-43	RID19_49-51
Sample Date	09/19/2025	09/19/2025
Sample Depth	41-43	49-51
VOCs		
1,2,4-Trimethylbenzene	210 J	0.00036 J
1,3,5-Trimethylbenzene (Mesitylene)	16	<0.0021 U
Benzene	0.14 J	<0.00053 U
Ethylbenzene	15	<0.0011 U
Naphthalene	5.9	0.0092
n-Propylbenzene	49	0.00019 J
Total Xylenes	5.8	<0.0011 U

Location	RISB13	RISB13	RISB13
Sample Name	RISB13_0-2	RISB13_9-11	RISB13_12-14
Sample Date	08/13/2025	08/13/2025	08/13/2025
Sample Depth	0-2	9-11	12-14
VOCs			
1,2,4-Trimethylbenzene	<0.0021 U	0.0098	<0.0021 U
1,3,5-Trimethylbenzene (Mesitylene)	<0.0021 U	0.078	<0.0021 U
Acetone	<0.011 U	0.0069 J	<0.01 U
Benzene	<0.00054 U	<0.00049 U	<0.00052 U
Ethylbenzene	<0.0011 U	0.00017 J	<0.001 U
Naphthalene	<0.0043 U	0.0018 J	<0.0042 U
n-Butylbenzene	<0.0011 U	0.0032	<0.001 U
n-Propylbenzene	<0.0011 U	0.001	<0.001 U
Toluene	<0.0011 U	<0.00099 U	<0.001 U
Total Xylenes	<0.0011 U	0.0067	<0.001 U

Location	RISB19	RISB19
Sample Name	RISB19_0-2	RISB19_2-4
Sample Date	09/08/2025	09/30/2025
Sample Depth	0-2	2-4
VOCs		
1,2,4-Trimethylbenzene	<0.0021 U	<0.0022 U
1,3,5-Trimethylbenzene (Mesitylene)	<0.0021 U	<0.0022 U
Acetone	<0.011 U	<0.011 U
Benzene	<0.00053 U	<0.00055 U
Ethylbenzene	<0.0011 U	<0.0011 U
Naphthalene	<0.0043 U	<0.0044 U
n-Butylbenzene	<0.0011 U	<0.0011 U
n-Propylbenzene	<0.0011 U	<0.0011 U
Toluene	<0.0011 U	<0.0011 U
Total Xylenes	<0.0011 U	<0.0011 U

Location	RISB14	RISB14	RISB14
Sample Name	RISB14_0-2	RISB14_9-11	RISB14_12-14
Sample Date	08/13/2025	08/13/2025	08/15/2025
Sample Depth	0-2	9-11	12-14
VOCs			
1,2,4-Trimethylbenzene	<0.0023 U	4	0.00036 J
1,3,5-Trimethylbenzene (Mesitylene)	<0.0023 U	5.9	<0.0021 U
Acetone	<0.011 U	<0.92 U	<0.01 U
Benzene	<0.00057 U	<0.046 U	<0.00053 U
Ethylbenzene	<0.0011 U	0.045 J	<0.001 U
Naphthalene	<0.0045 U	0.34 J	0.001 J
n-Butylbenzene	<0.0011 U	0.91	<0.001 U
n-Propylbenzene	<0.0011 U	0.18	<0.001 U
Toluene	<0.0011 U	<0.092 U	<0.001 U
Total Xylenes	<0.0011 U	1.2 J	0.00076 J

Location	RISB05
Sample Name	RISB05_0-2
Sample Date	08/28/2025
Sample Depth	0-2
VOCs	
1,2,4-Trimethylbenzene	<0.002 U
1,3,5-Trimethylbenzene (Mesitylene)	<0.002 U
Acetone	<0.01 U
Benzene	<0.0005 U
Ethylbenzene	<0.001 U
Naphthalene	<0.004 U
n-Butylbenzene	<0.001 U
n-Propylbenzene	<0.001 U
Toluene	<0.001 U
Total Xylenes	<0.001 U

Location	RID16	RID16	RID16
Sample Name	RID16_37-39	SODUP07_091825	RID16_46-48
Sample Date	09/18/2025	09/18/2025	09/18/2025
Sample Depth	37-39	37-39	46-48
VOCs			
1,2,4-Trimethylbenzene	570 J	280 J	0.0012 J
1,3,5-Trimethylbenzene (Mesitylene)	160 J	75 J	0.00036 J
Benzene	<0.33 U	<0.032 UJ	<0.00057 U
Ethylbenzene	130 J	50 J	<0.0011 U
Naphthalene	52 J	17 J	0.0008 J
n-Propylbenzene	71 J	38 J	<0.0011 U
Total Xylenes	500 J	100 J	<0.0011 U

Location	RID05
Sample Name	RID05_8-10
Sample Date	08/28/2025
Sample Depth	8-10
VOCs	
1,2,4-Trimethylbenzene	<0.0021 U
1,3,5-Trimethylbenzene (Mesitylene)	<0.0021 U
Benzene	<0.00052 U
Ethylbenzene	<0.001 U
Naphthalene	<0.0042 U
n-Propylbenzene	<0.001 U
Total Xylenes	<0.001 U

Location	RID02	RID02
Sample Name	RID02_8-10	RID02_13-15
Sample Date	08/26/2025	08/26/2025
Sample Depth	8-10	13-15
VOCs		
1,2,4-Trimethylbenzene	0.044	<0.0019 U
1,3,5-Trimethylbenzene (Mesitylene)	0.0093	<0.0019 U
Benzene	0.0012	<0.00047 U
Ethylbenzene	0.0058	<0.00093 U
Naphthalene	0.0093	<0.0037 U
n-Propylbenzene	0.0035	<0.00093 U
Total Xylenes	0.046	<0.00093 U

Location	RID18	RID18	RID18	RID18
Sample Name	RID18_5-7	RID18_9-11	RID18_37-39	RID18_45-47
Sample Date	09/09/2025	09/09/2025	09/09/2025	09/09/2025
Sample Depth	5-7	9-11	37-39	45-47
VOCs				
1,2,4-Trimethylbenzene	<0.0021 U	<0.002 U	<0.002 U	<0.0022 U
1,3,5-Trimethylbenzene (Mesitylene)	<0.0021 U	<0.002 U	<0.002 U	<0.0022 U
Benzene	<0.00052 U	<0.0005 U	<0.0005 U	<0.00054 U
Ethylbenzene	<0.001 U	<0.001 U	<0.001 U	<0.0011 U
Naphthalene	<0.0042 U	<0.004 U	0.018 J	<0.0043 U
n-Propylbenzene	<0.001 U	<0.001 U	<0.001 U	0.0013
Total Xylenes	<0.001 U	<0.001 U	<0.001 U	<0.0011 U

Location	RID03	RID03
Sample Name	RID03_8-10	RID03_12-14
Sample Date	08/26/2025	08/26/2025
Sample Depth	8-10	12-14
VOCs		
1,2,4-Trimethylbenzene	<0.0031 U	<0.0019 U
1,3,5-Trimethylbenzene (Mesitylene)	0.0013 J	<0.0019 U
Benzene	<0.00077 U	<0.00048 U
Ethylbenzene	<0.0015 U	<0.00096 U
Naphthalene	<0.0061 U	<0.0038 U
n-Propylbenzene	<0.0015 U	<0.00096 U
Total Xylenes	<0.0015 U	<0.00096 U

Location	RID04	RID04
Sample Name	RID04_4-6	RID04_8-10
Sample Date	08/27/2025	08/27/2025
Sample Depth	4-6	8-10
VOCs		
1,2,4-Trimethylbenzene	<0.0026 U	0.0017 J
1,3,5-Trimethylbenzene (Mesitylene)	0.00061 J	0.0008 J
Benzene	<0.00066 U	<0.00064 U
Ethylbenzene	<0.0013 U	<0.0013 U
Naphthalene	0.012	0.0028 J
n-Propylbenzene	<0.0013 U	<0.0013 U
Total Xylenes	<0.0013 U	<0.0013 U

Location	RISB03	RISB03	RISB03	RISB03
Sample Name	RISB03_0-2	RISB03_4-6	RISB03_6-8	RISB03_29-31
Sample Date	08/21/2025	08/21/2025	08/21/2025	08/21/2025
Sample Depth	0-2	4-6	6-8	29-31
VOCs				
1,2,4-Trimethylbenzene	<0.0025 UJ	<0.0027 U	<0.002 U	<0.002 UJ
1,3,5-Trimethylbenzene (Mesitylene)	<0.0025 UJ	<0.0027 U	<0.002 U	<0.002 UJ
Acetone	0.015 J	<0.014 U	<0.01 U	<0.01 UJ
Benzene	<0.00063 UJ	<0.00068 U	<0.0005 U	<0.00051 UJ
Ethylbenzene	0.00026 J	<0.0014 U	<0.001 U	<0.001 UJ
Naphthalene	0.0032 J	<0.0054 U	<0.004 U	<0.0041 UJ
n-Butylbenzene	<0.0012 UJ	<0.0014 U	<0.001 U	<0.001 UJ
n-Propylbenzene	<0.0012 UJ	<0.0014 U	<0.001 U	<0.001 UJ
Toluene	<0.0012 UJ	<0.0014 U	<0.001 U	<0.001 UJ
Total Xylenes	0.002 J	<0.0014 U	<0.001 U	<0.001 UJ

Location	RISB02	RISB02	RISB02
Sample Name	RISB02_0-2	RISB02_4-6	RISB02_8-10
Sample Date	08/18/2025	08/18/2025	08/18/2025
Sample Depth	0-2	4-6	8-10
VOCs			
1,2,4-Trimethylbenzene	<0.0022 U	<0.0018 U	<0.0025 U
1,3,5-Trimethylbenzene (Mesitylene)	<0.0022 U	<0.0018 U	<0.0025 U
Acetone	<0.011 U	<0.0089 U	<0.012 U
Benzene	<0.00056 U	<0.00044 U	<0.00062 U
Ethylbenzene	<0.0011 U	<0.00089 U	<0.0012 U
Naphthalene	<0.0044 U	<0.0036 U	<0.0049 U
n-Butylbenzene	<0.0011 U	<0.00089 U	<0.0012 U
n-Propylbenzene	<0.0011 U	<0.00089 U	<0.0012 U
Toluene	<0.0011 U	<0.00089 U	<0.0012 U
Total Xylenes	<0.0011 U	<0.00089 U	<0.0012 U

Location	RISB08	RISB08	RISB08	RISB08
Sample Name	RISB08_0-2	SODUP03_090325	RISB08_2-4	RISB08_5-7
Sample Date	09/03/2025	09/03/2025	09/03/2025	09/03/2025
Sample Depth	0-2	0-2	2-4	5-7
VOCs				
1,2,4-Trimethylbenzene	<0.0021 U	<0.0022 U	<0.0019 U	<0.0021 U
1,3,5-Trimethylbenzene (Mesitylene)	<0.0021 U	0.00087 J	<0.0019 U	<0.0021 U
Acetone	<0.01 U	<0.011 U	<0.0095 U	<0.01 U
Benzene	<0.00052 U	<0.00056 U	<0.00047 U	<0.00052 U
Ethylbenzene	<0.001 U	<0.0011 U	<0.00095 U	<0.001 U
Naphthalene	<0.0042 U	<0.0045 U	<0.0038 U	<0.0041 U
n-Butylbenzene	<0.001 U	<0.0011 U	<0.00095 U	<0.001 U
n-Propylbenzene	<0.001 U	<0.0011 U	<0.00095 U	<0.001 U
Toluene	<0.001 U	<0.0011 U	<0.00095 U	<0.001 U
Total Xylenes	<0.001 U	<0.0011 U	<0.00095 U	<0.001 U

Location	RISB06	RISB06	RISB06
Sample Name	RISB06_0-2	RISB06_8-10	RISB06_12-14
Sample Date	08/18/2025	08/18/2025	08/18/2025
Sample Depth	0-2	8-10	12-14
VOCs			
1,2,4-Trimethylbenzene	<0.0024 U	<0.0028 U	<0.0021 U
1,3,5-Trimethylbenzene (Mesitylene)	<0.0024 U	<0.0028 U	<0.0021 U
Acetone	<0.012 U	<0.014 U	<0.011 U
Benzene	<0.00059 U	<0.00069 U	<0.00054 U
Ethylbenzene	<0.0012 U	<0.0014 U	<0.0011 U
Naphthalene	<0.0047 U	<0.0055 U	<0.0043 U
n-Butylbenzene	<0.0012 U	<0.0014 U	<0.0011 U
n-Propylbenzene	<0.0012 U	<0.0014 U	<0.0011 U
Toluene	<0.0012 U	<0.0014 U	<0.0011 U
Total Xylenes	<0.0012 U	<0.0014 U	<0.0011 U

Location	RISB09	RISB09	RISB09
Sample Name	RISB09_0-2	RISB09_4-6	RISB09_8-10
Sample Date	08/19/2025	08/19/2025	08/19/2025
Sample Depth	0-2	4-6	8-10
VOCs			
1,2,4-Trimethylbenzene	<0.0028 U	<0.0022 U	<0.002 U
1,3,5-Trimethylbenzene (Mesitylene)	<0.0028 U	<0.0022 U	<0.002 U
Acetone	<0.014 U	<0.011 U	<0.0098 U
Benzene	<0.0007 U	<0.00055 U	<0.00049 U
Ethylbenzene	<0.0014 U	<0.0011 U	<0.00098 U
Naphthalene	<0.0056 U	<0.0044 U	<0.0039 U
n-Butylbenzene	<0.0014 U	<0.0011 U	<0.00098 U
n-Propylbenzene	<0.0014 U	<0.0011 U	<0.00098 U
Toluene	<0.0014 U	<0.0011 U	<0.00098 U
Total Xylenes	<0.0014 U	<0.0011 U	<0.00098 U

Location	RID10	RID10
Sample Name	RID10_5-7	RID10_8-10
Sample Date	09/04/2025	09/04/2025
Sample Depth	5-7	8-10
VOCs		
1,2,4-Trimethylbenzene	0.12 J	<0.0019 U
1,3,5-Trimethylbenzene (Mesitylene)	0.047 J	<0.0019 U
Benzene	<0.0006 U	<0.00047 U
Ethylbenzene	0.00033 J	<0.00094 U
Naphthalene	0.2 J	0.001 J
n-Propylbenzene	0.005 J	<0.00094 U
Total Xylenes	0.0022 J	<0.00094 U

Location	RID11	RID11
Sample Name	RID11_2-4	RID11_10-12
Sample Date	09/08/2025	09/08/2025
Sample Depth	2-4	10-12
VOCs		
1,2,4-Trimethylbenzene	24	0.00046 J
1,3,5-Trimethylbenzene (Mesitylene)	<0.11 U	<0.0022 U
Benzene	<0.027 U	<0.00056 U
Ethylbenzene	0.38 J	<0.0011 U
Naphthalene	82	0.0062
n-Propylbenzene	0.98 J	<0.0011 U
Total Xylenes	1 J	<0.0011 U

Location	RID14	RID14
Sample Name	RID14_8-10	RID14_16-18
Sample Date	09/10/2025	09/10/2025
Sample Depth	8-10	16-18
VOCs		
1,2,4-Trimethylbenzene	22	<0.0021 U
1,3,5-Trimethylbenzene (Mesitylene)	5.7	<0.0021 U
Benzene	<0.027 U	<0.00053 U
Ethylbenzene	0.84	<0.001 U
Naphthalene	27	<0.0042 U
n-Propylbenzene	1.4	<0.001 U
Total Xylenes	6.7	<0.001 U

Location	RISB10	RISB10	RISB10	RISB10
Sample Name	RISB10_0-2	SODUP01_081925	RISB10_4-6	RISB10_6-8
Sample Date	08/19/2025	08/19/2025	08/19/2025	08/19/2025
Sample Depth	0-2	0-2	4-6	6-8
VOCs				
1,2,4-Trimethylbenzene	<0.0026 U	<0.0024 U	<0.0023 U	<0.0028 U
1,3,5-Trimethylbenzene (Mesitylene)	<0.0026 U	<0.0024 U	<0.0023 U	<0.0028 U
Acetone	<0.013 U	<0.012 U	<0.011 U	<0.014 U
Benzene	<0.00066 U	<0.0006 U	<0.00057 U	<0.00069 U
Ethylbenzene	<0.0013 U	<0.0012 U	<0.0011 U	<0.0014 U
Naphthalene	<0.0053 U	<0.0048 U	<0.0046 U	<0.0055 U
n-Butylbenzene	<0.0013 U	<0.0012 U	<0.0011 U	<0.0014 U
n-Propylbenzene	<0.0013 U	<0.0012 U	<0.0011 U	<0.0014 U
Toluene	<0.0013 U	<0.0012 U	<0.0011 U	<0.0014 U
Total Xylenes	<0.0013 U	<0.0012 U	<0.0011 U	<0.0014 U

Location	RISB07	RISB07
Sample Name	RISB07_0-1	RISB07_1-3
Sample Date	08/20/2025	08/20/2025
Sample Depth	0-1	1-3
VOCs		
1,2,4-Trimethylbenzene	<0.0023 U	<0.002 U
1,3,5-Trimethylbenzene (Mesitylene)	<0.0023 U	<0.002 U
Acetone	<0.012 U	<0.01 U
Benzene	<0.00058 U	<0.00051 U
Ethylbenzene	<0.0012 U	<0.001 U
Naphthalene	<0.0046 U	<0.0041 U
n-Butylbenzene	<0.0012 U	<0.001 U
n-Propylbenzene	<0.0012 U	<0.001 U
Toluene	<0.0012 U	<0.001 U
Total Xylenes	<0.0012 U	<0.001 U

Location	RID13
Sample Name	RID13_4-6
Sample Date	09/10/2025
Sample Depth	4-6
VOCs	
1,2,4-Trimethylbenzene	<0.0018 U
1,3,5-Trimethylbenzene (Mesitylene)	<0.0018 U
Benzene	<0.00046 U
Ethylbenzene	<0.00092 U
Naphthalene	<0.0037 U
n-Propylbenzene	<0.00092 U
Total Xylenes	<0.00092 U

Location	RID08	RID08
Sample Name	RID08_1-3	RID08_4-6
Sample Date	09/04/2025	09/04/2025
Sample Depth	1-3	4-6
VOCs		
1,2,4-Trimethylbenzene	<0.0018 U	<0.0022 U
1,3,5-Trimethylbenzene (Mesitylene)	<0.0018 U	<0.0022 U
Benzene	<0.00046 U	<0.00056 U
Ethylbenzene	<0.00092 U	<0.0011 U
Naphthalene	<0.0037 U	0.00079 J
n-Propylbenzene	<0.00092 U	<0.0011 U
Total Xylenes	<0.00092 U	<0.0011 U

Location	RID07	RID07
Sample Name	RID07_6-8	RID07_10-12
Sample Date	09/04/2025	09/04/2025
Sample Depth	6-8	10-12
VOCs		
1,2,4-Trimethylbenzene	5.5	<0.0019 U
1,3,5-Trimethylbenzene (Mesitylene)	0.025 J	<0.0019 U
Benzene	<0.029 U	<0.00047 U
Ethylbenzene	0.13	<0.00095 U
Naphthalene	14	0.00089 J
n-Propylbenzene	0.27	<0.00095 U
Total Xylenes	0.31	<0.00095 U

Location	RID15	RID15
Sample Name	RID15_4-6	SODUP05_091025
Sample Date	09/10/2025	09/10/2025
Sample Depth	4-6	4-6
VOCs		
1,2,4-Trimethylbenzene	<0.0022 U	<0.0022 U
1,3,5-Trimethylbenzene (Mesitylene)	<0.0022 U	<0.0022 U
Benzene	<0.00055 U	<0.00054 U
Ethylbenzene	<0.0011 U	<0.0011 U
Naphthalene	<0.0044 U	<0.0043 U
n-Propylbenzene	<0.0011 U	<0.0011 U
Total Xylenes	<0.0011 U	<0.0011 U

Location	RID17	RID17	RID17	RID17	RID17
Sample Name	RID17_4-6	RID17_8-10	RID17_38-39	SODUP06_091525	RID17_48-50
Sample Date	09/15/2025	09/15/2025	09/15/2025	09/15/2025	09/15/2025
Sample Depth	4-6	8-10	38-39	38-39	48-50
VOCs					
1,2,4-Trimethylbenzene	0.43	<0.002 U	12 J	110 J	0.012
1,3,5-Trimethylbenzene (Mesitylene)	0.16	<0.002 U	0.087 J	1.6 J	<0.0021 U
Benzene	<0.00047 U	<0.00049 U	<0.032 U	<0.035 U	<0.00054 U
Ethylbenzene	0.00029 J	<0.00099 U	0.41 J	2.4 J	0.00062 J
Naphthalene	1.9	<0.0039 U	0.25 J	0.14 J	<0.0043 U
n-Propylbenzene	0.017 J	<0.00099 U	3.6 J	16 J	0.0024
Total Xylenes	0.0024 J	<0.00099 U	<0.065 U	<0.07 U	<0.0011 U

Location	RISB11	RISB11	RISB11
Sample Name	RISB11_0-2	RISB11_2-4	RISB11_4-6
Sample Date	08/21/2025	08/21/2025	08/21/2025
Sample Depth	0-2	2-4	4-6
VOCs			
1,2,4-Trimethylbenzene	<0.0025 U	<0.0024 U	<0.0018 U
1,3,5-Trimethylbenzene (Mesitylene)	<0.0025 U	<0.0024 U	<0.0018 U
Acetone	<0.012 U	<0.012 U	<0.0091 U
Benzene	<0.00062 U	<0.00059 U	<0.00046 U
Ethylbenzene	<0.0012 U	<0.0012 U	<0.00091 U
Naphthalene	<0.005 U	0.0017 J	<0.0036 U
n-Butylbenzene	<0.0012 U	<0.0012 U	<0.00091 U
n-Propylbenzene	<0.0012 U	<0.0012 U	<0.00091 U
Toluene	<0.0012 U	<0.0012 U	<0.00091 U
Total Xylenes	<0.0012 U	<0.0012 U	<0.00091 U

Location	RID12	RID12
Sample Name	RID12_0-2	RID12_8-10
Sample Date	09/10/2025	09/10/2025
Sample Depth	0-2	8-10
VOCs		
1,2,4-Trimethylbenzene	0.001 J	<0.002 U
1,3,5-Trimethylbenzene (Mesitylene)	0.0003 J	<0.002 U
Benzene	<0.00057 U	<0.00051 U
Ethylbenzene	<0.0011 U	<0.001 U
Naphthalene	0.024	<0.004 U
n-Propylbenzene	<0.0011 U	<0.001 U
Total Xylenes	<0.0011 U	<0.001 U

Location	RID09	RID09
Sample Name	RID09_0-2	RID09_8-10
Sample Date	09/04/2025	09/04/2025
Sample Depth	0-2	8-10
VOCs		
1,2,4-Trimethylbenzene	4.3	0.00095 J
1,3,5-Trimethylbenzene (Mesitylene)	1.6	0.00019 J
Benzene	<0.024 U	<0.0005 U
Ethylbenzene	0.015 J	<0.001 U
Naphthalene	7.3	0.064
n-Propylbenzene	0.052	<0.001 U
Total Xylenes	0.34	<0.001 U

Location	RISB12	RISB12	RISB12
Sample Name	RISB12_0-2	RISB12_4-6	RISB12_8-10
Sample Date	09/04/2025	09/04/2025	09/04/2025
Sample Depth	0-2	4-6	8-10
VOCs			
1,2,4-Trimethylbenzene	<0.002 U	0.003	<0.002 U
1,3,5-Trimethylbenzene (Mesitylene)	<0.002 U	0.00096 J	<0.002 U
Acetone	<0.01 U	<0.01 U	<0.01 U
Benzene	<0.00051 U	<0.00052 U	<0.0005 U
Ethylbenzene	<0.001 U	<0.001 U	<0.001 U
Naphthalene	0.0013 J	0.0087	<0.004 U
n-Butylbenzene	<0.001 U	0.00052 J	<0.001 U
n-Propylbenzene	<0.001 U	<0.001 U	<0.001 U
Toluene	<0.001 U	<0.001 U	<0.001 U
Total Xylenes	<0.001 U	<0.001 U	<0.001 U

Legend

- Approximate Site Boundary
- Soil Boring Location
- AOC 1: Historic Site Operations
- AOC 2: Petroleum Storage and Related Impacts in Soil and Groundwater
- AOC 3: NYSDEC Spill No. 2407320

Analyte	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Protection of Groundwater SCOs	NYSDEC Part 375 Restricted-Residential SCOs
VOCs			
1,2,4-Trimethylbenzene	5.9	5.9	100
1,3,5-Trimethylbenzene (Mesitylene)	3.1	3.1	100
Acetone	0.03	*	100
Benzene	0.06	0.06	3.7
Ethylbenzene	1	1	76
Naphthalene	12	12	100
n-Butylbenzene	18	18	100
n-Propylbenzene	5	5	100
Toluene	0.7	*	100
Total Xylenes	0.26	1.2	100

Exceedance Summary:

10 - Result exceeds Unrestricted Use SCOs
10 - Result exceeds Protection of Groundwater SCOs
10 - Result exceeds Restricted-Residential SCOs

Notes:
1. Aerial imagery provided through Langan's subscription to Near Map, dated 07/03/2025.
2. Soil sample analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 of the Official Compilation of New York Codes, Rules, and Regulations (NYCRR) Part 375 Unrestricted Use, Protection of Groundwater, and Restricted-Residential Soil Cleanup Objectives (SCO).
3. AOC - Area of Concern
4. mg/kg - milligram per kilogram
5. RL - Reporting limit
6. <RL - Not detected

Qualifiers:
J - The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.
UJ - The analyte was not detected at a level greater than or equal to the RL; however, the reported RL is approximate and may be inaccurate or imprecise.
U - The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the RL or the sample concentration for results impacted by blank contamination.

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SCALE IN FEET

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Project
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BLOCK No. 3062, LOT No. 12
BROOKLYN NEW YORK

Figure Title
REMEDIAL INVESTIGATION SOIL SAMPLE ANALYTICAL RESULTS MAP - VOCS

Project No. 170824801
Date 4/15/2026
Scale 1" = 30 feet
Drawn By MG
Submission Date
Figure No. 2

Path: \\langan.com\data\NY\data8\170824801\Project Data\ArcGIS\APRX\170824801 - RIWP\170824801 - RIR.aprx

Location	RIMW01
Sample Name	RIMW01_100125
Sample Date	10/01/2025
VOCs	
1,2,4,5-Tetramethylbenzene	**7.8**
1,2,4-Trimethylbenzene	**26**
1,2-Dichlorobenzene	<2.5 U
1,3,5-Trimethylbenzene (Mesitylene)	0.7 J
Benzene	**7.2**
Chloroform	<2.5 U
Ethylbenzene	<2.5 U
Isopropylbenzene (Cumene)	1.9 J
M,P-Xylene	**20**
Naphthalene	**150**
n-Butylbenzene	<2.5 U
n-Propylbenzene	<2.5 U
o-Xylene (1,2-Dimethylbenzene)	**34**
Sec-Butylbenzene	2.7
Tetrachloroethene (PCE)	**5.4**
Total Xylenes	**54**
Trichloroethene (TCE)	0.8
SVOCs	
1,2-Dichlorobenzene	<2 U
Benzo(a)anthracene	**0.04 J**
Chrysene	**0.03 J**
Naphthalene	**89 J**
Nitrobenzene	<2 U
Metals - Dissolved	
Iron	20.8 J
Manganese	**2,675**
Sodium	**237,000**
Metals - Total	
Iron	776
Manganese	**2,806**
Sodium	**242,000**
PFAS	
Perfluorooctanesulfonic Acid (PFOS)	**0.0198 J**
Perfluorooctanoic Acid (PFOA)	**0.023**

Location	RIMW21
Sample Name	RIMW21_100125
Sample Date	10/01/2025
VOCs	
1,2,4,5-Tetramethylbenzene	<2 U
1,2,4-Trimethylbenzene	1.4 J
1,2-Dichlorobenzene	<2.5 U
1,3,5-Trimethylbenzene (Mesitylene)	<2.5 U
Benzene	<0.5 U
Chloroform	<2.5 U
Ethylbenzene	3.5
Isopropylbenzene (Cumene)	1.3 J
M,P-Xylene	<2.5 U
Naphthalene	<2.5 U
n-Butylbenzene	<2.5 U
n-Propylbenzene	2.5
o-Xylene (1,2-Dimethylbenzene)	<2.5 U
Sec-Butylbenzene	<2.5 U
Tetrachloroethene (PCE)	0.21 J
Total Xylenes	<2.5 U
Trichloroethene (TCE)	1
SVOCs	
1,2-Dichlorobenzene	<2 U
Benzo(a)anthracene	<0.1 U
Chrysene	<0.1 U
Naphthalene	0.23 J
Nitrobenzene	<2 U

Location	RIMW04
Sample Name	RIMW04_100225
Sample Date	10/02/2025
VOCs	
1,2,4,5-Tetramethylbenzene	**56**
1,2,4-Trimethylbenzene	**1,500**
1,2-Dichlorobenzene	**7.9 J**
1,3,5-Trimethylbenzene (Mesitylene)	**400**
Benzene	<5 U
Chloroform	<25 U
Ethylbenzene	**680**
Isopropylbenzene (Cumene)	**49**
M,P-Xylene	**2,300**
Naphthalene	**500**
n-Butylbenzene	**10 J**
n-Propylbenzene	**150**
o-Xylene (1,2-Dimethylbenzene)	<25 U
Sec-Butylbenzene	**8.1 J**
Tetrachloroethene (PCE)	<5 U
Total Xylenes	**2,300**
Trichloroethene (TCE)	<5 U
SVOCs	
1,2-Dichlorobenzene	**4**
Benzo(a)anthracene	**0.05 J**
Chrysene	<0.1 U
Naphthalene	**250**
Nitrobenzene	**18**

Location	RIMW25
Sample Name	RIMW25_100125
Sample Date	10/01/2025
VOCs	
1,2,4,5-Tetramethylbenzene	<2 U
1,2,4-Trimethylbenzene	<2.5 U
1,2-Dichlorobenzene	<2.5 U
1,3,5-Trimethylbenzene (Mesitylene)	<2.5 U
Benzene	<0.5 U
Chloroform	2.1 J
Ethylbenzene	<2.5 U
Isopropylbenzene (Cumene)	<2.5 U
M,P-Xylene	<2.5 U
Naphthalene	<2.5 U
n-Butylbenzene	<2.5 U
n-Propylbenzene	<2.5 U
o-Xylene (1,2-Dimethylbenzene)	<2.5 U
Sec-Butylbenzene	<2.5 U
Tetrachloroethene (PCE)	0.78
Total Xylenes	<2.5 U
Trichloroethene (TCE)	<0.5 U
SVOCs	
1,2-Dichlorobenzene	<2 U
Benzo(a)anthracene	<0.1 U
Chrysene	<0.1 U
Naphthalene	<0.1 U
Nitrobenzene	<2 U

Location	RIMW24
Sample Name	RIMW24_100125
Sample Date	10/01/2025
VOCs	
1,2,4,5-Tetramethylbenzene	<2 U
1,2,4-Trimethylbenzene	<2.5 U
1,2-Dichlorobenzene	<2.5 U
1,3,5-Trimethylbenzene (Mesitylene)	<2.5 U
Benzene	<0.5 U
Chloroform	<2.5 U
Ethylbenzene	<2.5 U
Isopropylbenzene (Cumene)	<2.5 U
M,P-Xylene	<2.5 U
Naphthalene	<2.5 U
n-Butylbenzene	<2.5 U
n-Propylbenzene	<2.5 U
o-Xylene (1,2-Dimethylbenzene)	<2.5 U
Sec-Butylbenzene	<2.5 U
Tetrachloroethene (PCE)	0.59
Total Xylenes	<2.5 U
Trichloroethene (TCE)	<0.5 U
SVOCs	
1,2-Dichlorobenzene	<2 U
Benzo(a)anthracene	<0.1 U
Chrysene	<0.1 U
Naphthalene	<0.1 U
Nitrobenzene	<2 U

Location	RIMW02
Sample Name	RIMW02_093025
Sample Date	09/30/2025
VOCs	
1,2,4,5-Tetramethylbenzene	<2 U
1,2,4-Trimethylbenzene	<2.5 U
1,2-Dichlorobenzene	<2.5 U
1,3,5-Trimethylbenzene (Mesitylene)	<2.5 U
Benzene	<0.5 U
Chloroform	4.7
Ethylbenzene	<2.5 U
Isopropylbenzene (Cumene)	<2.5 U
M,P-Xylene	<2.5 U
Naphthalene	<2.5 U
n-Butylbenzene	<2.5 U
n-Propylbenzene	<2.5 U
o-Xylene (1,2-Dimethylbenzene)	<2.5 U
Sec-Butylbenzene	<2.5 U
Tetrachloroethene (PCE)	**12**
Total Xylenes	<2.5 U
Trichloroethene (TCE)	0.65
SVOCs	
1,2-Dichlorobenzene	<2 U
Benzo(a)anthracene	<0.1 U
Chrysene	<0.1 U
Naphthalene	0.05 J
Nitrobenzene	<2 U
Metals - Dissolved	
Iron	273
Manganese	**2,625 J**
Sodium	**26,700**
Metals - Total	
Iron	**304**
Manganese	**2,676**
Sodium	**25,900 J**
PFAS	
Perfluorooctanesulfonic Acid (PFOS)	**0.0057**
Perfluorooctanoic Acid (PFOA)	**0.048**

Location	RIMW09	RIMW09
Sample Name	RIMW09_093025	GWDUP01_093025
Sample Date	09/30/2025	09/30/2025
VOCs		
1,2,4,5-Tetramethylbenzene	<2 U	<2 U
1,2,4-Trimethylbenzene	<2.5 U	<2.5 U
1,2-Dichlorobenzene	<2.5 U	<2.5 U
1,3,5-Trimethylbenzene (Mesitylene)	<2.5 U	<2.5 U
Benzene	<0.5 U	<0.5 U
Chloroform	**19**	**18**
Ethylbenzene	<2.5 U	<2.5 U
Isopropylbenzene (Cumene)	<2.5 U	<2.5 U
M,P-Xylene	<2.5 U	<2.5 U
Naphthalene	<2.5 U	<2.5 U
n-Butylbenzene	<2.5 U	<2.5 U
n-Propylbenzene	<2.5 U	<2.5 U
o-Xylene (1,2-Dimethylbenzene)	<2.5 U	<2.5 U
Sec-Butylbenzene	<2.5 U	<2.5 U
Tetrachloroethene (PCE)	3.1	3
Total Xylenes	<2.5 U	<2.5 U
Trichloroethene (TCE)	0.24 J	0.21 J
SVOCs		
1,2-Dichlorobenzene	<2 U	<2 U
Benzo(a)anthracene	<0.1 U	<0.1 U
Chrysene	<0.1 U	<0.1 U
Naphthalene	0.06 J	0.1 J
Nitrobenzene	<2 U	<2 U
Metals - Dissolved		
Iron	259	277
Manganese	**464.9**	**481**
Sodium	**44,500**	**44,100**
Metals - Total		
Iron	298	283
Manganese	**441.2**	**428.2**
Sodium	**44,200**	**43,900**
PFAS		
Perfluorooctanesulfonic Acid (PFOS)	**0.0138**	**0.0135**
Perfluorooctanoic Acid (PFOA)	**0.0199**	**0.0201**

Location	RIMW17
Sample Name	RIMW17_100225
Sample Date	10/02/2025
VOCs	
1,2,4,5-Tetramethylbenzene	<2 U
1,2,4-Trimethylbenzene	2 J
1,2-Dichlorobenzene	<2.5 U
1,3,5-Trimethylbenzene (Mesitylene)	<2.5 U
Benzene	<0.5 U
Chloroform	0.77 J
Ethylbenzene	<2.5 U
Isopropylbenzene (Cumene)	<2.5 U
M,P-Xylene	<2.5 U
Naphthalene	<2.5 U
n-Butylbenzene	<2.5 U
n-Propylbenzene	<2.5 U
o-Xylene (1,2-Dimethylbenzene)	<2.5 U
Sec-Butylbenzene	<2.5 U
Tetrachloroethene (PCE)	**6**
Total Xylenes	<2.5 U
Trichloroethene (TCE)	0.21 J
SVOCs	
1,2-Dichlorobenzene	<2 U
Benzo(a)anthracene	<0.1 U
Chrysene	<0.1 U
Naphthalene	<0.1 U
Nitrobenzene	<2 U

Location	RIMW12
Sample Name	RIMW12_100225
Sample Date	10/02/2025
VOCs	
1,2,4,5-Tetramethylbenzene	<2 U
1,2,4-Trimethylbenzene	<2.5 U
1,2-Dichlorobenzene	<2.5 U
1,3,5-Trimethylbenzene (Mesitylene)	<2.5 U
Benzene	<0.5 U
Chloroform	1 J
Ethylbenzene	<2.5 U
Isopropylbenzene (Cumene)	<2.5 U
M,P-Xylene	<2.5 U
Naphthalene	<2.5 U
n-Butylbenzene	<2.5 U
n-Propylbenzene	<2.5 U
o-Xylene (1,2-Dimethylbenzene)	<2.5 U
Sec-Butylbenzene	<2.5 U
Tetrachloroethene (PCE)	**7.8**
Total Xylenes	<2.5 U
Trichloroethene (TCE)	0.32 J
SVOCs	
1,2-Dichlorobenzene	<2 U
Benzo(a)anthracene	<0.1 U
Chrysene	<0.1 U
Naphthalene	<0.1 U
Nitrobenzene	<2 U
Metals - Dissolved	
Iron	61.8
Manganese	243.2
Sodium	18,000
Metals - Total	
Iron	67.7
Manganese	269.8
Sodium	18,800
PFAS	
Perfluorooctanesulfonic Acid (PFOS)	**0.00561**
Perfluorooctanoic Acid (PFOA)	**0.0581**

Location	RIMW19
Sample Name	RIMW19_100725
Sample Date	10/07/2025
VOCs	
1,2,4,5-Tetramethylbenzene	<2 U
1,2,4-Trimethylbenzene	<2.5 U
1,2-Dichlorobenzene	<2.5 U
1,3,5-Trimethylbenzene (Mesitylene)	<2.5 U
Benzene	<0.5 U
Chloroform	1 J
Ethylbenzene	<2.5 U
Isopropylbenzene (Cumene)	<2.5 U
M,P-Xylene	<2.5 U
Naphthalene	<2.5 U
n-Butylbenzene	<2.5 U
n-Propylbenzene	<2.5 U
o-Xylene (1,2-Dimethylbenzene)	<2.5 U
Sec-Butylbenzene	<2.5 U
Tetrachloroethene (PCE)	**5.7**
Total Xylenes	<2.5 U
Trichloroethene (TCE)	**13**
SVOCs	
1,2-Dichlorobenzene	<2 U
Benzo(a)anthracene	<0.1 U
Chrysene	<0.1 U
Naphthalene	<0.1 U
Nitrobenzene	<2 U
Metals - Dissolved	
Iron	<50 U
Manganese	**1,565**
Sodium	**190,000**
Metals - Total	
Iron	379 J
Manganese	**1,296**
Sodium	**194,000**
PFAS	
Perfluorooctanesulfonic Acid (PFOS)	**0.0185**
Perfluorooctanoic Acid (PFOA)	**0.0554**

RIMW01 RIMW21 RIMW25 RIMW24 RIMW19 RIMW04 RIMW02 RIMW17 RIMW12 RIMW09

Legend

- Approximate Site Boundary
- Monitoring Well Location
- AOC 1: Historic Site Operations
- AOC 2: Petroleum Storage and Related Impacts in Soil and Groundwater
- AOC 3: NYSDEC Spill No. 2407320

Analyte	NYSDEC SGVs
VOCs	
1,2,4,5-Tetramethylbenzene	5
1,2,4-Trimethylbenzene	5
1,2-Dichlorobenzene	3
1,3,5-Trimethylbenzene (Mesitylene)	5
Benzene	1
Chloroform	7
Ethylbenzene	5
Isopropylbenzene (Cumene)	5
M,P-Xylene	5
Naphthalene	10
n-Butylbenzene	5
n-Propylbenzene	5
o-Xylene (1,2-Dimethylbenzene)	5
Sec-Butylbenzene	5
Tetrachloroethene (PCE)	5
Total Xylenes	5
Trichloroethene (TCE)	5
SVOCs	
1,2-Dichlorobenzene	3
Benzo(a)anthracene	0.002
Chrysene	0.002
Naphthalene	10
Nitrobenzene	0.4
Metals - Dissolved	
Iron	300
Manganese	300
Sodium	20,000
Metals - Total	
Iron	300
Manganese	300
Sodium	20,000
PFAS	
Perfluorooctanesulfonic Acid (PFOS)	0.0027
Perfluorooctanoic Acid (PFOA)	0.0067

Exceedance Summary:

10 - Result exceeds NYSDEC SGVs

Notes:

1. Aerial imagery provided through Langan's subscription to Near Map, dated 07/03/2025.
2. Groundwater sample analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 Codes, Rules, and Regulations (NYCRR) Part 703.5 and the NYSDEC Technical and Operation Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA Water and published addenda (herein collectively referenced as "NYSDEC SGVs").
3. ug/l - microgram per liter
4. RL - Reporting limit
5. <RL - Not detected

Qualifiers:

J - The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.
UJ - The analyte was not detected at a level greater than or equal to the RL; however, the reported RL is approximate and may be inaccurate or imprecise.
U - The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the RL or the sample concentration for results impacted by blank contamination.

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SCALE IN FEET

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Project

172 MONTROSE AVENUE

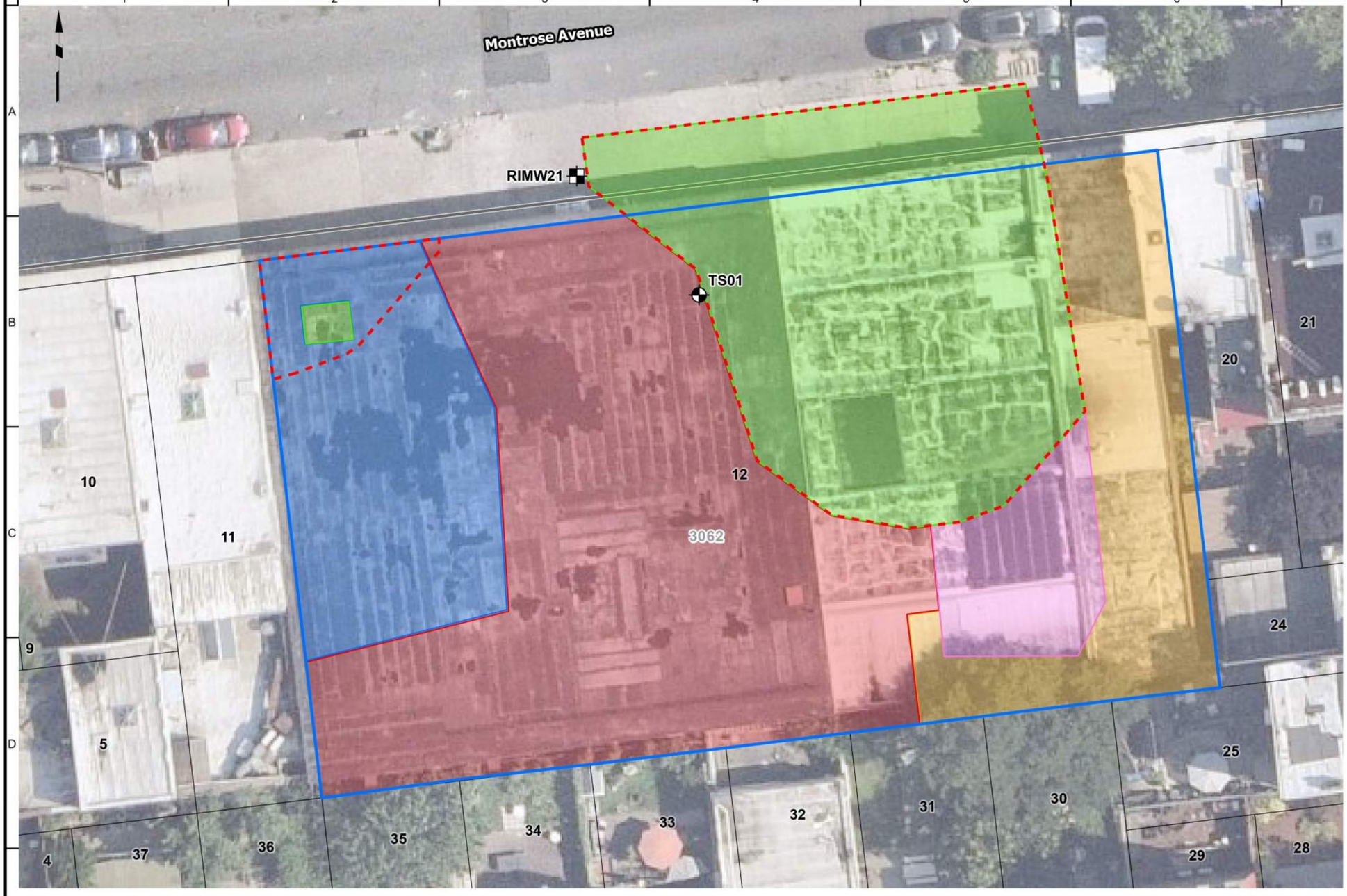
BLOCK No. 3062, LOT No. 12

BROOKLYN NEW YORK

Figure Title

REMEDIAL INVESTIGATION GROUNDWATER SAMPLE ANALYTICAL RESULTS

Project No.	170824801
Date	4/15/2026
Scale	1"=60'
Drawn By	MG
Figure No.	3



Legend

- Proposed Groundwater Treatability Soil Boring Location
- Proposed Groundwater Treatability Groundwater Sample Location
- Approximate Site Boundary
- Tax Block
- Tax Parcel
- Excavation to about 2 feet bgs
- Excavation to about 4 feet bgs
- Excavation to about 10 feet bgs
- Excavation to about 12 feet bgs
- Excavation to about 15 to 17 feet bgs
- Approximate Groundwater Treatment Extent

Notes:
1. Aerial imagery provided through Langan's subscription to Near Map, dated 07/03/2025.
2. bgs - below grade surface

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Project
172 MONTROSE AVENUE
BLOCK No. 3062, LOT No. 12
BROOKLYN NEW YORK

Figure Title
PROPOSED GROUNDWATER TREATABILITY SAMPLE LOCATION PLAN

Project No. 170824801	Figure No. 4
Date 4/15/2026	
Scale 1"=20'	
Drawn By MG	

Path: \\langan.com\data\NY\data8\170824801\Project Data\ArcGIS\APRX\170824801 - RIWP\170824801 - RIWP.aprx Date: 4/15/2026 User: mgeorgalas Time: 3:54 PM

ATTACHMENT 1
MATERIAL SPECIFICATION AND SAFETY DATA SHEETS

SAFETY DATA SHEET
Klozur ® KP

SDS # : 7727-21-1-12
Revision date: 2018-07-13
Format: NA
Version 1.01

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name Klozur ® KP

CAS-No 7727-21-1

Synonyms Potassium Peroxydisulfate; Dipotassium Peroxydisulfate; Peroxydisulfuric acid, dipotassium salt; Peroxydisulfuric acid, potassium salt.

Recommended use of the chemical and restrictions on use

Recommended Use: In situ and ex situ chemical oxidation of contaminants and compounds of concern for environmental remediation applications

Restrictions on Use No uses to be advised against were identified.

Manufacturer/Supplier

PeroxyChem LLC
2005 Market Street
Suite 3200
Philadelphia, PA 19103
Phone: +1 267/ 422-2400 (General Information)
E-Mail: sdsinfo@peroxychem.com

Emergency telephone numbers

For leak, fire, spill or accident emergencies, call:
1 800 / 424 9300 (CHEMTREC - U.S.A.)
1 703 / 527 3887 (CHEMTREC - Collect - All Other Countries)
4001 - 204937 (CHEMTREC - PRC)
1 303/ 389-1409 (Medical - U.S. - Call Collect)

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status
This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Oral	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2B
Respiratory sensitization	Category 1
Skin sensitization	Category 1
Specific target organ toxicity (single exposure)	Category 3
Oxidizing Solids	Category 3

GHS Label elements, including precautionary statements

EMERGENCY OVERVIEW

Danger

Hazard Statements
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335 - May cause respiratory irritation
H320 - Causes eye irritation
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H302 - Harmful if swallowed
H272 - May intensify fire; oxidizer

Precautionary Statements - Prevention
P261 - Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray
P285 - In case of inadequate ventilation wear respiratory protection
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear protective gloves/ protective clothing
P264 - Wash face, hands and any exposed skin thoroughly after handling
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P220 - Keep/Store away from clothing/combustible materials
P221 - Take any precaution to avoid mixing with combustibles

Precautionary Statements - Response
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337 + P313 - If eye irritation persists: Get medical advice/ attention
P302 + P352 - IF ON SKIN: Wash with plenty of water.
P333 + P313 - If skin irritation or rash occurs: Get medical advice/ attention
P304 + P341 - IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing
P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor
P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell
P330 - Rinse mouth
P370 + P378 - In case of fire: Use water for extinction

Precautionary Statements - Storage
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

Hazards not otherwise classified (HNOC)
No hazards not otherwise classified were identified.

Other Information
Risk of decomposition by heat or by contact with incompatible materials

Unknown acute toxicity
0% of the mixture consists of ingredient(s) of unknown toxicity

3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula K2O8S2 and $K_2 S_2 O_8$

Chemical name	CAS-No	Weight %
Potassium Persulfate	7727-21-1	> 98
Potassium Sulfate	7778-80-5	< 2

4. FIRST AID MEASURES

General Advice Remove from exposure, lie down. Show this material safety data sheet to the doctor in attendance.

Eye Contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids intermittently. Consult a physician. In case of contact, immediately flush eyes with plenty of water. If symptoms persist, call a physician.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention if irritation develops and persists.

Inhalation Remove from exposure, lie down. If breathing is irregular or stopped, administer artificial respiration. Call a physician immediately.

Ingestion Do NOT induce vomiting. Call a physician or poison control center immediately. Rinse mouth. Drink 1 or 2 glasses of water.

Most important symptoms and effects, both acute and delayed Itching; Redness; Coughing and/ or wheezing.

Indication of immediate medical attention and special treatment needed, if necessary Treat symptomatically

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media Water. Cool containers with flooding quantities of water until well after fire is out.

Unsuitable extinguishing media Do not use carbon dioxide or other gas filled fire extinguishers; they will have little effect on decomposing persulfate.

Specific Hazards Arising from the Chemical Decomposes under fire conditions to release oxygen that intensifies the fire.

Explosion data
Sensitivity to Mechanical Impact Not sensitive.
Sensitivity to Static Discharge Not sensitive.

Protective equipment and precautions for firefighters As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Keep off any unprotected persons. Avoid contact with the skin and the eyes. Avoid breathing dust. Wear personal protective equipment.

Other Never add other substances or combustible waste to product residues.

Environmental Precautions Knock down dust with water spray. Avoid penetration into waterways, sewers, soil or

groundwater. Local authorities should be advised if significant spillages cannot be contained.

Methods for Containment Vacuum, shovel or pump waste into a drum and label contents for disposal. Avoid dust formation. Store in closed container.

Methods for cleaning up Clean up spill area and treat as special waste. Dispose of waste as indicated in Section 13.

7. HANDLING AND STORAGE

Handling Wear personal protective equipment. Avoid breathing dust. Handle product only in closed system or provide appropriate exhaust ventilation at machinery. Avoid contact with skin and eyes. Remove and wash contaminated clothing before re-use.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat. Do not store near combustible materials. Avoid contamination of opened product. Keep away from food, drink and animal feedingstuffs. Avoid formation and deposition of dust.

Incompatible products Bases, Halides, Oxidizing agents, Strong reducing agents, Combustible materials.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines .

Chemical name	ACGIH TLV	OSHA PEL	NIOSH	Mexico
Potassium Persulfate 7727-21-1	TWA: 0.1 mg/m³	-	-	-
Chemical name	**British Columbia**	**Quebec**	**Ontario TWAEV**	**Alberta**
Potassium Persulfate 7727-21-1	TWA: 0.1 mg/m³	-	TWA: 0.1 mg/m³	TWA: 0.1 mg/m³

Appropriate engineering controls

Engineering measures Provide local exhaust or general ventilation adequate to maintain exposures below permissable exposure limits.

Individual protection measures, such as personal protective equipment

Eye/Face Protection Eye protection recommended. Chemical goggles consistent with EN 166 or equivalent.

Skin and Body Protection Wear long-sleeved shirt, long pants, socks, and shoes.

Hand Protection Protective gloves: Neoprene gloves, Polyvinylchloride, Natural Rubber.

Respiratory Protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn: particulate filtering facepiece respirators.

Hygiene measures Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Wash hands before breaks and after shifts. Keep work clothes separate, remove contaminated clothing - launder after open handling of product.

General information Protective engineering solutions should be implemented and in use before personal protective equipment is considered.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance Crystalline solid

Physical State	Solid
Color	White
Odor	odorless
Odor threshold	Not applicable
pH	6.4 (1% solution)
Melting point/freezing point	> 100 °C (Decomposes)
Boiling Point/Range	Decomposes upon heating
Flash point	Not applicable
Evaporation Rate	No information available
Flammability (solid, gas)	Not flammable
Flammability Limit in Air	Not applicable
Upper flammability limit:	No information available
Lower flammability limit:	No information available
Vapor pressure	6.07E-30 mm Hg at 25ºC
Vapor density	No information available
Density	2.48 g/cm³ (crystal density)
Specific gravity	No information available
Water solubility	5.6 % @ 25 °C
Solubility in other solvents	No information available
Partition coefficient	No information available (inorganic)
Autoignition temperature	No evidence of combustion up to 600 °C
Decomposition temperature	> 100 °C (assume)
Viscosity, kinematic	No information available (Solid)
Viscosity, dynamic	No information available
Explosive properties	Not explosive
Oxidizing properties	oxidizer
Molecular weight	270.31
Bulk density	1.30 g/cm³ (loose)

10. STABILITY AND REACTIVITY

Reactivity Strong oxidizer. Oxidizer. Contact with other material may cause fire.

Chemical Stability Decomposition can occur on exposure to heat or moisture.

Possibility of Hazardous Reactions Use of persulfates in chemical reactions requires appropriate precautions and design considerations for pressure and thermal relief.

Decomposing persulfates will evolve large volumes of gas and/or vapor, can accelerate exponentially with heat generation, and create significant and hazardous pressures if contained and not properly controlled or mitigated.

Use with alcohols in the presence of water has been demonstrated to generate conditions that require rigorous adherence to process safety methods and standards to prevent escalation to an uncontrolled reaction.

Hazardous polymerization Hazardous polymerization does not occur.

Conditions to avoid Moisture; Heat. (decomposes at temperatures >100 °C).

Incompatible materials Bases, Halides, Oxidizing agents, Strong reducing agents, Combustible materials.

Hazardous Decomposition Products Incomplete combustion and thermolysis may produce gases of varying toxicity such as carbon monoxide, carbon dioxide, various hydrocarbons, aldehydes and soot.

11. TOXICOLOGICAL INFORMATION

Product Information

Unknown acute toxicity 0% of the mixture consists of ingredient(s) of unknown toxicity

LD50 Oral	1130 mg/kg (rat) (Potassium Persulfate)
LD50 Dermal	> 10000 10,000 mg/kg (rat) (Potassium Persulfate)

LC50 Inhalation > 42.9 mg/L (rat) (Potassium Persulfate)

Serious eye damage/eye irritation Irritating to eyes.
Skin corrosion/irritation Not irritating in animal studies.

Sensitization Sensitizing to skin and respiratory system.

Component Information

Chemical name	LD50 Oral	LD50 Dermal	LC50 Inhalation	NOAEL Oral Value
Potassium Persulfate (7727-21-1)	1130 mg/kg (rat)	>10,000 kg/kg (rat)	> 42.9 mg/L (rat)	
Potassium Sulfate (7778-80-5)	= 6600 mg/kg (Rat)			

Information on toxicological effects

Symptoms No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Carcinogenicity Did not show carcinogenic effects in animal experiments.

Mutagenicity In vivo tests did not show mutagenic effects.

Reproductive toxicity This product is not recognized as reprotox by Research Agencies.

STOT - single exposure May cause respiratory irritation.
STOT - repeated exposure Not classified.
Subchronic toxicity Oral (NOAEL) = 131.5 mg/kg bw (Potassium Persulfate)
Inhalation (NOAEC) = 10.3 mg/m^3 (Ammonium Persulfate)
Dermal: No data available

Target organ effects Eyes, Skin, Respiratory System.

Aspiration hazard No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects Not expected to have significant environmental effects, based on data for similar substances.

Potassium Persulfate (7727-21-1)				
Active Ingredient(s)	Duration	Species	Value	Units
Potassium persulfate	96 h LC50	Onchorhyncus mykiss	76.3	mg/L
Potassium persulfate	48 h EC50	Water flea	120	mg/L
Potassium persulfate	72 h EC50	Marine algae (Phaeodacttylum tricornutum)	136	mg/L
Potassium persulfate	96 h LC50	Turbot (Scophthalmus maximus)	107.6	mg/L
Potassium persulfate	18 h EC10	Pseudonomas putida	36	mg/L
Potassium persulfate	5 d	Abra Alba	11	mg/L
Potassium persulfate	96 h LC50	Grass shrimp	391	mg/L
Potassium persulfate	24 h EC50	Daphnia magna	635.7	mg/L

Persistence and degradability Biodegradability does not pertain to inorganic substances.

Bioaccumulation Does not bioaccumulate.

Mobility Dissociates into ions.

Other Adverse Effects None known.

13. DISPOSAL CONSIDERATIONS

Waste disposal methods This material, as supplied, is a hazardous waste according to federal regulations (40 CFR 261). It must undergo special treatment, e.g. at suitable disposal site, to comply with local regulations.

US EPA Waste Number D001.

Contaminated Packaging Dispose of in accordance with local regulations.

14. TRANSPORT INFORMATION

DOT

UN/ID no 1492
Proper Shipping Name Potassium persulfate
Hazard class 5.1
Packing Group III

TDG

UN/ID no 1492
Proper Shipping Name Potassium persulfate
Hazard class 5.1
Packing Group III

ICAO/IATA

UN/ID no 1492
Proper Shipping Name Potassium persulfate
Hazard class 5.1

Packing Group	III

IMDG/IMO

UN/ID no	1492
Proper Shipping Name	Potassium persulfate
Hazard class	5.1
Packing Group	III

ADR/RID

UN/ID no	1492
Proper Shipping Name	Potassium persulfate
Hazard class	5.1
Packing Group	III

ADN

Proper Shipping Name	Potassium persulfate
Hazard class	5.1
Packing Group	III

15. REGULATORY INFORMATION

U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories
This product is not subject to reporting under the Emergency Planning and Community Right-to-Know rule.

Clean Water Act
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA/EPCRA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

US State Regulations

U.S. State Right-to-Know Regulations
This product contains the following substances regulated under state Right-to-Know laws:

Chemical name	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Potassium Persulfate	X	X	X		X

California Proposition 65
This product does not contain any Proposition 65 chemicals

CANADA

Environmental Emergencies
This product contains no substances listed under Canada's Environmental Emergency regulations.

Canadian National Pollutant Release Inventory
This product contains no substances reportable under Canada's National Pollutant Release Inventory regulations.

International Inventories

Component	TSCA (United States)	DSL (Canada)	EINECS/ELINCS (Europe)	ENCS (Japan)	China (IECSC)	KECL (Korea)	PICCS (Philippines)	AICS (Australia)	NZIoC (New Zealand)
Potassium Persulfate 7727-21-1 (> 98)	X	X	X	X	X	X	X	X	X
Potassium Sulfate 7778-80-5 (< 2)	X	X	X	X	X	X	X	X	X

Mexico

Mexico - Grade Slight risk, Grade 1

16. OTHER INFORMATION

NFPA	**Health Hazards** 1	**Flammability** 0	**Stability** 1	**Special Hazards** OX
HMIS	**Health Hazards** 1	**Flammability** 0	**Physical hazard** 1	**Special precautions** J

NFPA/HMIS Ratings Legend Severe = 4; Serious = 3; Moderate = 2; Slight = 1; Minimal = 0
Protection=J (Safety goggles, gloves, apron, combination dust and vapor respirator)

Revision date: 2018-07-13
Revision note SDS sections updated: 3

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Prepared By:

PeroxyChem

End of Safety Data Sheet

SAFETY DATA SHEET
Klozur® SP

SDS # : 7775-27-1-12
Revision date: 2021-10-14
Format: NA
Version 1.06

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name Klozur® SP

CAS-No 7775-27-1

Synonyms Sodium Peroxydisulfate; Disodium Peroxydisulfate; Peroxydisulfuric acid, disodium salt; Peroxydisulfuric acid, sodium salt.

Recommended use of the chemical and restrictions on use

Recommended Use: In situ and ex situ chemical oxidation of contaminants and compounds of concern for environmental remediation applications

Restrictions on Use No uses to be advised against were identified.

Manufacturer/Supplier

Evonik Active Oxygens, LLC
2005 Market Street
Suite 3200
Philadelphia, PA 19103
Phone: +1 267/ 422-2400 (General Information)
E-Mail: Product-regulatory-services@evonik.com

Emergency telephone numbers

For leak, fire, spill or accident emergencies, call:
1 800 / 424 9300 (CHEMTREC - U.S.A.)
1 703 / 527 3887 (CHEMTREC - Collect - All Other Countries)
+1 303/ 389-1409 (Medical - U.S. - Call Collect)

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status
This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Oral	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2B
Respiratory sensitization	Category 1
Skin sensitization	Category 1
Specific target organ toxicity (single exposure)	Category 3
Oxidizing Solids	Category 3

GHS Label elements, including precautionary statements

EMERGENCY OVERVIEW

Danger

Hazard Statements
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335 - May cause respiratory irritation
H320 - Causes eye irritation
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H302 - Harmful if swallowed
H272 - May intensify fire; oxidizer

Precautionary Statements - Prevention
P261 - Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray
P285 - In case of inadequate ventilation wear respiratory protection
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection
P264 - Wash face, hands and any exposed skin thoroughly after handling
P272 - Contaminated work clothing should not be allowed out of the workplace
P270 - Do not eat, drink or smoke when using this product
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P220 - Keep away from clothing and other combustible materials

Precautionary Statements - Response
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337 + P313 - If eye irritation persists: Get medical advice/ attention
P302 + P352 - IF ON SKIN: Wash with plenty of water.
P333 + P313 - If skin irritation or rash occurs: Get medical advice/ attention
P362 + P364 - Take off all contaminated clothing and wash it before reuse
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor
P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell
P330 - Rinse mouth

P370 + P378 - In case of fire: Use water for extinction

Precautionary Statements - Storage
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up

Precautionary Statements - Disposal
P501 - Dispose of contents/ container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)
No hazards not otherwise classified were identified.

Other Information
Risk of decomposition by heat or by contact with incompatible materials

Unknown acute toxicity
0% of the mixture consists of ingredient(s) of unknown toxicity

3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula Na2O8S2

Chemical name	CAS-No	Weight %
Sodium Persulfate	7775-27-1	> 99
Sodium sulfate	7757-82-6	< 1

4. FIRST AID MEASURES

General Advice Remove from exposure, lie down. Show this material safety data sheet to the doctor in attendance.

Eye Contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids intermittently. Consult a physician. In case of contact, immediately flush eyes with plenty of water. If symptoms persist, call a physician.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention if irritation develops and persists.

Inhalation Remove from exposure, lie down. If breathing is irregular or stopped, administer artificial respiration. Call a physician immediately.

Ingestion Do NOT induce vomiting. Call a physician or poison control center immediately. Rinse mouth. Drink 1 or 2 glasses of water.

Most important symptoms and effects, both acute and delayed Itching; Redness; Coughing and/ or wheezing.

Indication of immediate medical attention and special treatment needed, if necessary Treat symptomatically

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media Water. Cool containers with flooding quantities of water until well after fire is out.

Unsuitable extinguishing media Do not use carbon dioxide or other gas filled fire extinguishers; they will have little effect on decomposing persulfate.

Specific Hazards Arising from the Chemical Decomposes under fire conditions to release oxygen that intensifies the fire.

Explosion data
Sensitivity to Mechanical Impact Not sensitive.
Sensitivity to Static Discharge Not sensitive.

Protective equipment and precautions for firefighters As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Keep off any unprotected persons. Avoid contact with the skin and the eyes. Avoid breathing dust. Wear personal protective equipment.

Other Never add other substances or combustible waste to product residues.

Environmental Precautions Knock down dust with water spray. Avoid penetration into waterways, sewers, soil or groundwater. Local authorities should be advised if significant spillages cannot be contained.

Methods for Containment Vacuum, shovel or pump waste into a drum and label contents for disposal. Avoid dust formation. Store in closed container.

Methods for cleaning up Clean up spill area and treat as special waste. Dispose of waste as indicated in Section 13.

7. HANDLING AND STORAGE

Handling Wear personal protective equipment. Avoid breathing dust. Handle product only in closed system or provide appropriate exhaust ventilation at machinery. Avoid contact with skin and eyes. Remove and wash contaminated clothing before re-use.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat. Do not store near combustible materials. Avoid contamination of opened product. Keep away from food, drink and animal feedingstuffs. Avoid formation and deposition of dust.

Incompatible products Bases, Halides, Oxidizing agents, Strong reducing agents, Combustible materials.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines .

Chemical name	ACGIH TLV	OSHA PEL	NIOSH	Mexico
Sodium Persulfate 7775-27-1	TWA: 0.1 mg/m³	-	-	-
Chemical name	**British Columbia**	**Quebec**	**Ontario TWAEV**	**Alberta**
Sodium Persulfate 7775-27-1	TWA: 0.1 mg/m³	-	TWA: 0.1 mg/m³	TWA: 0.1 mg/m³

Appropriate engineering controls

Engineering measures Ensure adequate ventilation, especially in confined areas.

Individual protection measures, such as personal protective equipment

Eye/Face Protection Eye protection recommended. Chemical goggles consistent with EN 166 or equivalent.

Skin and Body Protection Wear long-sleeved shirt, long pants, socks, and shoes.

Hand Protection Protective gloves: Neoprene gloves, Polyvinylchloride, Natural Rubber.

Respiratory Protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn: particulate filtering facepiece respirators.

Hygiene measures Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Wash hands before breaks and after shifts. Keep work clothes separate, remove contaminated clothing - launder after open handling of product.

General information Protective engineering solutions should be implemented and in use before personal protective equipment is considered.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Crystalline solid
Physical State	Solid
Color	White
Odor	odorless
Odor threshold	Not applicable
pH	6.0 (1% solution)
Melting point/freezing point	180 °C (Decomposes)
Boiling Point/Range	Decomposes on heating
Flash point	Not flammable
Evaporation Rate	Not applicable
Flammability (solid, gas)	Not flammable
Flammability Limit in Air	Not applicable
Upper flammability limit:	No information available
Lower flammability limit:	No information available
Vapor pressure	6.07E-30 mm Hg at 25ºC
Vapor density	No information available
Density	2.59 g/cm³ (crystal density)
Specific gravity	No information available
Water solubility	42 % @ 25 °C
Solubility in other solvents	No information available
Partition coefficient	No information available
Autoignition temperature	No evidence of combustion up to 600°C
Decomposition temperature	> 100 °C (assume)
Viscosity, kinematic	No information available (Solid)
Viscosity, dynamic	No information available
Explosive properties	Not explosive
Oxidizing properties	oxidizer

Other Information

Molecular weight	238.1
VOC content (%)	Not applicable
Bulk density	1.12 g/cm³ (loose)

10. STABILITY AND REACTIVITY

Reactivity Strong oxidizer. Oxidizer. Contact with other material may cause fire.

Chemical Stability Decomposition can occur on exposure to heat or moisture.

Possibility of Hazardous Reactions Use of persulfates in chemical reactions requires appropriate precautions and design considerations for pressure and thermal relief.

Decomposing persulfates will evolve large volumes of gas and/or vapor, can accelerate exponentially with heat generation, and create significant and hazardous pressures if contained and not properly controlled or mitigated.

Use with alcohols in the presence of water has been demonstrated to generate conditions that require rigorous adherence to process safety methods and standards to prevent escalation to an uncontrolled reaction.

Hazardous polymerization Hazardous polymerization does not occur.

Conditions to avoid Heat. (decomposes at 275 °C); Moisture.

Incompatible materials Bases, Halides, Oxidizing agents, Strong reducing agents, Combustible materials.

Hazardous Decomposition Products Oxygen which supports combustion; Sulfur oxides.

11. TOXICOLOGICAL INFORMATION

Product Information

Unknown acute toxicity 0% of the mixture consists of ingredient(s) of unknown toxicity

LD50 Oral 895 mg/kg (rat) (Sodium Persulfate)
LD50 Dermal > 10,000 mg/kg (rabbit) (Sodium Persulfate)
LC50 Inhalation > 5.1 mg/L (rat) (4-hr) (Sodium Persulfate)

Serious eye damage/eye irritation Irritating to eyes.
Skin corrosion/irritation Minimally irritating.

Sensitization Sensitizing to skin and respiratory system.

Component Information

Chemical name	LD50 Oral	LD50 Dermal	LC50 Inhalation	NOAEL Oral Value
Sodium sulfate (7757-82-6)	> 10000 mg/kg (Rat)			

Information on toxicological effects

Symptoms Symptoms of allergic reaction may include rash, itching, swelling and trouble breathing.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes, respiratory system and skin.
corrosivity None.

Carcinogenicity Did not show carcinogenic effects in animal experiments.

Mutagenicity In vivo tests did not show mutagenic effects.

Reproductive toxicity This product is not recognized as reprotox by Research Agencies.

STOT - single exposure May cause respiratory irritation.
STOT - repeated exposure Not classified.
Subchronic toxicity Oral (NOAEL) = 131.5 mg/kg bw (Sodium Persulfate)
Inhalation (NOAEC) = 10.3 mg/m³ (Ammonium Persulfate) Dermal: No data available

Target organ effects Eyes, Skin, Respiratory System.

Aspiration hazard Not applicable.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects

Sodium Persulfate (7775-27-1)				
Active Ingredient(s)	Duration	Species	Value	Units
Sodium Persulfate	96 h LC50	Rainbow trout	163	mg/L
Sodium Persulfate	48 h LC50	Daphnia magna	133	mg/L
Sodium Persulfate	96 h LC50	Grass shrimp	519	mg/L
Sodium Persulfate	72 h EC50	Algae Selenastrum capricornutum	116	mg/L

Persistence and degradability Biodegradability does not pertain to inorganic substances.

Bioaccumulation Does not bioaccumulate.

Mobility Dissociates into ions.

Other Adverse Effects None known.

13. DISPOSAL CONSIDERATIONS

Waste disposal methods This material, as supplied, is a hazardous waste according to federal regulations (40 CFR 261). It must undergo special treatment, e.g. at suitable disposal site, to comply with local regulations.

US EPA Waste Number D001.

Contaminated Packaging Dispose of in accordance with local regulations.

14. TRANSPORT INFORMATION

DOT

UN/ID no UN 1505
Proper Shipping Name SODIUM PERSULFATE
Hazard class 5.1
Packing Group III

TDG

UN/ID no	UN 1505
Proper Shipping Name	SODIUM PERSULFATE
Hazard class	5.1
Packing Group	III

MEX

UN/ID no	UN 1505
Proper Shipping Name	SODIUM PERSULFATE
Hazard class	5.1
Packing Group	III

ICAO/IATA

UN/ID no	1505
Proper Shipping Name	SODIUM PERSULFATE
Hazard class	5.1
Packing Group	III

IMDG/IMO

UN/ID no	1505
Proper Shipping Name	SODIUM PERSULFATE
Hazard class	5.1
Packing Group	III

ADR/RID

UN/ID no	UN 1505
Proper Shipping Name	SODIUM PERSULFATE
Hazard class	5.1
Packing Group	III

ADN

Proper Shipping Name	SODIUM PERSULFATE
Hazard class	5.1
Packing Group	III

15. REGULATORY INFORMATION

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

This product has the following hazards that are reportable under The Emergency Planning and Community Right-to-Know rule (EPCRA Tier II):

- Oxidizer
- Acute toxicity
- Skin corrosion/irritation
- Serious eye damage/eye irritation
- Respiratory/skin sensitization
- Specific Target Organ Toxicity (STOT) - Single Exposure

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA/EPCRA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level

pertaining to releases of this material

US State Regulations

U.S. State Right-to-Know Regulations
This product contains the following substances regulated under state Right-to-Know laws:

Chemical name	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Sodium sulfate	X		X		
Sodium Persulfate		X			

California Proposition 65
This product does not contain any Proposition 65 chemicals

CANADA

Environmental Emergencies
This product contains no substances listed under Canada's Environmental Emergency regulations.

Canadian National Pollutant Release Inventory
This product contains no substances reportable under Canada's National Pollutant Release Inventory regulations.

International Inventories

Chemical name	TSCA (United States)	DSL (Canada)	EINECS/ELINCS (Europe)	ENCS (Japan)	China (IECSC)	KECL (Korea)	PICCS (Philippines)	AICS (Australia)	NZIoC (New Zealand)
Sodium sulfate 7757-82-6	X	X	231-820-9	X	X	X	X	X	X
Sodium Persulfate 7775-27-1	X	X	231-892-1	X	X	X	X	X	X

All ingredients are directly listed on the active TSCA Inventory

Mexico

Mexico - Grade Slight risk, Grade 1

16. OTHER INFORMATION

NFPA	**Health Hazards** 1	**Flammability** 0	**Stability** 1	**Special Hazards** OX
HMIS	**Health Hazards** 1	**Flammability** 0	**Physical hazard** 1	**Special precautions** J

NFPA/HMIS Ratings Legend Severe = 4; Serious = 3; Moderate = 2; Slight = 1; Minimal = 0
OX = Oxidizer
Protection=J (Safety goggles, gloves, apron, combination dust and vapor respirator)

Revision date: 2021-10-14
Revision note Manufacturer name changed.

Issuing Date: 2021-10-14

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Prepared By:

Evonik

End of Safety Data Sheet

SAFETY DATA SHEET

1. Identification

Product identifier	**Caustic Soda (7 - 32%) Membrane**
Other means of identification	
SDS Number	327574-01
Recommended use	For industrial and manufacturing use only.
Recommended restrictions	It is not recommended to create aerosols or mists with this product.
Manufacturer/Importer/Supplier/Distributor information	
Company name	Harcros Chemicals Inc
Address	5200 Speaker Rd. Kansas City, KS 66106 United States
Main Telephone Number	1-913-321-3131
Website	www.harcros.com
E-mail	custserv@harcros.com
Emergency #: CHEMTREC	1-800-424-9300
Emergency #: CHEMTREC	1-703-741-5970 (International Number - Call collect)

2. Hazard(s) identification

Physical hazards	Corrosive to metals	Category 1
Health hazards	Acute toxicity, oral	Category 4
	Skin corrosion/irritation	Category 1
	Serious eye damage/eye irritation	Category 1
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
Environmental hazards	Not classified.	
OSHA defined hazards	Not classified.	

Label elements

Signal word	Danger
Hazard statement	May be corrosive to metals. Harmful if swallowed. Causes severe skin burns and eye damage. Causes serious eye damage. May cause respiratory irritation.
Precautionary statement	
Prevention	Keep only in original container. Do not breathe mist or vapors. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear eye protection/face protection. Wear protective impervious gloves,protective clothing,eye protection/face protection.
Response	If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. 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 or doctor. Call a poison center/doctor if you feel unwell. Wash contaminated clothing before reuse. Absorb spillage to prevent material damage.
Storage	Store away from incompatible materials. Store in a well-ventilated place. Keep container tightly closed. Store locked up. Store in accordance with local,regional,national, and international regulations.
Disposal	Dispose of contents and container in accordance with local, regional, national, and international regulations.

Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Sodium Hydroxide		1310-73-2	7 - 32
Other components below reportable levels			68 - 93

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison center or doctor/physician if you feel unwell.
Skin contact	Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. 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. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Most important symptoms/effects, acute and delayed	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General information	If you feel unwell, seek medical advice (show the label where possible). 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.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
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.

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 breathe mist/vapors. 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	Absorb/clean with appropriate and compatible material. Stop flow of material if without risk. 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	Do not breathe mist or vapors. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Avoid breathing mist/vapors. Avoid prolonged exposure. When using, do not eat, drink or smoke. Provide adequate ventilation. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Store locked up. Store in a cool, dry place out of direct sunlight. Store in corrosive resistant container with a resistant inner liner. Store in tightly closed container. Keep only in the original container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Sodium Hydroxide (CAS 1310-73-2)	PEL	2 mg/m3

US. ACGIH Threshold Limit Values

Components	Type	Value
Sodium Hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m3

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Sodium Hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m3

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

Appropriate engineering controls Good general ventilation 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

General It is recommended that users of this product perform a risk assessment to determine the appropriate PPE.

Eye/face protection Wear safety glasses with side shields (or goggles) and a face shield.

Skin protection

Hand protection Wear appropriate chemical resistant, impervious gloves. Wear protective gloves. For prolonged or repeated skin contact use suitable protective and impervious gloves.

Other Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment. Chemical respirator with organic vapor cartridge.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations 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

Appearance Clear

Physical state Liquid.

Form Liquid.

Color Colorless.

Odor Odorless.

Odor threshold Not available.

pH >= 14

pH temperature 68 °F (20 °C)

Melting point/freezing point -18.4 °F (-28 °C) (20%)
24.8 °F (-4 °C) (7 %)
46.4 °F (8 °C) (32%)

Initial boiling point and boiling range 215.6 °F (102 °C) (7%)
226.4 °F (108 °C) (20%)
248 °F (120 °C) (32%)

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	42 - 84 mm Hg (approx)
Vapor pressure temp.	122 °F (50 °C)
Vapor density	Not available.
Relative density	1.065 - 1.087 g/cm³ (7 - 8%) 1.109 - 1.131 g/cm³ (10 - 12%) 1.153 - 1.175 g/cm³ (14 - 16%) 1.197 - 1.219 g/cm³ (18 - 20%) 1.241 - 1.263 g/cm³ (22 - 24%) 1.285 - 1.306 g/cm³ (26 - 28%) 1.328 - 1.349 g/cm³ (30 - 32%)
Relative density temperature	68 °F (20 °C)
Solubility(ies)	
Solubility (water)	Soluble
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Dynamic viscosity	1.51 - 16.844 mPa·s
Dynamic viscosity temperature	68 °F (20 °C)
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
VOC	0 %

10. Stability and reactivity

Reactivity	Reacts violently with strong acids. This product may react with oxidizing agents. May be corrosive to metals.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Contact with incompatible materials. Do not mix with other chemicals.
Incompatible materials	Acids. Strong oxidizing agents. Oxidizing agents. Metals.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause irritation to the respiratory system. Prolonged inhalation may be harmful.
Skin contact	Causes severe skin burns.
Eye contact	Causes serious eye damage.
Ingestion	Causes digestive tract burns. Harmful if swallowed.
Symptoms related to the physical, chemical and toxicological characteristics	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation.

Information on toxicological effects

Acute toxicity In high concentrations, vapors are anesthetic and may cause headache, fatigue, dizziness and central nervous system effects. Harmful if swallowed.

Product	Species	Test Results
Caustic Soda (7 - 32%) Membrane		
Acute		
ip		
LD50	Mouse	205 mg/kg estimated
Other		
LD50	Mouse	205 mg/kg estimated

Components	Species	Test Results
Sodium Hydroxide (CAS 1310-73-2)		
Acute		
Dermal		
LD50	Rat	1350 mg/kg
Oral		
LD50	Rat	140 - 340 mg/kg

Skin corrosion/irritation Causes severe skin burns and eye damage.

Serious eye damage/eye irritation Causes serious eye damage.

Respiratory or skin sensitization

Respiratory sensitization Due to partial or complete lack of data the classification is not possible.

Skin sensitization Due to partial or complete lack of data the classification is not possible.

Germ cell mutagenicity Due to partial or complete lack of data the classification is not possible.

Carcinogenicity Due to partial or complete lack of data the classification is not possible.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity Due to partial or complete lack of data the classification is not possible.

Specific target organ toxicity - single exposure May cause respiratory irritation.

Specific target organ toxicity - repeated exposure Due to partial or complete lack of data the classification is not possible.

Aspiration hazard Due to partial or complete lack of data the classification is not possible.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity 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.

Product		Species	Test Results
Caustic Soda (7 - 32%) Membrane			
Aquatic			
Crustacea	EC50	Water flea (Ceriodaphnia dubia)	108.09 - 494.14 mg/l, 48 hours estimated
	LC50	Common shrimp, sand shrimp (Crangon crangon)	103.13 - 471, 48 estimated
Fish	LC50	Bony fish superclass (Osteichthyes)	103.13 - 471 mg/l, 48 hours estimated

Components		Species	Test Results
Sodium Hydroxide (CAS 1310-73-2)			
Aquatic			
Crustacea	EC50	Water flea (Ceriodaphnia dubia)	34.59 - 47.13 mg/l, 48 hours
	LC50	Common shrimp, sand shrimp (Crangon crangon)	33 - 100 mg/l, 48 hours
Fish	LC50	Bony fish superclass (Osteichthyes)	33 - 100 mg/l, 48 hours
		Western mosquitofish (Gambusia affinis)	125 mg/l, 96 hours

Persistence and degradability No data is available on the degradability of any ingredients in the mixture.

Bioaccumulative potential No data available.

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Incinerate the material under controlled conditions in an approved incinerator. Dispose of contents/container in accordance with local/regional/national/international regulations.

Waste from residues / unused products 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).

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

UN number UN1824
UN proper shipping name Sodium hydroxide solution
Transport hazard class(es)
Class 8
Subsidiary risk -
Label(s) 8
Packing group II
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
Special provisions B2, IB2, N34, T7, TP2
Packaging exceptions 154
Packaging non bulk 202
Packaging bulk 242
Reportable Quantity for Sodium Hydroxide = 1000 lbs.

IATA

UN number UN1824
UN proper shipping name Sodium hydroxide solution
Transport hazard class(es)
Class 8
Subsidiary risk -
Packing group II
Environmental hazards No.
ERG Code 8L
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
Other information
Passenger and cargo aircraft Allowed with restrictions.
Cargo aircraft only Allowed with restrictions.

IMDG

UN number UN1824
UN proper shipping name SODIUM HYDROXIDE SOLUTION
Transport hazard class(es)
Class 8

Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	F-A, S-B
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not established.

DOT

IATA; IMDG

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Toxic Substances Control Act (TSCA) All components of the mixture on the TSCA 8(b) inventory are designated “active”.

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

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Sodium Hydroxide (CAS 1310-73-2) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical	Yes
Classified hazard categories	Corrosive to metal Acute toxicity (any route of exposure) Skin corrosion or irritation Serious eye damage or eye irritation Specific target organ toxicity (single or repeated exposure)

SARA 313 (TRI reporting)

Not regulated.

US state regulations

California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (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.

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

Sodium Hydroxide (CAS 1310-73-2)

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 that all components of this product comply 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 01-10-2020

Material ID 8686

Version # 01

HMIS® ratings
Health: 3
Flammability: 0
Physical hazard: 1

NFPA ratings
Health: 3
Flammability: 0
Instability: 1

Disclaimer

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Safety Data Sheet

Hydrated Lime

Revision date:
July 11, 2019

1. Identification

Product Name: Hydrated Lime

Synonyms:
Chemical Hydrate
Commercial Hydrate
Hyd Chem SS,
Hyd Lime Chem,
Hydrate Tailings,
Hydrated Lime Kiln Dust,
Industrial Hydrate,
Pink Hydrate,

Recommended Uses: Water treatment, steel flux, caustic agent, pH adjustment, acid gas absorption, construction

Manufacturer: Carmeuse Americas

US Office
11 Stanwix Street, 21st Floor
Pittsburgh, PA 15222
Phone: (412) 995-5500
Fax: (412) 995-5594

Canadian Office
PO Box 190
Ingersoll, ON N5C 3K5
Phone: (519) 423-6283
Fax: (519) 423-6545

Emergency Contact: Infotrac: (800) 535-5053 (24 hrs a day, 7 days a week)

2. Hazards Identification

GHS classification

Physical Hazards

None

Health Hazards

Skin Irritation	Category 2
Eye Damage	Category 1
Carcinogenicity	Category 1A
Specific Target Organ Toxicity – Single Exposure	Category 3

GHS Label Elements:

Signal Word: Danger

Hazard Statements:
Causes skin irritation.
Causes serious eye damage.
May cause respiratory irritation.
May cause cancer through inhalation

Precautionary Statements:
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep container tightly closed
Do not breathe dust.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in well-ventilated area
Wear protective gloves, clothing and eye protection

Pictograms:

3. Composition

Chemical name	% by weight	CAS#
Calcium hydroxide	> 85	1305-62-0
Silica-crystalline quartz	< 1	14808-60-7

4. First Aid Measures

Eyes: Immediately flush eyes with generous amounts of water for at least 15 minutes. Pull back the eyelid to ensure that all lime dust has been washed out. Seek medical attention immediately. Do not rub eyes.

Skin: Wash exposed area with large amounts of water. Seek medical attention immediately.

Ingestion: Do not induce vomiting. Seek medical attention immediately. Never give anything by mouth unless instructed to do so by medical personnel.

Inhalation: Move victim to fresh air. Seek medical attention if necessary. If breathing has stopped, give artificial respiration

Most Important Symptoms: Irritation of skin, eyes, gastrointestinal tract or respiratory tract.

Immediate medical attention / special treatment? See first aid information above. Note to Physicians: Provide general supportive measures and treat symptomatically.

5. Fire Fighting Measures

Suitable (and unsuitable) fire extinguishing media: Use dry chemical fire extinguisher. Do not use water or halogenated compounds, except that large amounts of water may be used to deluge small quantities of this product.

Specific hazards arising from the product	Inhalation, skin or eye contact, can result in serious injury. This product is not combustible or flammable. This product is not considered to be an explosion hazard, although reaction with water or other incompatible materials may rupture containers. When this product is wet, it can be very slippery and can result in a slip hazard. Hazardous Combustion Products: None.
Special protective equipment and precautions for fire fighters	Wear full fire-fighting turn-out gear (full Bunker gear), and respiratory protection (SCBA) to prevent inhalation, skin or eye contact.

6. Accidental Release Measures

Personal precautions, protective equipment, emergency procedures:

Avoid inhalation, eye and skin contact. Avoid generating airborne dust. Wear appropriate protective clothing as described in section 8.

Methods and materials for containment and clean up:

Utilize cleanup methods that minimize generating dust: vacuum. Avoid dry sweeping. Residue on surfaces may be removed with copious amount of water or vinegar.

7. Handling & Storage

Safe Handling: Avoid inhalation, skin and eye contact. Avoid generating airborne dust. An eye wash station should be readily available when this product is handled.

Safe Storage: Keep in tightly closed containers. Protect containers from physical damage. Store in a cool, dry, and well-ventilated location. Do not store near incompatible materials (see Section 10 below). Keep away from moisture. Long-term storage in aluminum containers is not recommended, as calcium oxide may corrode aluminum over long periods of time

8. Exposure Controls/Personal Protection

Occupational Exposure Limits

	OSHA PEL (mg/m^3)	ACGIH TLV (mg/m^3)	Ont. Reg. 833 TWAEV (mg/m^3)
Calcium hydroxide	15 (total) 5 (respirable)	5	5
Silica, *crystalline quartz, cristobalite and tridymite*	0.05 (respirable)	0.025 (respirable)	0.1

Engineering Controls: Use with adequate general or local exhaust ventilation and to maintain exposure below occupational exposure limits.

Individual Protection Measures (Personal Protective Equipment):

Specific Eye / Face Protection:	Safety glasses with side shields. In windy conditions, or if work activity generates elevated airborne dust levels, dust proof or chemical goggles are recommended. Contact lenses should not be worn.
Specific Skin Protection:	When there is a risk of skin contact, wear appropriate clothing and gloves to prevent contact.
Specific Respiratory Protection:	If exposure limits are exceeded, an approved particulate respirator, or supplied air respirator, appropriate for the airborne concentrations, should be used. Selection and use of the respiratory protective equipment must be in accordance with applicable regulations and good industrial hygiene practices.
Other:	An emergency eye wash fountain and shower are recommended.

9. Physical & Chemical Properties

Appearance:	White powder
Odor:	Odorless
Odor threshold:	Not Applicable
pH at 25 degrees C:	12.45
Melting Point:	1076 °F (580 °C)
Boiling Point and range:	5162 °F (2850 °C)
Flash Point:	Not Applicable
Evaporation Rate:	Not Applicable
Flammability:	Not Applicable
Upper/lower flammability or explosive limits	Not Applicable
Vapor pressure/density:	Non Volatile
Relative density:	2.24
Solubility:	Slightly soluble in water: 0.2% @ 0 °C. Soluble in acids, glycerin, and sugar solutions
Partition coefficient: n-octanol/water	Not applicable
Auto-ignition temperature:	Not Available
Decomposition temperature:	Not available
Viscosity:	Not Applicable

10. Stability & Reactivity

Reactivity: Reacts with acids to form calcium salts, releasing heat. Reacts with carbon dioxide in air to form calcium carbonate. See also Incompatibility below.

Chemical stability: Stable under normal storage and handling conditions.

Possibility of Hazardous Reactions: See "reactivity" above.

Conditions to avoid: Vicinity of incompatible materials.

Incompatibility: This product should not be mixed or stored with the following materials, due to the potential for violent reaction and release of heat:

- acids
- reactive fluoridated compounds
- reactive brominated compounds
- reactive powdered metals
- reactive phosphorous compounds
- aluminum powder
- organic acid anhydrides
- nitro-organic compounds
- interhalogenated compounds

Hazardous decomposition products: None

11. Toxicological Information

Likely routes of exposure & symptoms:

Eyes: Contact can cause severe irritation or burning of eyes, including permanent damage.

Skin: Contact can cause severe irritation or burning of skin, especially in the presence of moisture.

Ingestion: This product can cause severe irritation or burning of gastrointestinal tract if swallowed.

Inhalation: This product can cause severe irritation of the respiratory system.

Chronic health effects: This product contains trace amounts of crystalline silica. Prolonged or repeated inhalation of respirable crystalline silica can cause silicosis, as serious lung disease.

Respiratory or skin sensitization: This material is not known to cause sensitization

Germ cell mutagenicity: No data available.

Carcinogenicity:	This product is not listed as carcinogenic by OSHA, IARC, NTP, ACGIH, or the EU Directives. This product may contain trace amounts of crystalline silica quartz which is listed by IARC as “Carcinogenic to Humans” (Group 1) and “Known to be a Human Carcinogen" by NTP (National Toxicology Program).
Reproductive toxicity:	No Data Available.
Numerical Measures of Toxicity	Crystalline Silica: Oral Rat LD_{50} > 22,500 mg/kg Calcium Hydroxide: Oral (rat) LD_{50}: 7340 mg/kg

12. Ecological Information

Because of the elevated pH of this product, it might be expected to produce some ecotoxicity upon exposure to certain aquatic organisms and aquatic systems in high concentrations
This material shows no bioaccumulation effect or food chain concentration toxicity.

13. Disposal Considerations

Dispose of contents in accordance with federal, state, provincial and local regulations.

14. Transport Information

Not regulated by Department of Transportation, Transport of Dangerous Goods

15. Regulatory Information

CERCLA Hazardous Substances	Not listed
SARA Toxic Chemical (40 CFR 372.65)	Not listed
SARA Section 302 Extremely Hazardous Substances (40 CFR 355)	Not listed
SARA 311/312	Not listed
SARA Section 313 Toxic Chemicals reporting requirements	None
Threshold planning quantity (TPQ)	Not listed
RCRA Hazardous Waste Classification (40 CFR 261)	Not Classified
EPA Toxic Substances Control Act (TSCA) Status	The components of this product are each listed on the TSCA Inventory List in the “active” status.
California Proposition 65	Airborne crystalline silica particulates of respirable size are known to the State of California to cause cancer.
NFPA ratings	Health: 3 Fire: 0 Reactivity: 0
HMIS Ratings	Health: 3 Fire: 0 Reactivity: 0 Personal protection: E
OSHA Specifically regulated substance (29 CFR 1910)	Not listed
OSHA Air contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A)	Listed
MSHA	Not listed
Canada DSL	Listed

Canadian WHMIS Classification	D2A, Materials Causing other toxic effects. E, Corrosive Material

Canada CPR This product has been classified in accordance with the hazard criteria of the Controlled Products Regulation of a Canada and this SDS contains all the required information.

16. Other Information

List of GHS Hazard Statements:	H315: Causes skin irritation H318: Causes serious eye damage H335: May cause respiratory irritation. H350: May cause cancer through inhalation
List of GHS Precautionary Statements:	P201: Obtain special instructions before use. P202: Do not handle until all safety precautions have been read and understood. P233: Keep container tightly closed P260: Do not breathe dust. P264: Wash thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in well-ventilated area P280: Wear protective gloves, clothing and eye protection

Abbreviations

CERCLA	Comprehensive Environmental Response, Compensation and Liability Act	RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act	IARC	International Agency for Research on Cancer
NTP	National Toxicology Program		

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