

# 1,4-Dioxane Sampling Update

## Brookhaven National Laboratory Community Advisory Council February 8, 2018

*Jason Remien*

*Manager, Environmental Protection Division*



U.S. DEPARTMENT OF  
**ENERGY**

Office of  
Science

# 1,4-Dioxane Sampling Update

- 1,4-Dioxane is a volatile organic compound that has been widely used as a stabilizer for 1,1,1-trichloroethane (TCA)
- No federal maximum contaminant level (MCL) or specific New York State standard has been established for 1,4-dioxane in drinking water. Currently considered an unspecified organic contaminant for which the standard is 50 µg/L
- In 2016, NYSDEC/NYSDOH formally suggested that BNL analyze for 1,4-dioxane within site plume core wells that have or had TCA
- Briefed CAC in March 2017 on groundwater samples collected in January 2017
  - Detected 1,4-dioxane in 17 of 22 on and off-site monitoring wells sampled
  - Concentrations ranged from 0.18 µg/L to 18.6 µg/L
  - Samples were analyzed via EPA Method 522 (low detection limit)
  - Data was included in the 2016 Groundwater Status Report

# 1,4-Dioxane Sampling Update

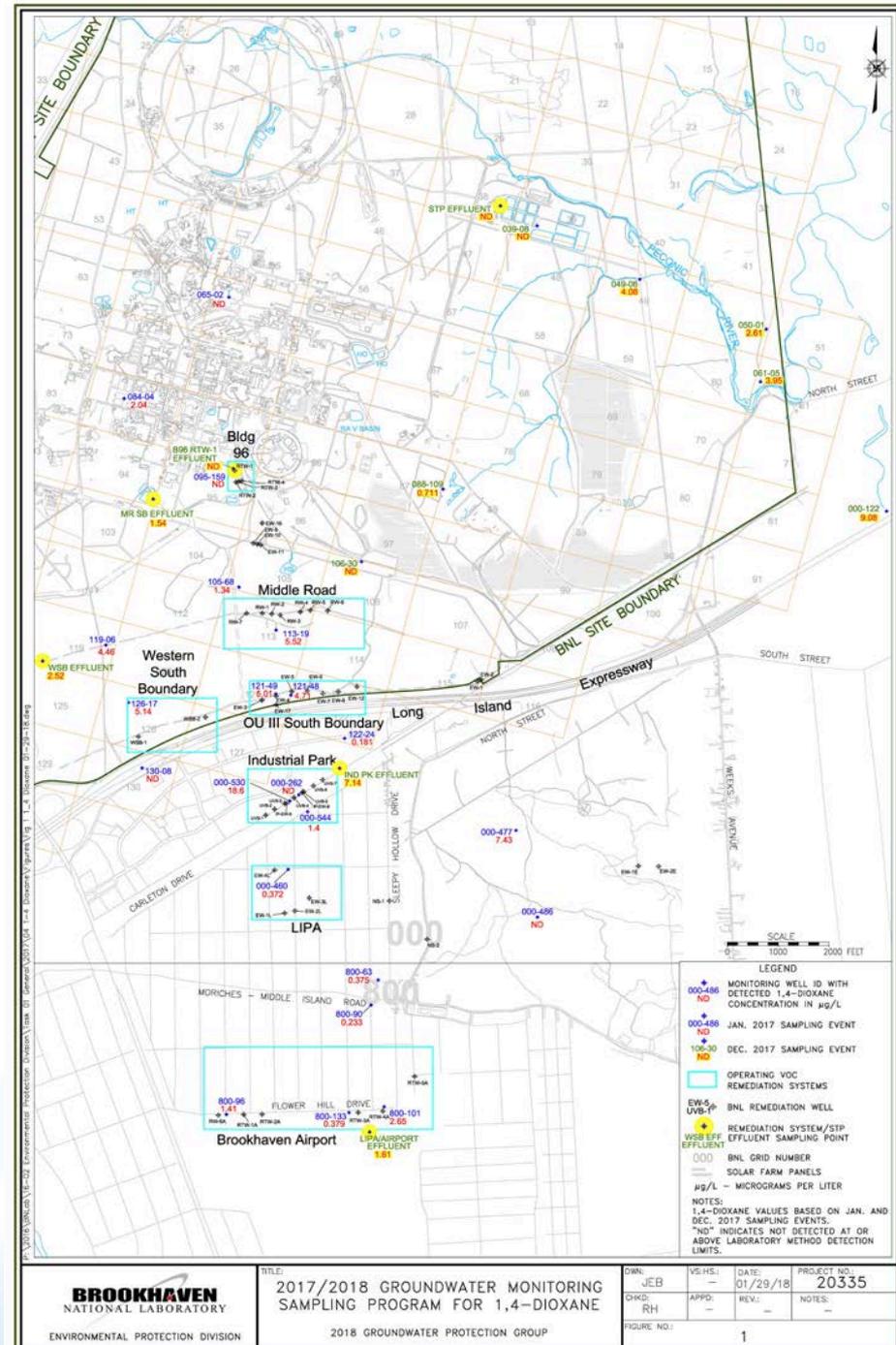
- In response to a September 2017 request by the Suffolk County Department of Health Services (SCDHS), BNL obtained additional baseline data on the distribution of 1,4-dioxane by sampling seven additional groundwater monitoring wells and the effluent from 5 currently operating groundwater treatment systems, and the Sewage Treatment Plant
- Samples were collected in early December 2017 from 13 locations



2017/12/05

# 1,4-Dioxane Sampling Results

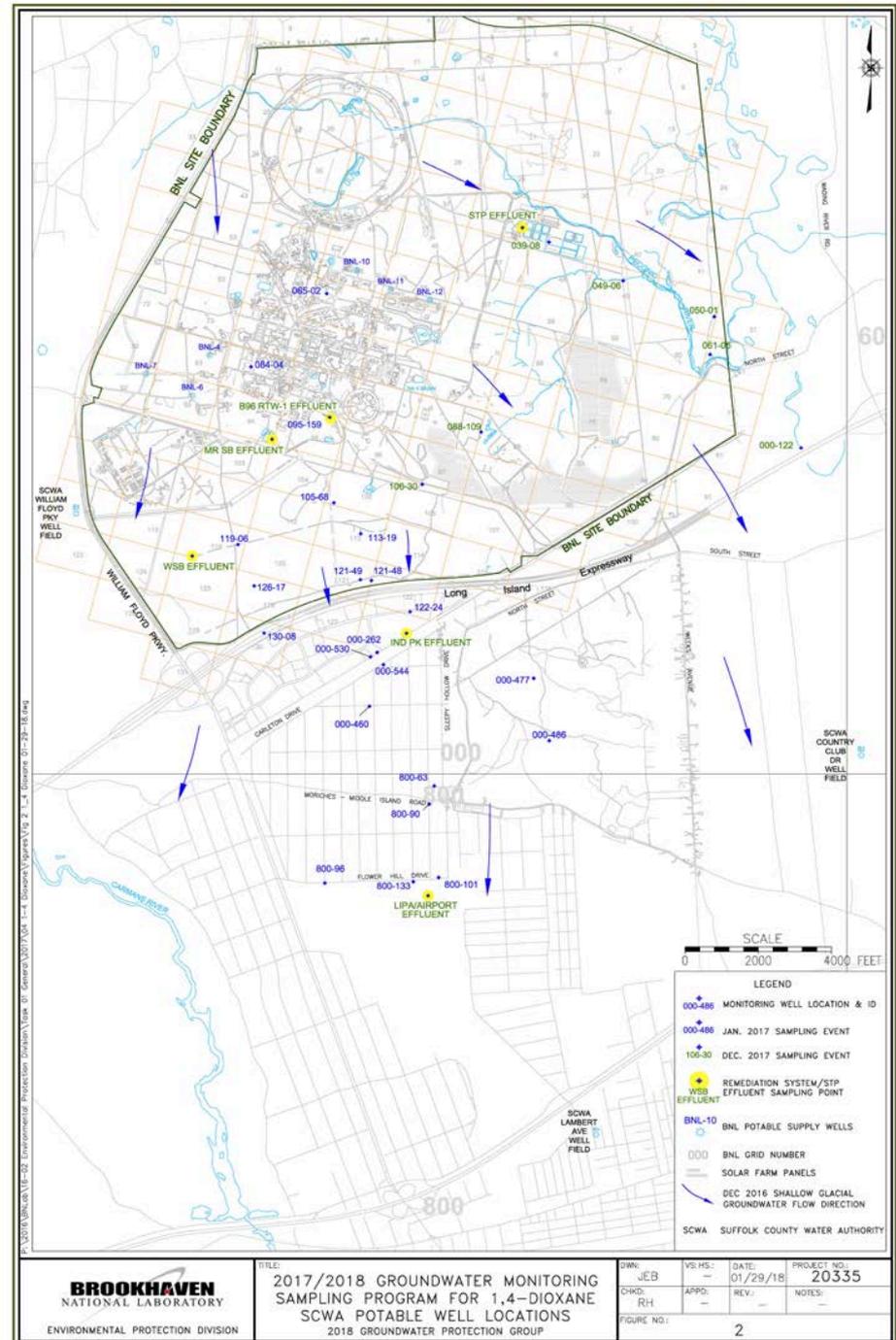
- Was not detected in Sewage Treatment Plant effluent sample
- Five of seven monitoring wells had detections up to 9.08  $\mu\text{g/L}$
- Four of five groundwater treatment system effluent samples had detections up to 7.14  $\mu\text{g/L}$
- All concentrations were below the current NYS standard for non-specific organic contaminants of 50  $\mu\text{g/L}$



# 1,4-Dioxane Sampling Update

- Drinking Water Supply Well Testing:
  - BNL's drinking water supply wells were tested by SCDHS from 2015 through 2017 and no 1,4-dioxane was detected
  - SCWA testing of drinking water supply wells in the vicinity of the Lab also did not detect 1,4-dioxane
- The new monitoring results were reviewed with the regulators on February 1<sup>st</sup>
  - Results will be included in the 2017 Groundwater Status Report
- BNL will continue to monitor regulatory status on this emerging contaminant of concern, and keep the CAC informed

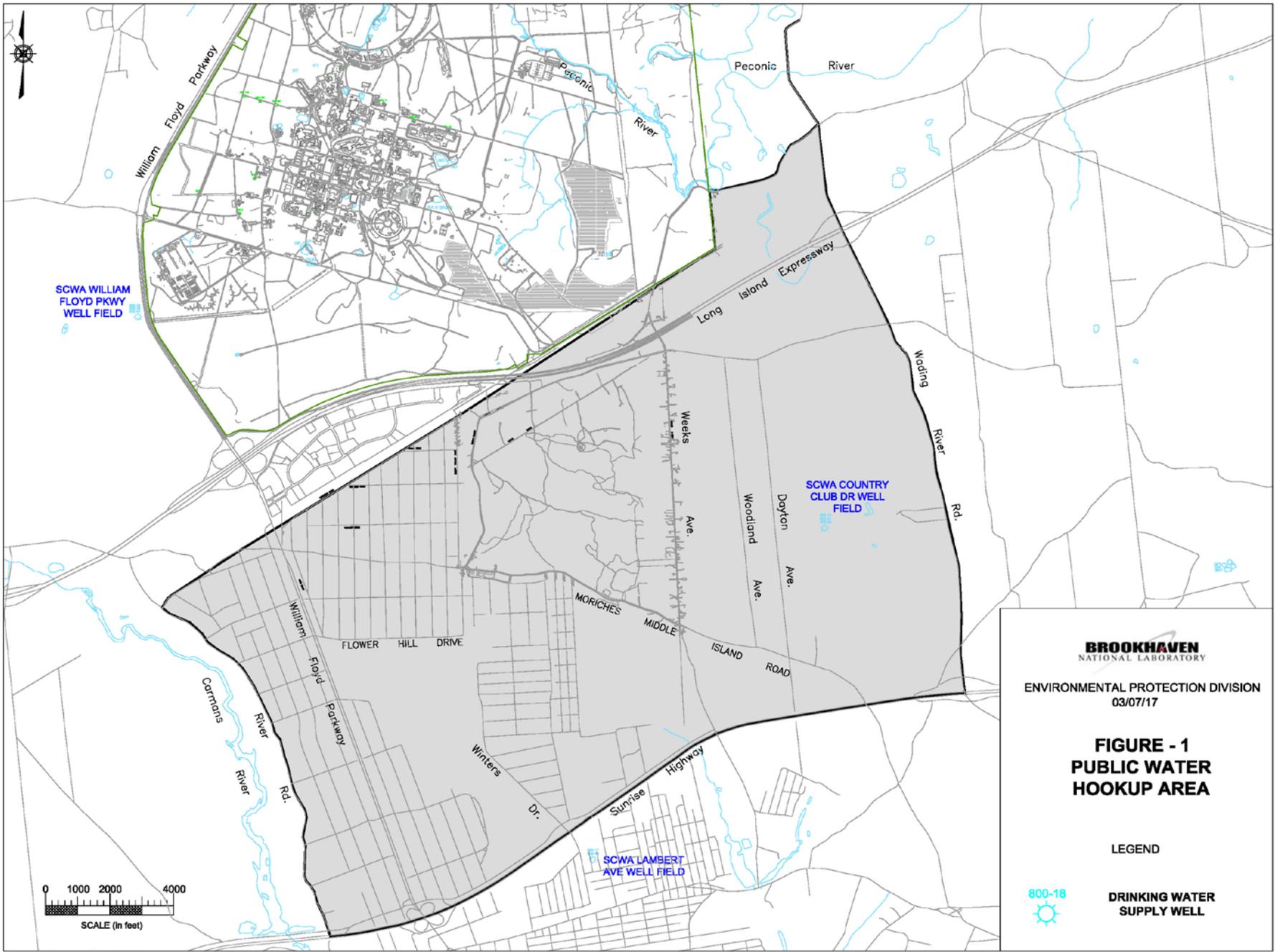
# 1,4-Dioxane Sampling Results



# Backup Slides

# January and December 2017 1,4-Dioxane Sampling Data

Well ID	Project	Date Sampled	Depth (ft bls)	1,4-Dioxane (µg/L)
065-02	OU III Central	1/19/2017	60	ND
084-04	OU III Central	1/19/2017	150	2.04
095-159	OU III Building 96	1/19/2017	50	ND
105-68	OU III Middle Road	1/20/2017	205	1.34
113-19	OU III Middle Road	1/20/2017	230	5.52
121-48	OU III South Boundary	1/20/2017	228	4.71
121-49	OU III South Boundary	1/20/2017	215	5.01
122-24	OU III Industrial Park East	1/19/2017	275.5	0.181 J
119-06	OU III Western South Boundary (WSB)	1/20/2017	130	4.46
126-17	OU III Western South Boundary	1/20/2017	140	5.14
130-08	OU III Western South Boundary	1/19/2017	150	ND
000-477	OU III North Street East	1/18/2017	170	7.43
000-486	OU III North Street East	1/18/2017	165	ND
000-262	OU III Industrial Park	1/19/2017	182.5	ND
000-530	OU III Industrial Park	1/19/2017	210	18.6
000-544	OU III Industrial Park	1/19/2017	230	1.4
000-460	OU III LIPA	1/18/2017	300	0.372
800-63	OU III North Street	1/18/2017	206	0.375
800-101	OU III Airport	1/18/2017	280	2.65
800-133	OU III Airport	1/18/2017	225	0.379
800-90	OU III Airport	1/18/2017	255	0.233
800-96	OU III Airport	1/18/2017	189	1.41
039-08	Downgradient of STP Sand Filters	12/5/2017	22	ND
049-06	OU V	12/5/2017	180	4.08
050-01	OU V	12/5/2017	215	2.61
061-05	OU V	12/5/2017	200	3.95
000-122	OU V	12/5/2017	250	9.08
088-109	Current Landfill	12/5/2017	13.5	0.711
106-30	Former Landfill	12/5/2017	36.5	ND
NA	Sewage Treatment Plant (STP) Effluent	12/6/2017	NA	ND
NA	OU III MR/SB Effluent	12/6/2017	NA	1.54
NA	OU III Building 96 RTW-1 Effluent	12/6/2017	NA	ND
NA	OU III WSB Effluent	12/5/2017	NA	2.52
NA	OU III Industrial Park EW-8/9 Effluent	12/5/2017	NA	7.14
NA	OU III LIPA/Airport Effluent	1/17/2018	NA	1.61
µg/L	Micrograms per liter.			
ft bls	Feet below land surface.			
ND	Not detected, <0.2 µg/L.			



**BROOKHAVEN**  
NATIONAL LABORATORY

ENVIRONMENTAL PROTECTION DIVISION  
03/07/17

**FIGURE - 1  
PUBLIC WATER  
HOOKUP AREA**

LEGEND



**DRINKING WATER  
SUPPLY WELL**

