

Principals:

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March 21, 2023

via email: greta.white@dec.ny.gov

Ms. Greta White
Project Manager
NYSDEC
625 Broadway
Albany, New York 12233

RE: **IRM ORC Application Plan
WP Mall Cleaners & Gas Station Site
250 Hamilton Avenue
White Plains, New York
NYSDEC BCP Site # C360221**

Dear Ms. White:

This letter serves as an Oxygen Releasing Compound (ORC) design to treat the petroleum hydrocarbon impacted groundwater at the subject Site. As discussed in SESI's Remedial Investigation/Interim Remedial Measures Work Plan (RI/IRMWP) dated April 2022, the interim remedial measures (IRM) remedy for the Site is to fully excavate Site soils. Following the soil excavation and dewatering operations the southern portion of the Site, ORC will be applied directly to open excavations to address residual groundwater contamination. The ORC will be applied in the area depicted in **Figure 1**.

The quantity of ORC that will be applied is based on the contaminant mass of VOCs (benzene, toluene, ethylbenzene, xylenes) present in the groundwater prior to the excavation over the treatment area. The contaminant levels detected in the most contaminated well (MW-7) were used to calculate the stoichiometric demand for ORC in the treatment area. With a safety factor of 2, approximately 431 pounds of ORC powder will be applied evenly across the excavated southern portion of the Site. The ORC powder will be applied directly to the surface of the bedrock. Once the powder is applied, 3-6 inches of stone will be placed on top of the powder before the

area can be backfilled. SESI will be on Site during the application of the ORC powder to ensure that the product is being applied correctly and in the specified area.

Please let us know if this ORC design is approved. If you have any questions, please feel free to call me at (973) 808-9050.

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A handwritten signature in blue ink, appearing to read "St Gustems".

Steven Gustems, PG
Senior Project Manager

Attachment: Figure 1 ORC Design Treatment Area

N:\ACAD\12636\CAD\12636.DWG\IRM ORC GW TREATMENT AREA.DWG 03/03/23 10:28:45AM, yelena.zolotova, LAYOUT:FIG-1

Client Sample ID:	NY TOGS Class	MW-4	MW-4	MW-4	MW-4
Lab Sample ID:	GA GW Standards and	JD54625-4	JD54625-4F	JD56320-2	JD56320-2F
Date Sampled:	Guidance Values (NYSDEC 6/2004)	10/28/2022	10/28/2022	11/29/2022	11/29/2022
Matrix:	Ground Water	Groundwater Filtered	Groundwater Filtered	Groundwater Filtered	Groundwater Filtered
Perfluorooctanoic acid (PFOA)	ng/l	10	16.4	-	16.6
Perfluorooctanesulfonic acid (PFOS)	ng/l	10	12	-	9.3
Iron	ug/l	300	806	124	1240
Manganese	ug/l	300	1080	1070	942
Sodium	ug/l	20000	433000	415000	454000

Client Sample ID:	NY TOGS Class	TW-1	TW-1	TW-1	TW-1
Lab Sample ID:	GA GW Standards and	JD53684-1	JD53684-1F	JD56240-1	JD56240-1F
Date Sampled:	Guidance Values (NYSDEC 6/2004)	10/14/2022	10/14/2022	11/23/2022	11/23/2022
Matrix:	Ground Water	Groundwater Filtered	Groundwater Filtered	Groundwater Filtered	Groundwater Filtered
Perfluorooctanoic acid (PFOA)	ng/l	10	19.9	-	15.5
Perfluorooctanesulfonic acid (PFOS)	ng/l	10	29.8	-	38.2
Iron	ug/l	300	7950	<100	6560
Manganese	ug/l	300	4820	5560	12600
Sodium	ug/l	20000	1410000	1420000	1640000

Client Sample ID:	NY TOGS Class	TW-4	TW-4	TW-4	TW-4
Lab Sample ID:	GA GW Standards and	JD54625-3	JD54625-3F	JD56320-1	JD56320-1F
Date Sampled:	Guidance Values (NYSDEC 6/2004)	10/28/2022	10/28/2022	11/29/2022	11/29/2022
Matrix:	Ground Water	Groundwater Filtered	Groundwater Filtered	Groundwater Filtered	Groundwater Filtered
Perfluorooctanoic acid (PFOA)	ng/l	10	18.4	-	71.2
Perfluorooctanesulfonic acid (PFOS)	ng/l	10	24.3	-	152
Iron	ug/l	300	1720	<100	<100
Manganese	ug/l	300	6270	8180	152
Sodium	ug/l	20000	773000	764000	113000

Client Sample ID:	NY TOGS Class	TW-3	TW-3	TW-3	TW-3
Lab Sample ID:	GA GW Standards and	JD53684-3	JD53684-3F	JD56156-1	JD56156-1F
Date Sampled:	Guidance Values (NYSDEC 6/2004)	10/14/2022	10/14/2022	11/22/2022	11/22/2022
Matrix:	Ground Water	Groundwater Filtered	Groundwater Filtered	Groundwater Filtered	Groundwater Filtered
Perfluorooctanoic acid (PFOA)	ng/l	10	16.5	-	3.6
Iron	ug/l	300	1780	<100	437
Manganese	ug/l	300	1030	1050	139
Sodium	ug/l	20000	113000	110000	106000

Client Sample ID:	NY TOGS Class	TW-2	TW-2	TW-2	TW-2
Lab Sample ID:	GA GW Standards and	JD53684-2	JD53684-2F	JD56156-2	JD56156-2F
Date Sampled:	Guidance Values (NYSDEC 6/2004)	10/14/2022	10/14/2022	11/22/2022	11/22/2022
Matrix:	Ground Water	Groundwater Filtered	Groundwater Filtered	Groundwater Filtered	Groundwater Filtered
Ethylbenzene	ug/l	5	167	-	175
Isopropylbenzene	ug/l	5	28.4	-	26.5
m,p-Xylene	ug/l	-	109	-	107
Xylene (total)	ug/l	5	110	-	108
Perfluorooctanoic acid (PFOA)	ng/l	10	41.3	-	33.4
Perfluorooctanesulfonic acid (PFOS)	ng/l	10	7.6	-	5.7
Naphthalene	ug/l	10	25.1	-	21.6
Iron	ug/l	300	41900	28300	50700
Manganese	ug/l	300	6480	6410	16200
Sodium	ug/l	20000	245000	228000	261000

Client Sample ID:	NY TOGS Class	MW-7	MW-7	MW-7	MW-7
Lab Sample ID:	GA GW Standards and	JD53159-2	JD53159-2F	JD55111-2	JD55111-2F
Date Sampled:	Guidance Values (NYSDEC 6/2004)	10/4/2022	10/4/2022	11/4/2022	11/4/2022
Matrix:	Ground Water	Groundwater Filtered	Groundwater Filtered	Groundwater Filtered	Groundwater Filtered
Benzene	ug/l	1	3.2	-	2.5
Ethylbenzene	ug/l	5	632	-	529
Isopropylbenzene	ug/l	5	70.8	-	80.3
Toluene	ug/l	5	18.1	-	14.5
m,p-Xylene	ug/l	-	1500	-	855
o-Xylene	ug/l	5	168	-	157
Xylene (total)	ug/l	5	1670	-	1010
2,4-Dimethylphenol	ug/l	1	11.5	-	7.1
alpha-BHC	ug/l	0.01	ND (0.0081)	-	0.011
Iron	ug/l	300	5050	<100	5140
Lead	ug/l	25	42.9	29.2	31
Manganese	ug/l	300	2090	2290	4440
Sodium	ug/l	20000	87200	97500	208000

Client Sample ID:	NY TOGS Class	MW-1	MW-1	MW-1	MW-1
Lab Sample ID:	GA GW Standards and	JD53159-1	JD53159-1F	JD55111-1	JD55111-1F
Date Sampled:	Guidance Values (NYSDEC 6/2004)	10/4/2022	10/4/2022	11/4/2022	11/4/2022
Matrix:	Ground Water	Groundwater Filtered	Groundwater Filtered	Groundwater Filtered	Groundwater Filtered
Perfluorooctanoic acid (PFOA)	ng/l	10	31.6	-	23.4
Pentachlorophenol	ug/l	1	5.3	-	ND (4.0)
Antimony	ug/l	3	41.3	<6.0	<6.0
Arsenic	ug/l	25	44.5	<3.0	<3.0
Cadmium	ug/l	5	45.4	<3.0	<3.0
Iron	ug/l	300	1170	<100	445
Lead	ug/l	25	44.2	<3.0	<3.0
Manganese	ug/l	300	221	211	183
Selenium	ug/l	10	45.3	<10	<10
Sodium	ug/l	20000	814000	1110000	1180000

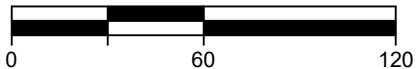
Client Sample ID:	NY TOGS Class	MW-5	MW-5	MW-5	MW-5
Lab Sample ID:	GA GW Standards and	JD51519-1	JD51519-1F	JD54625-1	JD54625-1F
Date Sampled:	Guidance Values (NYSDEC 6/2004)	9/8/2022	9/8/2022	10/28/2022	10/28/2022
Matrix:	Ground Water	Groundwater Filtered	Groundwater Filtered	Groundwater Filtered	Groundwater Filtered
Perfluorooctanoic acid (PFOA)	ng/l	10	6.1	-	25
Perfluorooctanesulfonic acid (PFOS)	ng/l	10	1.8	-	14.1
Benzo(a)anthracene	ug/l	0.002	ND (1.0)	-	4.1
Benzo(a)pyrene	ug/l	ND	ND (1.0)	-	4.4
Benzo(b)fluoranthene	ug/l	0.002	ND (1.0)	-	5.8
Benzo(k)fluoranthene	ug/l	0.002	ND (1.0)	-	2.3
Chrysene	ug/l	0.002	ND (1.0)	-	3.8
Indeno(1,2,3-cd)pyrene	ug/l	0.002	ND (1.0)	-	6.2
Cadmium	ug/l	5	3.6	3.3	13.5
Chromium	ug/l	50	<10	<10	483
Iron	ug/l	300	<100	<100	22500
Lead	ug/l	25	<15	<15	307
Manganese	ug/l	300	4510	4540	2210
Sodium	ug/l	20000	1240000	1190000	1360000

Client Sample ID:	NY TOGS Class	MW-6	MW-6	MW-6	MW-6
Lab Sample ID:	GA GW Standards and	JD51519-2	JD51519-2F	JD54625-1	JD54625-1F
Date Sampled:	Guidance Values (NYSDEC 6/2004)	9/8/2022	9/8/2022	10/28/2022	10/28/2022
Matrix:	Ground Water	Groundwater Filtered	Groundwater Filtered	Groundwater Filtered	Groundwater Filtered
Antimony	ug/l	3	7.9	-	<30
Cadmium	ug/l	5	6.3	<3.0	<3.0
Iron	ug/l	300	11900	8440	1860
Manganese	ug/l	300	20400	20200	10700
Sodium	ug/l	20000	1410000	1420000	1440000

LEGEND:

- MW-5  - MONITORING WELL
- A - HISTORICAL AUTO STORAGE/GARAGE
- D - HISTORICAL RESIDENTIAL DWELLINGS AND APARTMENTS
- S - STORES
-  - IRM ORC GROUNDWATER TREATMENT AREA

SCALE: 1"=60'



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dwg by: EC
chk by: SG
scale: AS NOTED
date: 03/03/2023

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project: WP MALL CLEANERS & GAS STATION SITE
(BCP C360221)
250 HAMILTON AVENUE
WHITE PLAINS, NY

drawing title:
IRM ORC GROUNDWATER
TREATMENT AREA

job no: 12636
drawing no:

FIG-1