NORTHROP GRUMMAN

ISTR Operations Monthly Progress Report

Reporting Period: April 2021

Operable Unit 3 VOC Source Area Remedy
Former Grumman Settling Ponds, Bethpage, NY
NYSDEC Site No. 130003A
June 07, 2021

In-Situ Thermal Remediation (ISTR) Operations Monthly Progress Report

NORTHROP GRUMMAN

Prepared per Section 8.2 of the OU3 Remedial Action Work Plan (RAWP) and DER-10, Section 5.7(b):

1. Remedy Progress / Performance Monitoring
2. Ambient Air
3. Significant Activities
4. Schedule / Proposed Modifications
5. Pending RAWP Modifications
6. Data Tables

Remedy Progress / Performance Monitoring
April 2021

NORTHROP GRUMMAN

ISTR Operations Summary

- Air emissions comply with effluent concentration limits specified in the RAWP
- No exceedances of NYSDEC Community Air Monitoring Plan (CAMP) PID action levels
- No validated ambient air monitoring results above target screening levels
- Liquid discharges comply with criteria specified in the RAWP

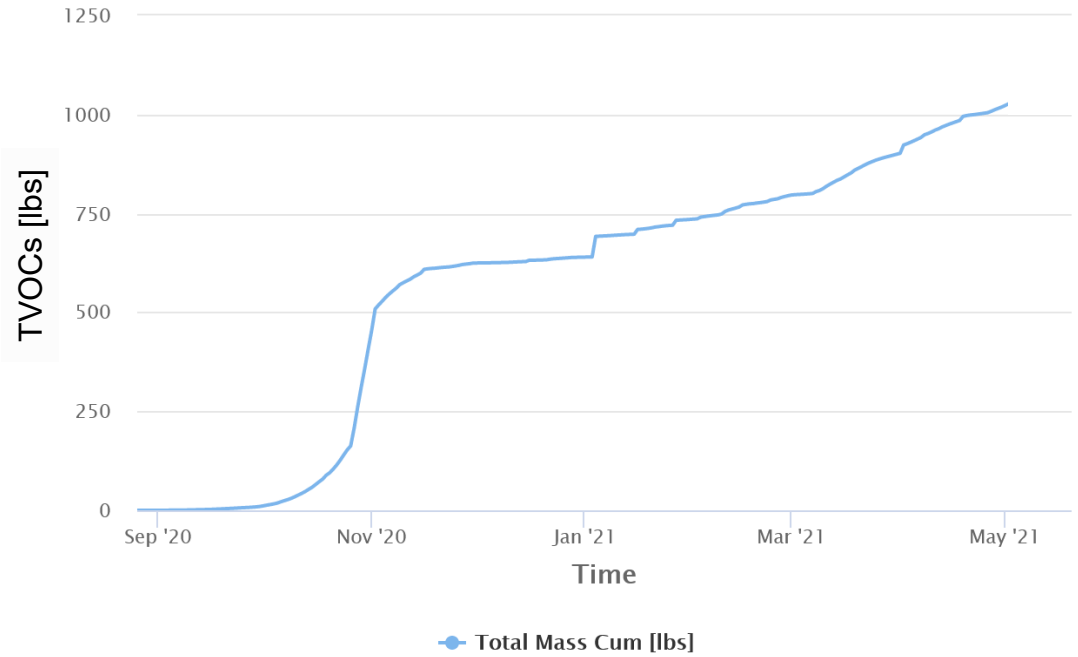
Reporting Period: April 2021

System Startup	8/26/2020
Days of Operation Since Startup	247
Estimated cumulative TVOC Mass Removed, lbs	1,019

Remedy Progress / Performance Monitoring
April 2021

NORTHROP GRUMMAN

Cumulative TVOC Mass Removed



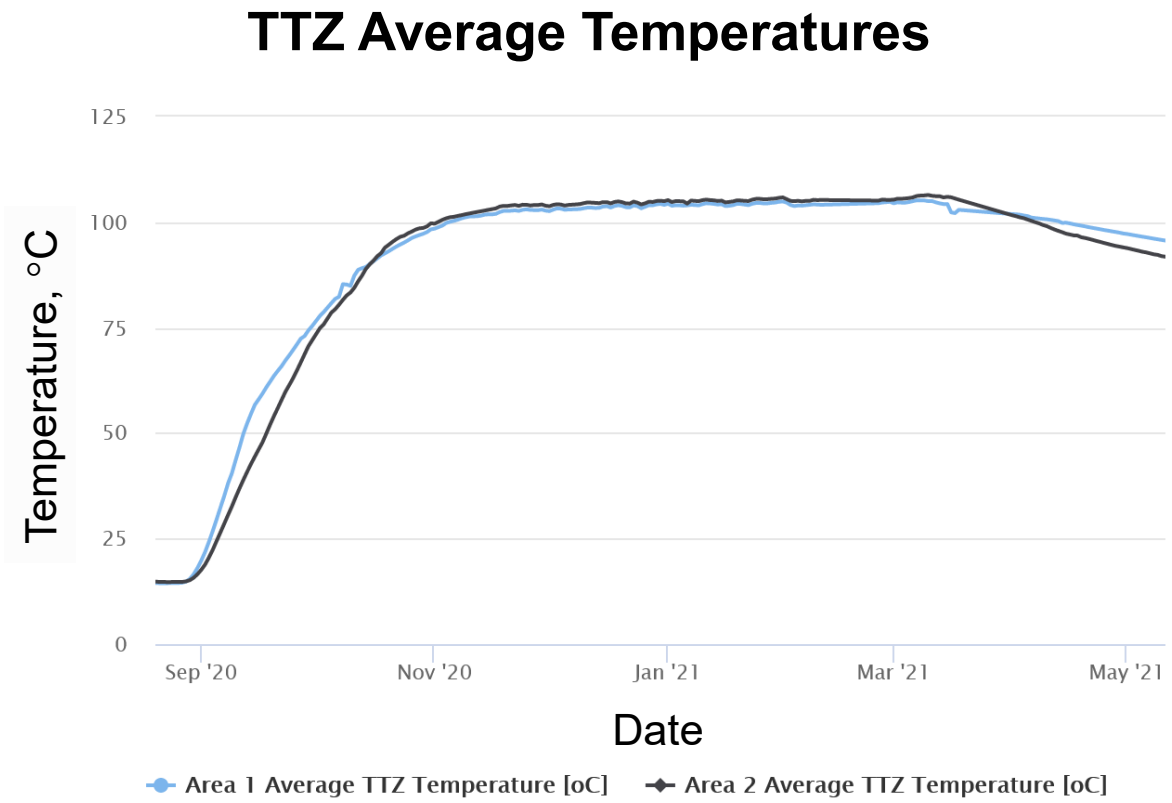
Estimated 1,019 lbs of total volatile organic compounds (TVOCs) removed through 4/30

Cumulative TVOC mass is the sum of the following:

- Photoionization detector (PID) TVOC vapor mass
- Liquid TVOC mass
- Condensed non-aqueous phase liquid (NAPL) mass

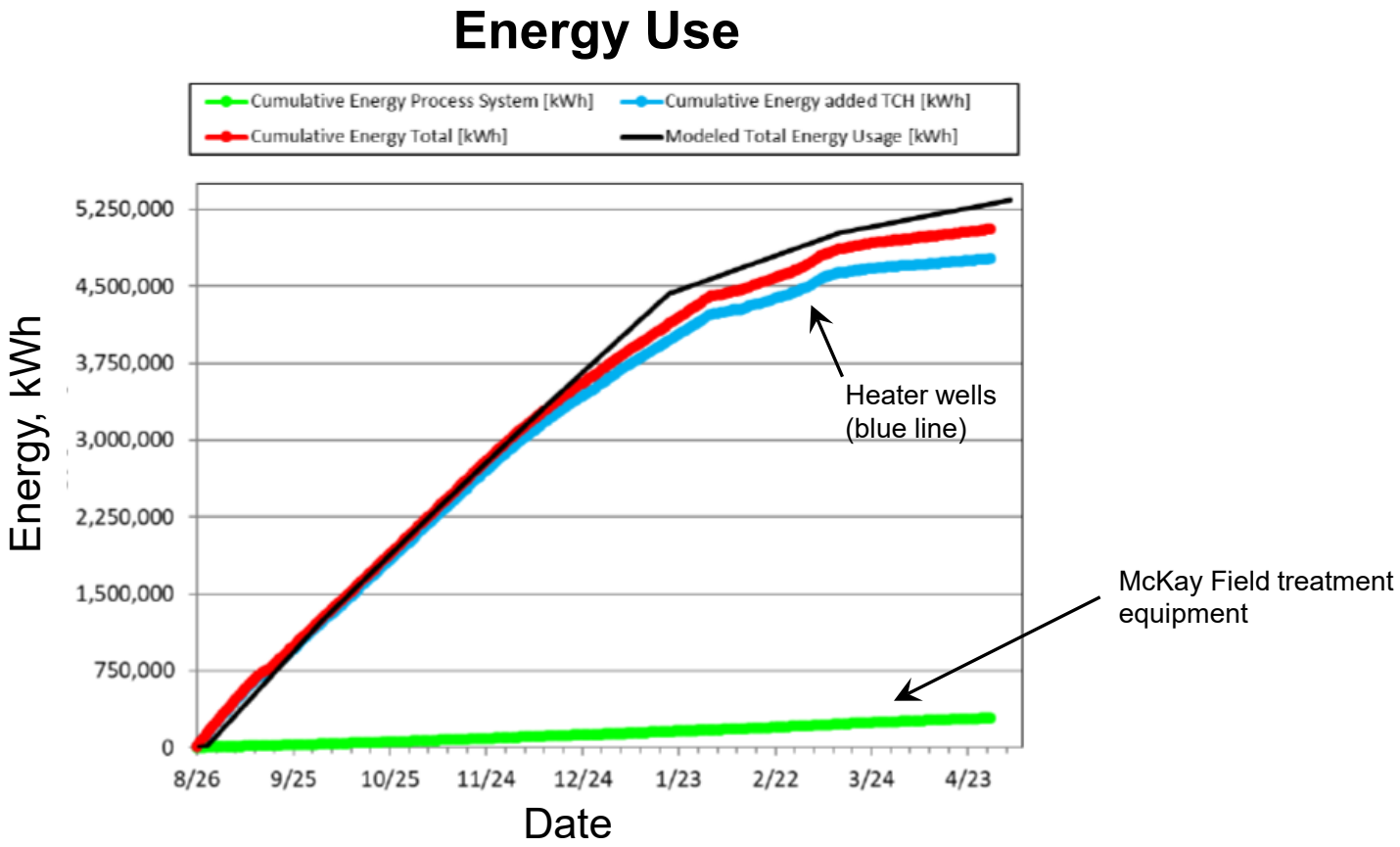
Remedy Progress / Performance Monitoring
April 2021

NORTHROP GRUMMAN



Remedy Progress / Performance Monitoring
April 2021

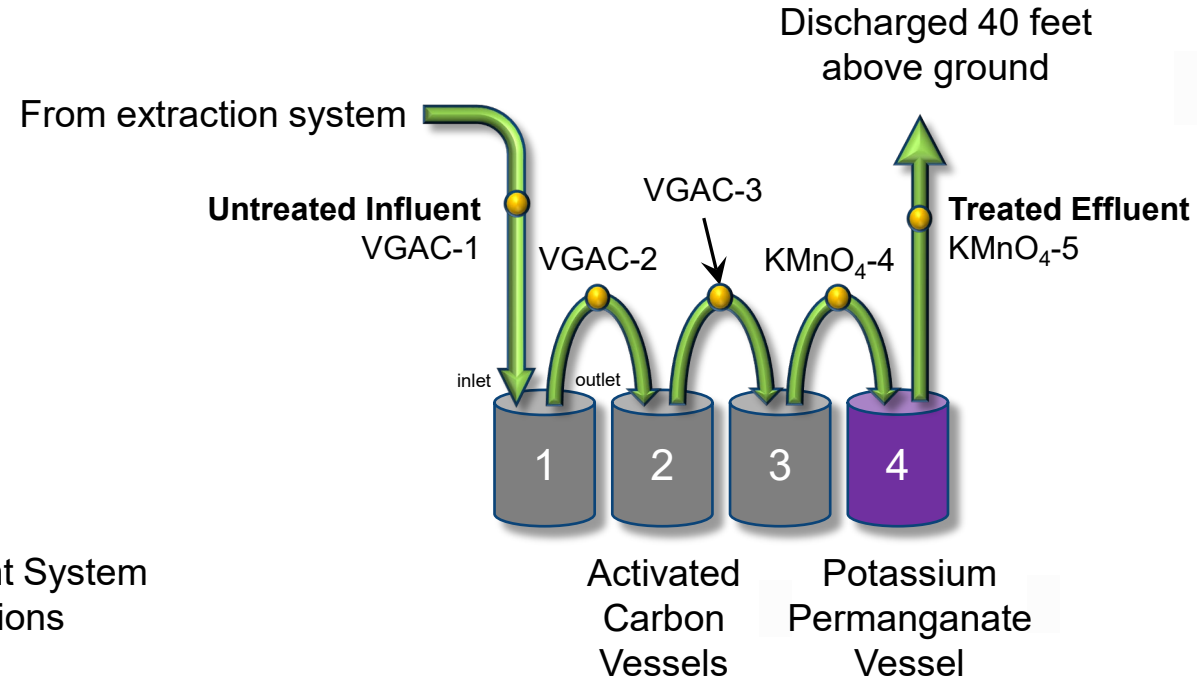
NORTHROP GRUMMAN



Remedy Progress / Performance Monitoring
April 2021

NORTHROP GRUMMAN

Vapor Treatment System



- Vapor Treatment System Sampling Locations

Remedy Progress / Performance Monitoring
April 2021

NORTHROP GRUMMAN

Vapor Treatment System

Air emissions meet treatment criteria in the RAWP:

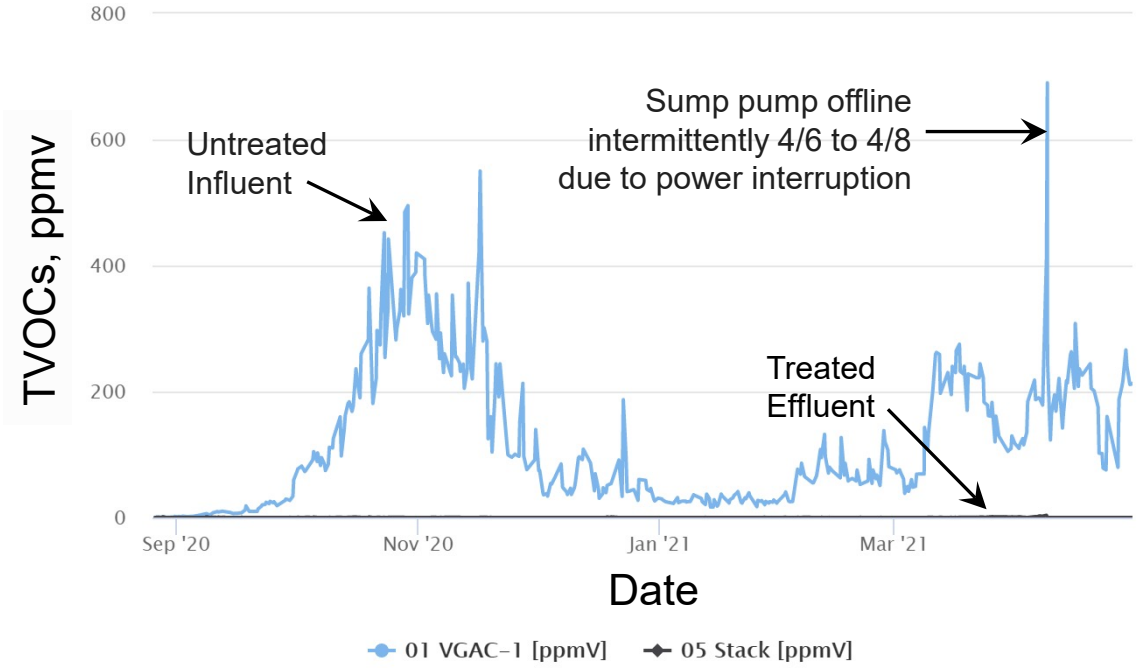
- Stack concentrations less than 7.6 mg/m^3 for TCE and 1.9 mg/m^3 design limits for vinyl chloride throughout April
- TCE and vinyl chloride concentrations in ambient air samples collected in April were all below target screening levels.

Vapor treatment system analytical results for April provided in Table 1

Remedy Progress / Performance Monitoring
April 2021

NORTHROP GRUMMAN

Vapor Treatment System (PID)



TVOC concentrations (PID) on April 30:

- Influent = 212 ppmv
- Effluent = 0.0 ppmv

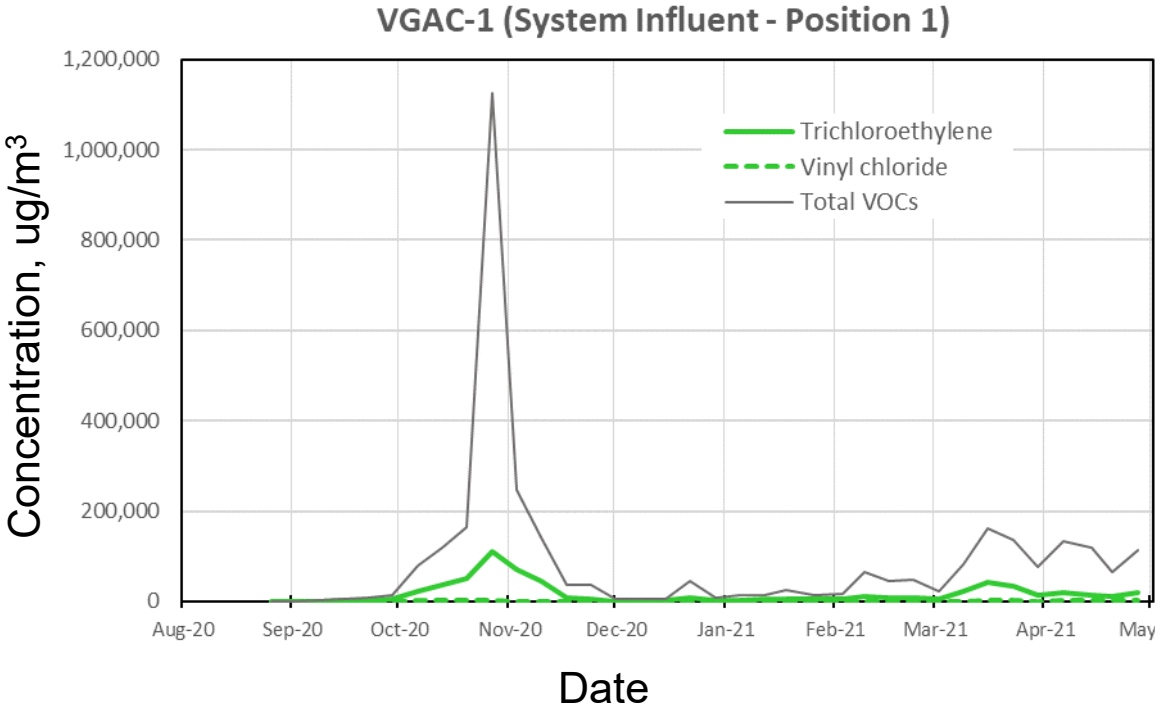
Maximum TVOC concentrations (PID) during reporting period:

- Influent = 690 ppmv
- Effluent = max 3.5 ppmv

Remedy Progress / Performance Monitoring April 2021

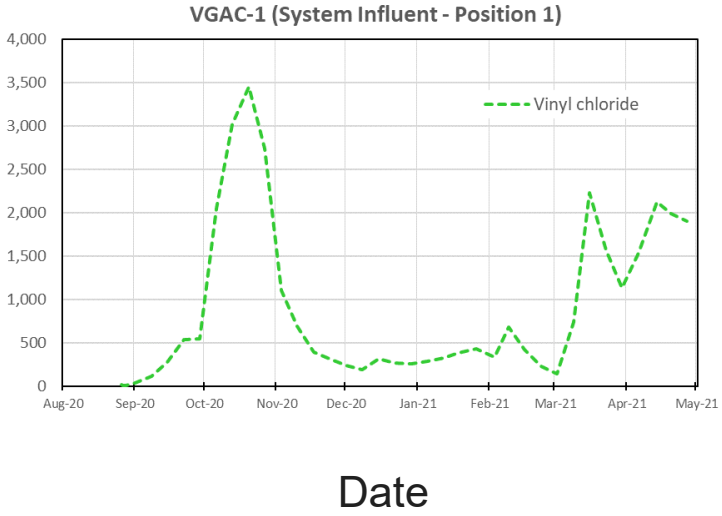
NORTHROP GRUMMAN

Vapor Treatment System Influent



Influent concentrations (Summa) on 4/27:

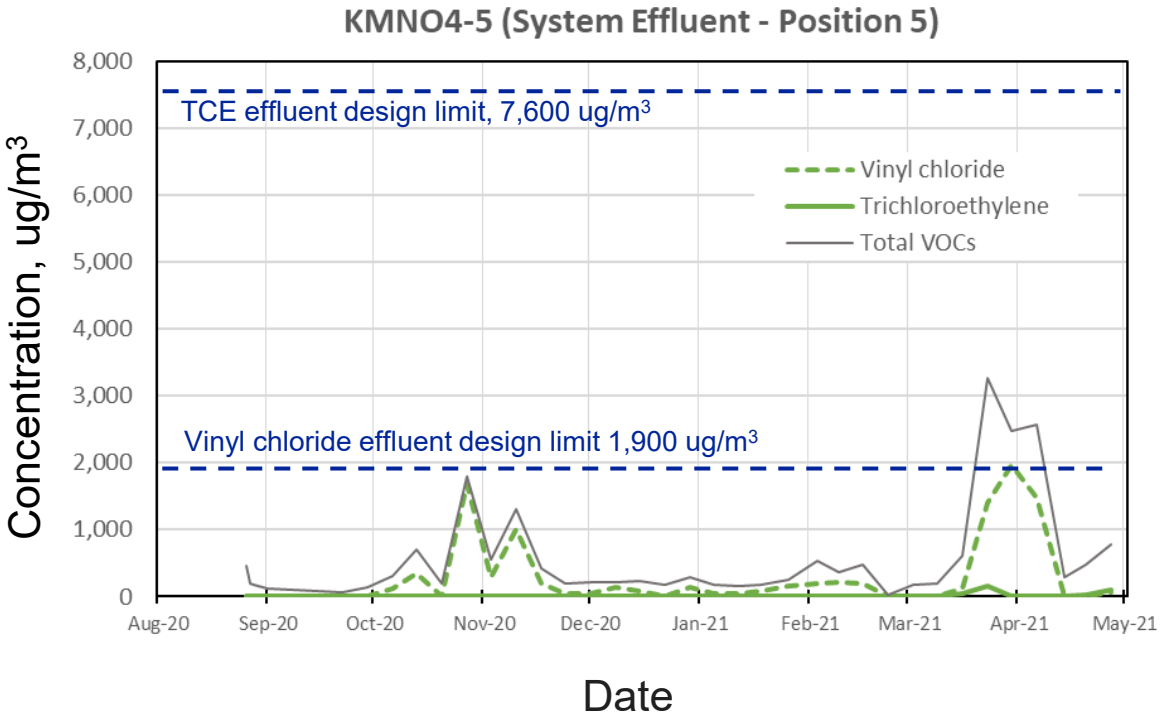
- TVOCs = 112,200 ug/m^3
- TCE = 18,500 ug/m^3
- Vinyl chloride = 1,900 ug/m^3



Remedy Progress / Performance Monitoring
April 2021

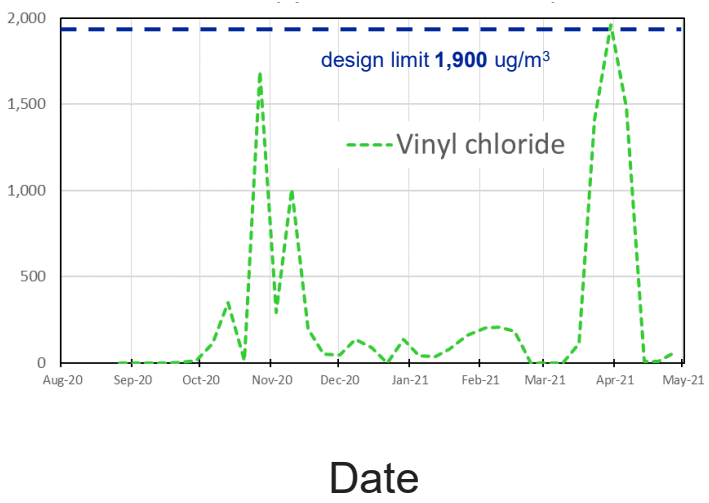
NORTHROP GRUMMAN

Vapor Treatment System Effluent



Effluent concentrations (Summa) on 4/27:

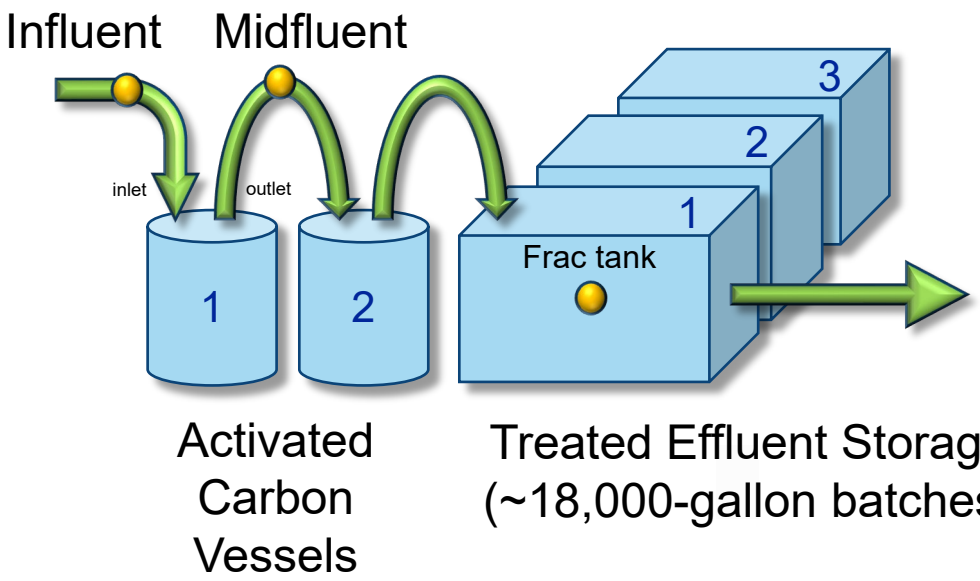
- TVOCs = 772 ug/m^3
- TCE = 106 ug/m^3
- Vinyl chloride = 59 ug/m^3



Remedy Progress / Performance Monitoring
April 2021

NORTHROP GRUMMAN

Liquid Treatment System



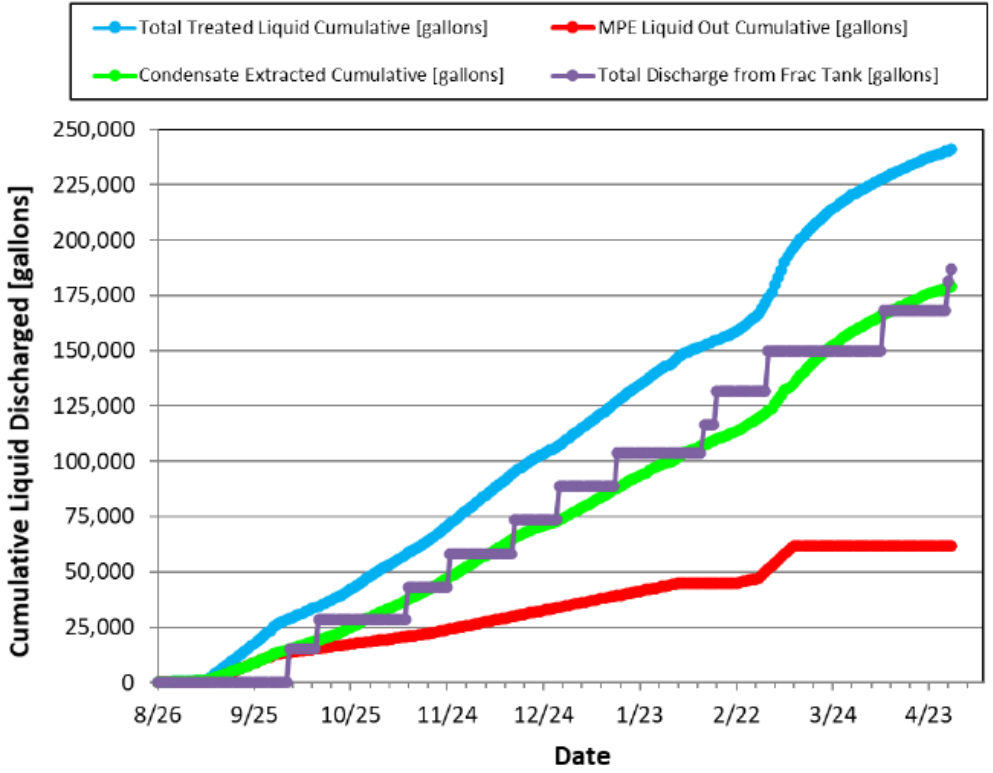
- Liquid Treatment System Sampling Locations

Treated liquid pumped to OU3 Groundwater Treatment System

Remedy Progress / Performance Monitoring
April 2021

NORTHROP GRUMMAN

Cumulative Liquid Produced



Approximately 240,000 total gallons extracted and treated through 4/30

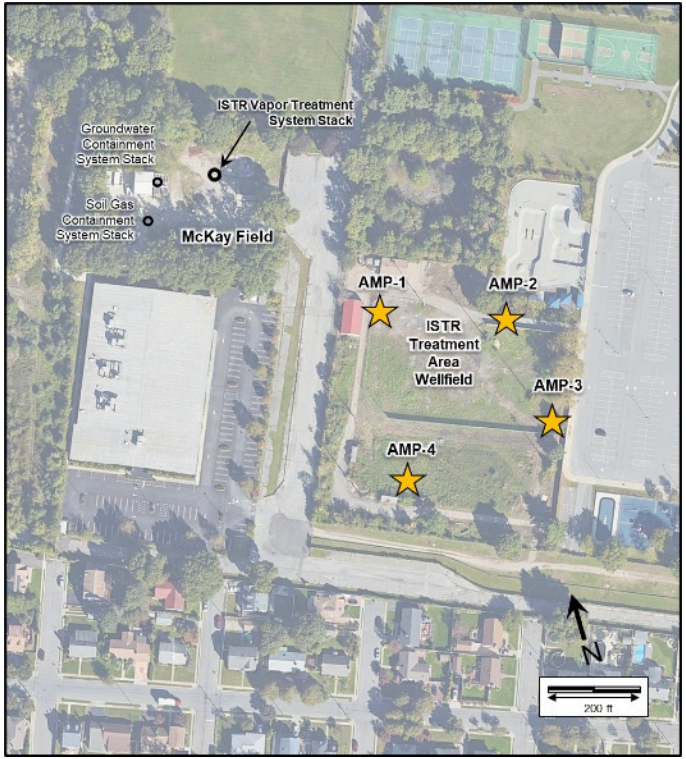
187,000 total gallons treated effluent discharged to OU3 groundwater treatment system

Liquid treatment system analytical results for April provided in Table 2

Ambient Air PID Monitoring

PID levels comply with Community Air Monitoring Plan (CAMP) criteria in the RAWP:

- PID readings recorded continuously at locations AMP-1 through 4
- Results emailed daily to the State and Town of Oyster Bay (Monday through Saturday)
- PID monitoring results did not exceed NYSDEC's CAMP action level (5 ppm TVOCs for a 15-minute average)

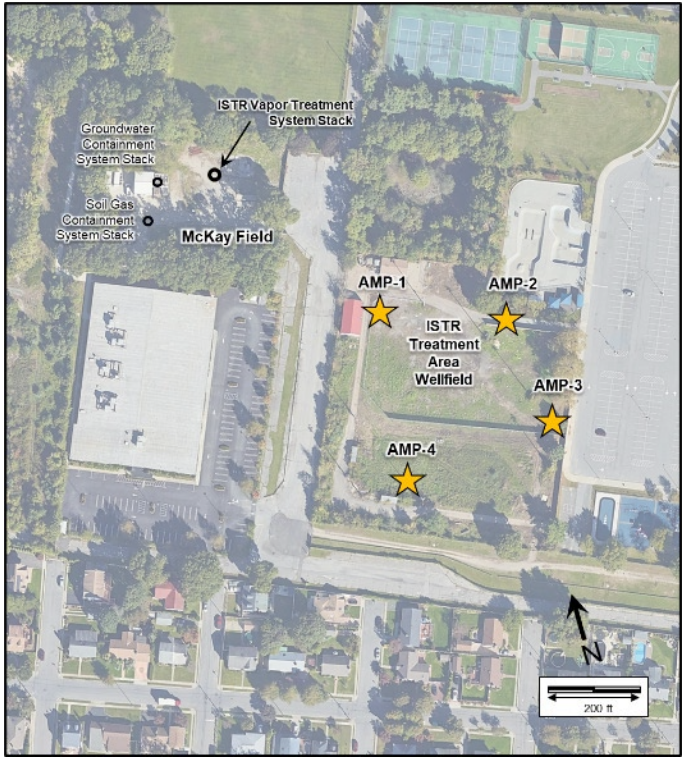


Ambient Air Summa Canister Monitoring

Summa canister levels comply with ambient air criteria in the RAWP:

- Summa canister samples collected 4/6, 4/13, 4/20, and 4/27
- Unvalidated results emailed to the State and Town of Oyster Bay
- Summa canister validated results for compounds of interest (COIs) lower than target screening levels in the CAMP
- Summa canister validated results for non-COIs also lower than target screening levels calculated using CAMP-specified protocol

Ambient air analytical results for April provided in Table 3



Significant Activities

Major equipment repairs and significant downtime:

- Sump pump offline intermittently 4/6 to 4/8 due to power interruption.
- No major equipment repairs.

Other significant activities:

- None

Planned Significant Activities During Next Two Months

Maintain system operations, monitoring, and maintenance in preparation for system shutdown.

Schedule

Activity	RAWP Schedule	Current Status
Remedial System Operation	Q3/20 – Q1/21	Q3/20 – Q3/21
Post-Treatment Confirmation Sampling	Q1/21	Complete
Remedy Cool-down	Q1/21-Q2-21	Q1/21-Q3/21
Equipment Removal & Site Restoration	Q2/21	Q3/21

ISTR heating system continues to operate at low energy while the extraction system continues to address vapor treatment system influent concentrations.

Pending RAWP Modifications

None


NORTHROP
GRUMMAN

RE US ENGINEERS

HSW

Table 2. Vapor Treatment System Air Sampling Results
Routine Monitoring - April 2021

Compound (ug/m^3) / Sample ID: / Lab Sample ID: / Date Sampled:	VGAC-1 JD22956-1 4/6/2021	VGAC-3 JD22956-2 4/6/2021	KMNO4-5 JD22956-3 4/6/2021	DUPLICATE JD22956-4 4/6/2021	Percent Removed
1,1,1-Trichloroethane	< 93	< 7.1	< 3.6	< 3.6	
1,1-Dichloroethane	< 24	< 1.9	< 0.93	< 0.93	
1,1-Dichloroethylene	< 34	< 2.7	< 1.3	< 1.3	
1,2,4-Trimethylbenzene	< 84	< 6.4	< 3.2	< 3.2	
1,2-Dibromoethane	< 71	< 5.5	< 2.8	< 2.8	
1,3,5-Trimethylbenzene	< 84	< 6.4	< 3.3	< 3.3	
1,4-Dioxane*	< 97	< 7.6	< 3.6	< 3.6	
2,2,4-Trimethylpentane	**864**	< 4.1	< 2.1	< 2.1	
2-Hexanone	< 78	< 6.1	< 3.0	< 3.0	
4-Ethyltoluene	< 74	< 5.9	< 2.9	< 2.9	
Acetone*	**17,300**	< 11	**13**	**98.1**	
Benzene	**259** J	< 1.5	< 0.77	< 0.77	
Bromoform	< 200	< 16	< 7.8	< 7.8	
Carbon disulfide	**467**	< 2.9	< 1.5	< 1.5	
Carbon tetrachloride	< 75	< 5.9	< 3.0	< 3.0	
Chloroethane	< 66	**15** J	< 2.6	**7.9** J	
Chloroform	< 49	< 3.9	< 2.0	< 2.0	
Chloromethane*	< 17	**23.5**	**19**	**15**	
cis-1,2-Dichloroethylene	**18,200**	< 1.9	< 0.91	**23**	
Cyclohexane	**190** J	< 3.0	< 1.5	< 1.5	
Dichlorodifluoromethane	< 43	< 3.3	< 1.6	< 1.6	
Ethanol	**1,380**	**44.8**	**89.1**	**80.3**	
Ethyl acetate	< 72	< 5.4	**45.3**	< 2.7	
Ethylbenzene	**956**	< 2.6	**24**	**9.6** J	
Heptane	**2,960**	< 2.9	< 1.4	< 1.4	
Hexane	**2,250**	< 1.5	< 0.74	< 0.74	
Isopropyl alcohol*	**12,200**	**27.8**	< 3.2	**21**	
m,p-Xylene	**2400**	< 6.1	**61.2**	**29**	
m-Dichlorobenzene	< 59	< 4.6	< 2.3	< 2.3	
Methyl ethyl ketone	**3,660**	< 5.0	< 2.5	**40.7**	
Methyl isobutyl ketone	< 78	< 5.7	< 3.0	< 3.0	
Methylene chloride*	**1,740**	< 2.0	**17**	< 1.0	
o-Dichlorobenzene	< 66	< 5.2	< 2.6	< 2.6	
o-Xylene	**751**	< 3.0	**8.7** J	**9.6** J	
Propylene*	**1,140**	**1270**	**800**	**733**	
Styrene	< 42	< 3.2	< 1.6	< 1.6	
Tertiary butyl alcohol	**233** J	< 1.7	< 0.85	< 0.85	
Tetrachloroethylene	**210**	< 8.1	< 4.2	< 4.2	
Tetrahydrofuran	< 77	< 5.9	< 2.9	< 2.9	
Toluene	**42,600**	< 2.2	**9.0** J	**99.5**	
trans-1,2-Dichloroethylene	**555**	< 1.1	< 0.59	< 0.59	
Trichloroethylene	**20,000**	< 4.1	< 2.0	**34**	**100%**
Trichlorofluoromethane	< 84	< 6.2	< 3.1	< 3.1	
Vinyl acetate	< 63	< 4.9	< 2.4	**39.4**	
Vinyl chloride*	**1,540**	**2,440**	**1,480**	**1,380**	
Xylenes (total)	**3,150**	< 3.0	**69.9**	**38**	
TVOCs	**131,900**	**3,821**	**2,566**	**2,620**	
TVOCs less poor adsorbers*	**98,000**	**100**	**200**	**400**	

Footnotes:

ug/mg^3 micrograms per cubic meter

* Compound is poorly adsorbed by activated carbon.

< Compound was not detected at or above the indicated value.

J Detected concentration is less than the quantitation limit.

TVOCs Total volatile organic compounds

Detections are highlighted.

RE US ENGINEERS

HSW

Table 2. Vapor Treatment System Air Sampling Results
Routine Monitoring - April 2021

Compound (ug/m^3)	Sample ID:	VGAC-1		VGAC-3		KMNO4-5		Percent Removed
	Lab Sample ID:	JD23357-1		JD23357-2		JD23357-3		
	Date Sampled:	4/14/2021		4/14/2021		4/14/2021		
1,1,1-Trichloroethane		< 45		< 7.1		< 0.71		
1,1-Dichloroethane		**141**	J	< 1.9		< 0.19		
1,1-Dichloroethylene		**235**		< 2.7		< 0.27		
1,2,4-Trimethylbenzene		< 41		< 6.4		< 0.64		
1,2-Dibromoethane		< 35		< 5.5		< 0.55		
1,3,5-Trimethylbenzene		< 41		< 6.4		< 0.64		
1,4-Dioxane*		< 47		< 7.6		< 0.76		
2,2,4-Trimethylpentane		**1,300**		< 4.1		< 0.41		
2-Hexanone		< 37		< 6.1		< 0.61		
4-Ethyltoluene		< 36		< 5.9		< 0.59		
Acetone*		**14,100**		**27.6**		**22**		
Benzene		**329**		< 1.5		< 0.15		
Bromoform		< 97		< 16		< 1.6		
Carbon disulfide		**383**		< 2.9		< 0.29		
Carbon tetrachloride		< 37		< 5.9		< 0.59		
Chloroethane		< 32		**19**	J	**11**		
Chloroform		< 24		< 3.9		< 0.39		
Chloromethane*		< 7.8		**30.1**		**32.0**		
cis-1,2-Dichloroethylene		**16,300**		< 1.9		**2.5**	J	
Cyclohexane		**272**		< 3.0		< 0.30		
Dichlorodifluoromethane		< 20		< 3.3		**2.3**	J	
Ethanol		**2830**		**303**		**143**		
Ethyl acetate		< 34		**23**	J	**17**		
Ethylbenzene		**258**		< 2.6		< 0.26		
Heptane		**3,660**		< 2.9		< 0.29		
Hexane		**3,740**		< 1.5		< 0.15		
Isopropyl alcohol*		**19,300**		**68.6**		**29.5**		
m,p-Xylene		**517**		< 6.1		**3.2**	J	
m-Dichlorobenzene		< 28		< 4.6		< 0.46		
Methyl ethyl ketone		**2,120**		< 5.0		**2.1**	J	
Methyl isobutyl ketone		< 37		< 5.7		< 0.57		
Methylene chloride*		**2,970**		< 2.0		**1.5**	J	
o-Dichlorobenzene		< 33		< 5.2		< 0.52		
o-Xylene		**139**	J	< 3.0		< 0.30		
Propylene*		**1,080**		**1,500**		< 0.11		
Styrene		< 20		< 3.2		< 0.32		
Tertiary butyl alcohol		**218**		< 1.7		**2.5**		
Tetrachloroethylene		**270**		< 8.1		< 0.81		
Tetrahydrofuran		< 38		< 5.9		< 0.59		
Toluene		**31,000**		**49.4**		**14**		
trans-1,2-Dichloroethylene		**464**		< 1.1		< 0.11		
Trichloroethylene		**13,800**		**11**		**3.4**		99.98%
Trichlorofluoromethane		< 39		< 6.2		< 0.62		
Vinyl acetate		**890**		< 4.9		< 0.49		
Vinyl chloride*		**2,120**		**2,270**		**6.6**		
Xylenes (total)		**656**		< 3.0		**3.2**	J	
TVOCs		**118,400**		**4,300**		**293**		
TVOCs less poor adsorbers*		**78,800**		**400**		**200**		

Footnotes:

ug/mg^3 micrograms per cubic meter

* Compound is poorly adsorbed by activated carbon.

< Compound was not detected at or above the indicated value.

J Detected concentration is less than the quantitation limit.

TVOCs Total volatile organic compounds

Detections are highlighted.

RE US ENGINEERS

HSW

Table 2. Vapor Treatment System Air Sampling Results
Routine Monitoring - April 2021

Compound (ug/m^3)	Sample ID:	VGAC-1	VGAC-3	KMNO4-5	Percent Removed
	Lab Sample ID:	JD23681-1	JD23681-2	JD23681-3	
	Date Sampled:	4/20/2021	4/20/2021	4/20/2021	
1,1,1-Trichloroethane		< 18	< 0.93	< 0.71	
1,1-Dichloroethane		**124**	< 0.23	< 0.19	
1,1-Dichloroethylene		**211**	< 0.33	< 0.27	
1,2,4-Trimethylbenzene		**98.3**	**3.8** J	**3.2** J	
1,2-Dibromoethane		< 14	< 0.68	< 0.55	
1,3,5-Trimethylbenzene		**61.0** J	< 0.84	**2.1** J	
1,4-Dioxane*		< 18	< 0.94	< 0.76	
2,2,4-Trimethylpentane		**1,290**	**7.0**	**2.3** J	
2-Hexanone		< 15	< 0.74	< 0.61	
4-Ethyltoluene		< 14	< 0.74	< 0.59	
Acetone*		**9,310**	**138**	**63.2**	
Benzene		**202**	**1.7** J	< 0.15	
Bromoform		< 38	< 2.0	< 1.6	
Carbon disulfide		**286**	**3.4**	< 0.29	
Carbon tetrachloride		< 14	< 0.75	< 0.59	
Chloroethane		< 13	**2.1** J	**5.8**	
Chloroform		< 9.8	< 0.49	< 0.39	
Chloromethane*		< 3.1	**4.3**	**13**	
cis-1,2-Dichloroethylene		**15,100**	**105**	**21**	
Cyclohexane		**290**	**1.7** J	< 0.30	
Dichlorodifluoromethane		< 7.9	**2.5** J	**2.4** J	
Ethanol		**251**	**16**	**12**	
Ethyl acetate		< 13	< 0.68	**4.0**	
Ethylbenzene		**346**	**23**	**13**	
Heptane		**3,210**	**27**	**8.2**	
Hexane		**159**	**3.5** J	< 0.15	
Isopropyl alcohol*		**177**	**5.9**	**7.6**	
m,p-Xylene		**1,030**	**67.8**	**40**	
m-Dichlorobenzene		< 11	< 0.57	< 0.46	
Methyl ethyl ketone		**1,910**	**15**	**6.8**	
Methyl isobutyl ketone		< 14	< 0.74	< 0.57	
Methylene chloride*		< 4.9	**17**	**4.2**	
o-Dichlorobenzene		< 13	< 0.66	< 0.52	
o-Xylene		**314**	**22**	**15**	
Propylene*		**711**	**125**	**28.3**	
Styrene		< 8.1	< 0.40	< 0.32	
Tertiary butyl alcohol		**105**	< 0.21	**2.1** J	
Tetrachloroethylene		< 20	**2.0**	< 0.81	
Tetrahydrofuran		< 14	< 0.74	< 0.59	
Toluene		**15,200**	**490**	**190**	
trans-1,2-Dichloroethylene		**316**	**2.3** J	< 0.11	
Trichloroethylene		**11,700**	**107**	**29**	**99.75%**
Trichlorofluoromethane		< 16	< 0.79	< 0.62	
Vinyl acetate		< 12	**1.7** J	< 0.49	
Vinyl chloride*		**1,990**	**366**	**11**	
Xylenes (total)		**1,350**	**89.5**	**54.7**	
TVOCs		**64,400**	**1,560**	**484**	
TVOCs less poor adsorbers*		**52,200**	**900**	**400**	

Footnotes:

ug/mg^3 micrograms per cubic meter

* Compound is poorly adsorbed by activated carbon.

< Compound was not detected at or above the indicated value.

J Detected concentration is less than the quantitation limit.

TVOCs Total volatile organic compounds

Detections are highlighted.

RE US ENGINEERS

HSW

Table 2. Vapor Treatment System Air Sampling Results
Routine Monitoring - April 2021

Compound (ug/m^3)	Sample ID: / Lab Sample ID: / Date Sampled:	VGAC-1 JD24006-1 4/27/2021	VGAC-3 JD24006-2 4/27/2021	KMNO4-5 JD24006-3 4/27/2021	Percent Removed
1,1,1-Trichloroethane		< 82	< 3.6	< 0.71	
1,1-Dichloroethane		< 21	< 0.93	< 0.19	
1,1-Dichloroethylene		**201 J**	< 1.3	**0.91 J**	
1,2,4-Trimethylbenzene		< 74	< 3.2	< 0.64	
1,2-Dibromoethane		< 61	< 2.8	< 0.55	
1,3,5-Trimethylbenzene		< 74	< 3.3	< 0.64	
1,4-Dioxane*		< 83	< 3.6	< 0.76	
2,2,4-Trimethylpentane		**1,470**	< 2.1	< 0.41	
2-Hexanone		< 65	< 3.0	< 0.61	
4-Ethyltoluene		< 64	< 2.9	< 0.59	
Acetone*		**12,000**	**119**	**77.7**	
Benzene		**230 J**	< 0.77	**1.3 J**	
Bromoform		< 180	< 7.8	< 1.6	
Carbon disulfide		**324**	< 1.5	**1.5 J**	
Carbon tetrachloride		< 69	< 3.0	< 0.59	
Chloroethane		< 58	**45.7**	**5.0**	
Chloroform		< 43	< 2.0	< 0.39	
Chloromethane*		< 14	**20.7**	**8.9**	
cis-1,2-Dichloroethylene		**15,100**	**240**	**115**	
Cyclohexane		**413**	< 1.5	< 0.30	
Dichlorodifluoromethane		< 37	< 1.6	**2.6 J**	
Ethanol		**818**	**44.7**	**60.1**	
Ethyl acetate		< 61	< 2.7	< 0.54	
Ethylbenzene		**582**	**44.3**	**9.6**	
Heptane		**4,050**	**31**	**8.6**	
Hexane		**2,710**	< 0.74	**3.5**	
Isopropyl alcohol*		**6,660**	**22**	**3.4**	
m,p-Xylene		**1,450**	**126**	**28**	
m-Dichlorobenzene		< 51	< 2.3	< 0.46	
Methyl ethyl ketone		**2,140**	**26**	**12**	
Methyl isobutyl ketone		< 66	< 3.0	< 0.57	
Methylene chloride*		**556**	**21**	**17**	
o-Dichlorobenzene		< 59	< 2.6	< 0.52	
o-Xylene		**423**	**38**	**8.7**	
Propylene*		**636**	**720**	**23.5**	
Styrene		< 36	< 1.6	< 0.32	
Tertiary butyl alcohol		**251 J**	< 0.85	**1.8 J**	
Tetrachloroethylene		< 95	< 4.2	< 0.81	
Tetrahydrofuran		< 68	< 2.9	< 0.59	
Toluene		**41,500**	**886**	**214**	
trans-1,2-Dichloroethylene		**300 J**	**5.2 J**	**2.8 J**	
Trichloroethylene		**18,500**	**318**	**106**	**99.43%**
Trichlorofluoromethane		< 73	< 3.1	**1.6 J**	
Vinyl acetate		< 53	< 2.4	< 0.49	
Vinyl chloride*		**1,900**	**3,860**	**58.8**	
Xylenes (total)		**1,870**	**164**	**36**	
TVOCs		**112,200**	**6,570**	**772**	
TVOCs less poor adsorbers*		**90,400**	**1,800**	**600**	

Footnotes:

ug/mg^3 micrograms per cubic meter

* Compound is poorly adsorbed by activated carbon.

< Compound was not detected at or above the indicated value.

J Detected concentration is less than the quantitation limit.

TVOCs Total volatile organic compounds

Detections are highlighted.

RE US ENGINEERS

Table 3. Liquid Treatment System Sampling Results - April 2021

HSW

Analyte / Sample ID:	FRAC TANK 1	FRAC TANK 2	LGAC-INF-20210414	LGAC-MID-20210414	FRAC3-A2949-20210414	OU3AIRSTRIPPER FINAL EFF-20210429
Lab Sample ID:	JD22751-1	JD22751-2	JD23355-1 / 1A	JD23355-2 / 2A	JD23355-3 / 3A	JD24143-1
Date Sampled:	4/2/2021	4/2/2021	4/14/2021	4/14/2021	4/14/2021	4/29/2021
Volatile Organic Compounds (ug/L):						
2-Butanone (MEK)	-	-	**676**	**<** 140	< 6.9	-
2-Hexanone	-	-	**45.7**	**<** 41	< 2.0	-
4-Methyl-2-pentanone (MIBK)	-	-	**14.2**	**<** 37	< 1.9	-
Acetone*	-	-	**3,810**	**7,900**	12.0	-
cis-1,2-Dichloroethene	-	-	**20.8**	**<** 10	< 0.51	-
Ethylbenzene	-	-	**2.0**	**<** 12	< 0.60	-
m,p-Xylene	-	-	**7.3**	**<** 16	**1.3**	-
Methyl Acetate	-	-	**3.2** J	**<** 16	< 0.80	-
o-Xylene	-	-	**4.5**	**<** 12	**1.2**	-
Toluene	-	-	**56.3**	**<** 11	< 0.53	-
Trichloroethene	-	-	**5.1**	**<** 11	< 0.53	-
Xylene (total)	-	-	**11.8**	**<** 12	**2.5**	-
TVOCs	-	-	**4,640**	**7,900**	**14.5**	-
TVOCs less poor adsorbers*	-	-	**830**	0	**2.5**	-
Semivolatile Organic Compounds (ug/L)						
Semivolatile Organic Compounds (SIM) (ug/L):						
1,4-Dioxane	-	-	< 0.049	-	-	-
Polychlorinated Biphenyls (ug/L):						
Aroclor 1016	-	-	< 0.14	< 0.14	< 0.12	-
Aroclor 1221	-	-	< 0.30	< 0.30	< 0.26	-
Aroclor 1232	-	-	< 0.19	< 0.19	< 0.16	-
Aroclor 1242	-	-	< 0.16	< 0.16	< 0.14	-
Aroclor 1248	-	-	< 0.090	< 0.090	< 0.079	-
Aroclor 1254	-	-	**52.0**	< 0.30	< 0.26	-
Aroclor 1260	-	-	< 0.11	< 0.11	< 0.095	-
Aroclor 1262	-	-	< 0.14	< 0.14	< 0.12	-
Aroclor 1268	-	-	< 0.12	< 0.12	< 0.11	-
Metals (mg/L):						
Cadmium	-	-	< 3.0	< 3.0	< 3.0	-
Chromium	-	-	< 10	< 10	< 10	-
Iron	**505**	**2,460**	**6,210**	**5,080**	**5,130**	**276**
Manganese	**299**	**192**	**240**	**213**	**401**	**65.6**
Mercury	-	-	-	-	-	-
General Chemistry (mg/L):						
Nitrogen, Nitrate	-	-	< 0.11	< 0.11	< 0.11	-
Nitrogen, Nitrate + Nitrite	-	-	< 0.10	< 0.10	< 0.10	-
Nitrogen, Nitrite	-	-	< 0.010	< 0.010	< 0.010	-
Nitrogen, Total Kjeldahl	-	-	**3.1**	**1.8**	**3.0**	-

Footnotes:

ug/L	micrograms per liter
mg/L	milligrams per liter
*	Poorly adsorbed on activated carbon.
**	Generated by Method 6010D; all other metals results generated by Method 200.7.
<	Analyte was not detected at or above the indicated value.
J	Detected concentration is less than the laboratory quantitation limit.
J1	Low recovery reported for the matrix spike duplicate.
TVOCs	Total volatile organic compounds

Geosyntec consultants

Table 1: Ambient Air Laboratory Results (2021-03-30 through 2021-04-06)

Analyte	Target Screening Level (µg/m³)[1,3]	95% of Concentration Distribution NYSDOH Background Air (µg/m³)[2]	Ambient Air Concentration (µg/m³)				
			Sample Location				
			AMP-01	AMP-02	AMP-03	AMP-04	AMP-02-DUP
Site-specific Compounds of Interest[1]							
1,1,1-Trichloroethane	520	0.7	< 0.32	< 0.23	< 0.34	< 0.28	< 0.33
1,1-Dichloroethane	45	< 0.25	< 0.24	< 0.17	< 0.25	< 0.20	< 0.24
1,1-Dichloroethene	8	<0.25	< 0.12	< 0.083	< 0.12	< 0.10	< 0.12
1,2-Dichloroethane	3	< 0.25	< 0.24	< 0.17	< 0.25	< 0.20	< 0.24
Benzene	8	5.8	**0.47 J**	**0.42**	< 0.49	< 0.40	< 0.48
Ethyl-benzene	29	1.9	< 0.26	< 0.18	< 0.27	< 0.22	< 0.26
m,p-Xylene	10	3.1	< 0.52	**1.9 J**	< 0.53	< 0.44	< 0.52 J
o-Xylene	10	2.3	< 0.26	**2.3 J**	< 0.27	< 0.22	< 0.26 J
Tetrachloroethene	30	1.6	< 0.40	< 0.28	< 0.42	< 0.34	< 0.41
Toluene	521	21	**1.0**	**0.71**	< 0.58	< 0.48	**0.81**
trans-1,2-Dichloroethene	82	NA2	< 1.2	< 0.83	< 1.2	< 1.0	< 1.2
Trichloroethene	2	0.5	< 0.32	< 0.22	< 0.33	< 0.27	< 0.32
Vinyl Chloride	8	< 0.25	< 0.076	< 0.054	< 0.078	< 0.065	< 0.077
Other Compounds[3]							
1,1,2,2-Tetrachloroethane	1.3	< 0.25	< 0.41	< 0.29	< 0.42	< 0.35	< 0.41
1,1,2-Trichloroethane	0.21	< 0.25	< 0.32	< 0.23	< 0.34	< 0.28	< 0.33
1,2-Dibromoethane (EDB)	0.12	< 0.25	< 0.46	< 0.32	< 0.47	< 0.39	< 0.46
1,4-Dichlorobenzene	7	0.8	< 0.36	< 0.25	< 0.37	< 0.30	< 0.36
Carbon Tetrachloride	12	1	**0.45**	**0.50**	**0.47**	**2.8 J**	**0.45**
Chloroethane	417	0.4	< 0.39	< 0.28	< 0.40	< 0.33	< 0.40
Chloroform	3	0.5	< 0.29	< 0.20	< 0.30	< 0.25	< 0.29
Chloromethane	310	4.6	< 3.1	< 2.2	< 3.2	< 2.6	< 3.1
cis-1,2-Dichloroethene	NA1	< 0.25	< 0.24	< 0.17	< 0.24	< 0.20	< 0.24
Freon 114	NA1	1.3	< 0.42	< 0.29	< 0.43	< 0.35	< 0.42
Freon 12	100	11	**2.5**	**2.5**	**2.4**	**2.5**	**2.4**
Methyl tert-butyl ether	260	NA2	< 1.1	< 0.76	< 1.1	< 0.91	< 1.1

Notes:

µg/m³ - micrograms per cubic meter

Bold - indicates detections

R - rejected after data validation

< - indicates not detected at or above the indicated value

NA1 - no criteria given in the EPA RSL Calculator

J - indicates sample result is estimated

NA2 - NYSDOH did not include this compound in the guidance document[2]

[1] Target Screening Levels for site-specific compounds of interest provided in Bethpage Ambient Air Monitoring Plan and are based on a one-year exposure duration (B&B Engineers & Geologists of New York, P.C., May 2020)

[2] NYSDOH Outdoor Air Background Values from Appendix C (Table C1) of Guidance for Evaluating Soil Vapor Intrusion in the State of New York (2006)

[3] Target Screening Levels for other compounds calculated using the EPA RSL calculator with the same inputs as described in the Bethpage Ambient Air Monitoring Plan

Report Generated: 2021-05-05

Geosyntec consultants

Table 1: Ambient Air Laboratory Results (2021-04-06 through 2021-04-13)

Analyte	Target Screening Level (µg/m³)[1,3]	95% of Concentration Distribution NYSDOH Background Air (µg/m³)[2]	Ambient Air Concentration (µg/m³)				
			Sample Location				
			AMP-01	AMP-02	AMP-03	AMP-04	NS
Site-specific Compounds of Interest[1]							
1,1,1-Trichloroethane	520	0.7	< 0.35	< 0.36	< 0.35	< 0.30	--
1,1-Dichloroethane	45	< 0.25	< 0.26	< 0.26	< 0.26	< 0.22	--
1,1-Dichloroethene	8	<0.25	< 0.13	< 0.13	< 0.13	< 0.11	--
1,2-Dichloroethane	3	< 0.25	< 0.26	< 0.26	< 0.26	< 0.22	--
Benzene	8	5.8	< 0.52	< 0.52	< 0.52	< 0.44	--
Ethyl-benzene	29	1.9	< 0.28	< 0.28	< 0.28	< 0.24	--
m,p-Xylene	10	3.1	< 0.56	< 0.57	< 0.56	**0.60**	--
o-Xylene	10	2.3	< 0.28	< 0.28	< 0.28	**0.25**	--
Tetrachloroethene	30	1.6	< 0.44	< 0.44	< 0.44	< 0.37	--
Toluene	521	21	**0.81**	**0.80**	**2.6**	**2.5**	--
trans-1,2-Dichloroethene	82	NA2	< 1.3	< 1.3	< 1.3	< 1.1	--
Trichloroethene	2	0.5	< 0.35	< 0.35	< 0.35	< 0.29	--
Vinyl Chloride	8	< 0.25	< 0.083	< 0.084	< 0.083	< 0.070	--
Other Compounds[3]							
1,1,2,2-Tetrachloroethane	1.3	< 0.25	< 0.44	< 0.45	< 0.45	< 0.37	--
1,1,2-Trichloroethane	0.21	< 0.25	< 0.35	< 0.36	< 0.35	< 0.30	--
1,2-Dibromoethane (EDB)	0.12	< 0.25	< 0.50	< 0.50	< 0.50	< 0.42	--
1,4-Dichlorobenzene	7	0.8	< 0.39	< 0.39	< 0.39	< 0.33	--
Carbon Tetrachloride	12	1	**0.50**	**0.48**	**0.46**	**0.56**	--
Chloroethane	417	0.4	< 0.43	< 0.43	< 0.43	< 0.36	--
Chloroform	3	0.5	< 0.32	< 0.32	< 0.32	< 0.27	--
Chloromethane	310	4.6	< 3.3	< 3.4	< 3.4	< 2.8	--
cis-1,2-Dichloroethene	NA1	< 0.25	< 0.26	< 0.26	< 0.26	< 0.22	--
Freon 114	NA1	1.3	< 0.45	< 0.46	< 0.45	< 0.38	--
Freon 12	100	11	**2.7**	**2.6**	**2.6**	**2.8**	--
Methyl tert-butyl ether	260	NA2	< 1.2	< 1.2	< 1.2	< 0.98	--

Notes:

µg/m³ - micrograms per cubic meter

Bold - indicates detections

< - indicates not detected at or above the indicated value

J - indicates sample result is estimated

R - rejected after data validation

NA1 - no criteria given in the EPA RSL Calculator

NA2 - NYSDOH did not include this compound in the guidance document[2]

NS - no duplicate submitted

[1] Target Screening Levels for site-specific compounds of interest provided in Bethpage Ambient Air Monitoring Plan and are based on a one-year exposure duration (B&B Engineers & Geologists of New York, P.C., May 2020)

[2] NYSDOH Outdoor Air Background Values from Appendix C (Table C1) of Guidance for Evaluating Soil Vapor Intrusion in the State of New York (2006)

[3] Target Screening Levels for other compounds calculated using the EPA RSL calculator with the same inputs as described in the Bethpage Ambient Air Monitoring Plan

Report Generated: 2021-05-05

Geosyntec consultants

Table 1: Ambient Air Laboratory Results (2021-04-13 through 2021-04-20)

Analyte	Target Screening Level (µg/m³)[1,3]	95% of Concentration Distribution NYSDOH Background Air (µg/m³)[2]	Ambient Air Concentration (µg/m³)				
			Sample Location				
			AMP-01	AMP-02	AMP-03	AMP-04	AMP-04-DUP
Site-specific Compounds of Interest[1]							
1,1,1-Trichloroethane	520	0.7	< 0.33	< 0.32	< 0.38	< 0.28	< 0.35
1,1-Dichloroethane	45	< 0.25	< 0.24	< 0.24	< 0.28	< 0.21	< 0.26
1,1-Dichloroethene	8	<0.25	< 0.12	< 0.12	< 0.14	< 0.10	< 0.13
1,2-Dichloroethane	3	< 0.25	< 0.24	< 0.24	< 0.28	< 0.21	< 0.26
Benzene	8	5.8	< 0.48	**0.50**	< 0.55	**0.48**	< 0.51
Ethyl-benzene	29	1.9	< 0.26	< 0.25	< 0.30	**0.24**	< 0.28
m,p-Xylene	10	3.1	< 0.52	< 0.51	**0.84**	**0.85**	< 0.56
o-Xylene	10	2.3	< 0.26	< 0.25	**0.34**	**0.36**	< 0.28
Tetrachloroethene	30	1.6	< 0.41	< 0.40	< 0.47	< 0.35	< 0.44
Toluene	521	21	**0.99**	**1.0**	**2.3**	**1.8**	**1.1**
trans-1,2-Dichloroethene	82	NA2	< 1.2	< 1.2	< 1.4	< 1.0	< 1.3
Trichloroethene	2	0.5	< 0.32	< 0.31	< 0.37	< 0.28	< 0.35
Vinyl Chloride	8	< 0.25	< 0.077	< 0.075	< 0.088	< 0.067	< 0.082
Other Compounds[3]							
1,1,2,2-Tetrachloroethane	1.3	< 0.25	< 0.41	< 0.40	< 0.47	< 0.36	< 0.44
1,1,2-Trichloroethane	0.21	< 0.25	< 0.33	< 0.32	< 0.38	< 0.28	< 0.35
1,2-Dibromoethane (EDB)	0.12	< 0.25	< 0.46	< 0.45	< 0.53	< 0.40	< 0.49
1,4-Dichlorobenzene	7	0.8	< 0.36	< 0.35	< 0.41	< 0.31	< 0.39
Carbon Tetrachloride	12	1	**0.51**	**0.50**	**0.51**	**0.49**	**0.51**
Chloroethane	417	0.4	< 0.40	< 0.39	< 0.45	< 0.34	< 0.42
Chloroform	3	0.5	< 0.29	< 0.29	< 0.34	< 0.25	< 0.31
Chloromethane	310	4.6	< 3.1	< 3.0	< 3.6	< 2.7	< 3.3
cis-1,2-Dichloroethene	NA1	< 0.25	< 0.24	< 0.23	< 0.27	< 0.21	< 0.26
Freon 114	NA1	1.3	< 0.42	< 0.41	< 0.48	< 0.36	< 0.45
Freon 12	100	11	**2.4**	**2.4**	**2.5**	**2.4**	**2.5**
Methyl tert-butyl ether	260	NA2	< 1.1	< 1.0	< 1.2	< 0.94	< 1.2

Notes:

µg/m³ - micrograms per cubic meter

Bold - indicates detections

R - rejected after data validation

< - indicates not detected at or above the indicated value

NA1 - no criteria given in the EPA RSL Calculator

J - indicates sample result is estimated

NA2 - NYSDOH did not include this compound in the guidance document[2]

[1] Target Screening Levels for site-specific compounds of interest provided in Bethpage Ambient Air Monitoring Plan and are based on a one-year exposure duration (B&B Engineers & Geologists of New York, P.C., May 2020)

[2] NYSDOH Outdoor Air Background Values from Appendix C (Table C1) of Guidance for Evaluating Soil Vapor Intrusion in the State of New York (2006)

[3] Target Screening Levels for other compounds calculated using the EPA RSL calculator with the same inputs as described in the Bethpage Ambient Air Monitoring Plan

Report Generated: 2021-05-05

Geosyntec consultants

Table 1: Ambient Air Laboratory Results (2021-04-20 through 2021-04-27)

Analyte	Target Screening Level (µg/m³)[1,3]	95% of Concentration Distribution NYSDOH Background Air (µg/m³)[2]	Ambient Air Concentration (µg/m³)				
			Sample Location				
			AMP-01	AMP-02	AMP-03	AMP-04	AMP-03-DUP
Site-specific Compounds of Interest[1]							
1,1,1-Trichloroethane	520	0.7	< 0.41	< 0.40	< 0.41	< 0.43	< 0.34
1,1-Dichloroethane	45	< 0.25	< 0.30	< 0.30	< 0.30	< 0.32	< 0.25
1,1-Dichloroethene	8	<0.25	< 0.15	< 0.15	< 0.15	< 0.16	< 0.12
1,2-Dichloroethane	3	< 0.25	< 0.30	< 0.30	< 0.30	< 0.32	< 0.25
Benzene	8	5.8	< 0.60	< 0.59	< 0.60	< 0.63	< 0.50
Ethyl-benzene	29	1.9	< 0.32	< 0.32	< 0.33	< 0.34	< 0.27
m,p-Xylene	10	3.1	< 0.65	< 0.64	< 0.65	< 0.68	< 0.54
o-Xylene	10	2.3	< 0.32	< 0.32	< 0.33	< 0.34	< 0.27
Tetrachloroethene	30	1.6	< 0.51	< 0.50	< 0.51	< 0.53	< 0.42
Toluene	521	21	< 0.70	< 0.70	< 0.71	< 0.74	**0.72**
trans-1,2-Dichloroethene	82	NA2	< 1.5	< 1.5	< 1.5	< 1.6	< 1.2
Trichloroethene	2	0.5	< 0.40	< 0.40	< 0.40	< 0.42	< 0.34
Vinyl Chloride	8	< 0.25	< 0.096	< 0.094	< 0.096	< 0.10	< 0.080
Other Compounds[3]							
1,1,2,2-Tetrachloroethane	1.3	< 0.25	< 0.51	< 0.51	< 0.52	< 0.54	< 0.43
1,1,2-Trichloroethane	0.21	< 0.25	< 0.41	< 0.40	< 0.41	< 0.43	< 0.34
1,2-Dibromoethane (EDB)	0.12	< 0.25	< 0.57	< 0.57	< 0.58	< 0.60	< 0.48
1,4-Dichlorobenzene	7	0.8	< 0.45	< 0.44	< 0.45	< 0.47	< 0.38
Carbon Tetrachloride	12	1	**0.49**	**0.50**	**0.52**	**0.52**	**0.49**
Chloroethane	417	0.4	< 0.49	< 0.49	< 0.50	< 0.52	< 0.41
Chloroform	3	0.5	< 0.36	< 0.36	< 0.37	< 0.38	< 0.31
Chloromethane	310	4.6	< 3.9	< 3.8	< 3.9	< 4.0	< 3.2
cis-1,2-Dichloroethene	NA1	< 0.25	< 0.30	< 0.29	< 0.30	< 0.31	< 0.25
Freon 114	NA1	1.3	< 0.52	< 0.52	< 0.52	< 0.55	< 0.44
Freon 12	100	11	**2.4**	**2.5**	**2.5**	**2.6**	**2.5**
Methyl tert-butyl ether	260	NA2	< 1.3	< 1.3	< 1.4	< 1.4	< 1.1

Notes:

µg/m³ - micrograms per cubic meter

Bold - indicates detections

R - rejected after data validation

< - indicates not detected at or above the indicated value

NA1 - no criteria given in the EPA RSL Calculator

J - indicates sample result is estimated

NA2 - NYSDOH did not include this compound in the guidance document[2]

[1] Target Screening Levels for site-specific compounds of interest provided in Bethpage Ambient Air Monitoring Plan and are based on a one-year exposure duration (B&B Engineers & Geologists of New York, P.C., May 2020)

[2] NYSDOH Outdoor Air Background Values from Appendix C (Table C1) of Guidance for Evaluating Soil Vapor Intrusion in the State of New York (2006)

[3] Target Screening Levels for other compounds calculated using the EPA RSL calculator with the same inputs as described in the Bethpage Ambient Air Monitoring Plan

Report Generated: 2021-05-05