RINGWOOD MINES/LANDFILL SITE

PUBLIC MEETING

December 6, 2016

August 2016 Groundwater and Surface Water Investigations

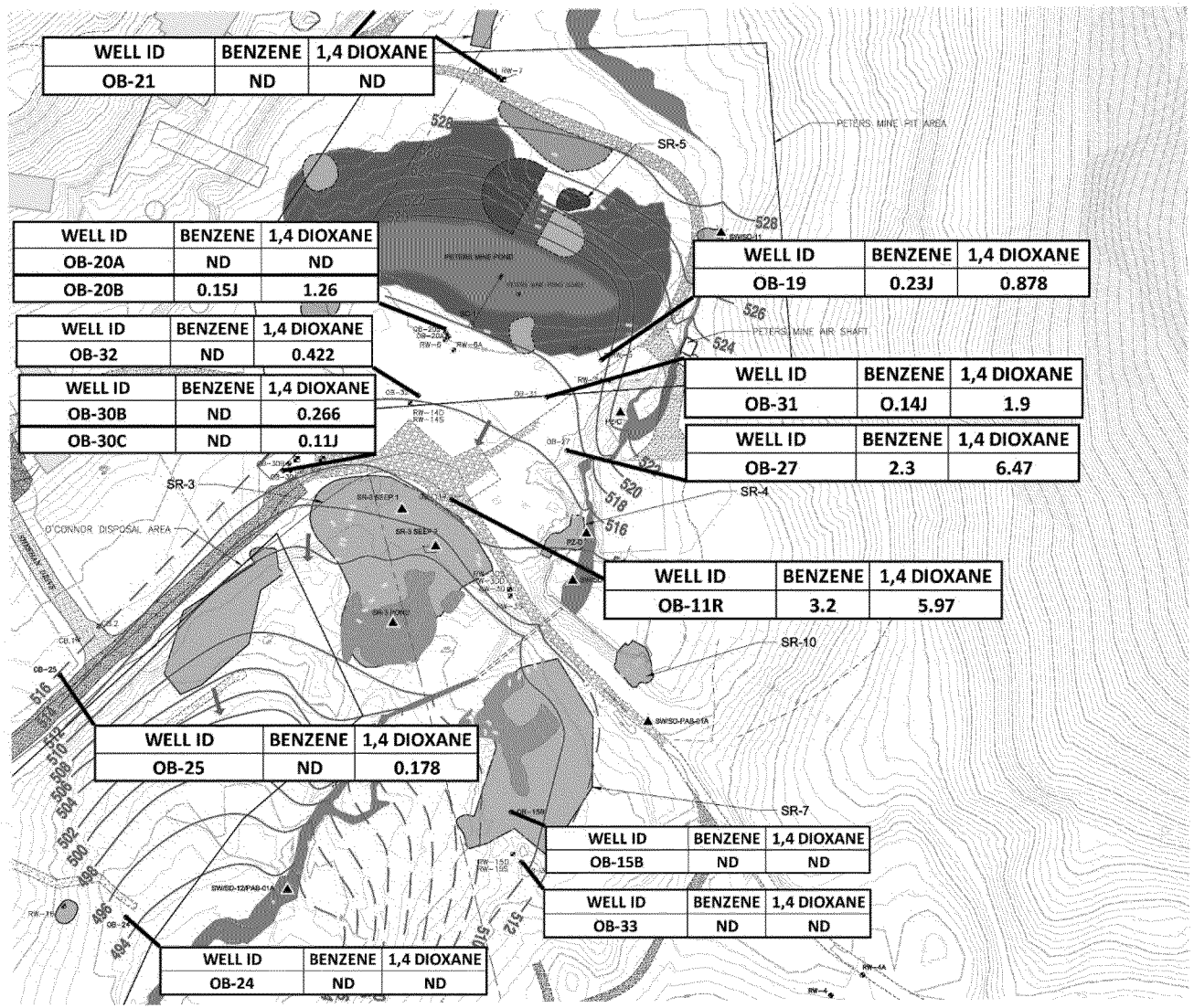
August 2016 Groundwater & Surface Water Sampling Event

- Groundwater samples have been collected from all monitoring wells at the Site on an annual basis and analyzed for volatile organic contaminants, semi-volatile organic contaminants (including 1,4-dioxane), Polychlorinated Biphenyls (PCBs), and metals.
- The 2016 Annual Groundwater Sampling Event was conducted from August 15, 2016 through August 30 2016.
- As part of this sampling event, surface water samples were also collected from the four brooks which drain the Site, as well as on-site ponds and groundwater seeps.

August 2016 Groundwater Sampling Results
Peters Mine Pit Area

* Consistent with the results of the August 2015 Groundwater Sampling Event, benzene and 1,4-dioxane were detected at their highest concentration in water samples collected from the bottom of the Peters Mine Airshaft.
* Benzene was detected at a concentration of 29 parts per billion (ppb) in the water sample collected from the bottom of the Peters Mine Airshaft. The drinking water standard for benzene is 1 ppb.
* Benzene was detected at a concentration less than 10 ppb in all other groundwater samples collected from the Peters Mine Pit Area.
* 1,4-dioxane was detected at a concentration of 146 ppb in the water sample collected from the bottom of the Peters Mine Airshaft, at a depth of 230 feet below ground surface (bgs).

Peters Mine Pit Area
Overburden Groundwater, Benzene and 1,4-Dioxane
August 2016



WELL ID	BENZENE	1,4 DIOXANE
OB-21	ND	ND

WELL ID	BENZENE	1,4 DIOXANE
OB-20A	ND	ND
OB-20B	0.15J	1.26

WELL ID	BENZENE	1,4 DIOXANE
OB-19	0.23J	0.878

WELL ID	BENZENE	1,4 DIOXANE
OB-32	ND	0.422

WELL ID	BENZENE	1,4 DIOXANE
OB-31	O.14J	1.9

WELL ID	BENZENE	1,4 DIOXANE
OB-30B	ND	0.266
OB-30C	ND	0.11J

WELL ID	BENZENE	1,4 DIOXANE
OB-27	2.3	6.47

WELL ID	BENZENE	1,4 DIOXANE
OB-11R	3.2	5.97

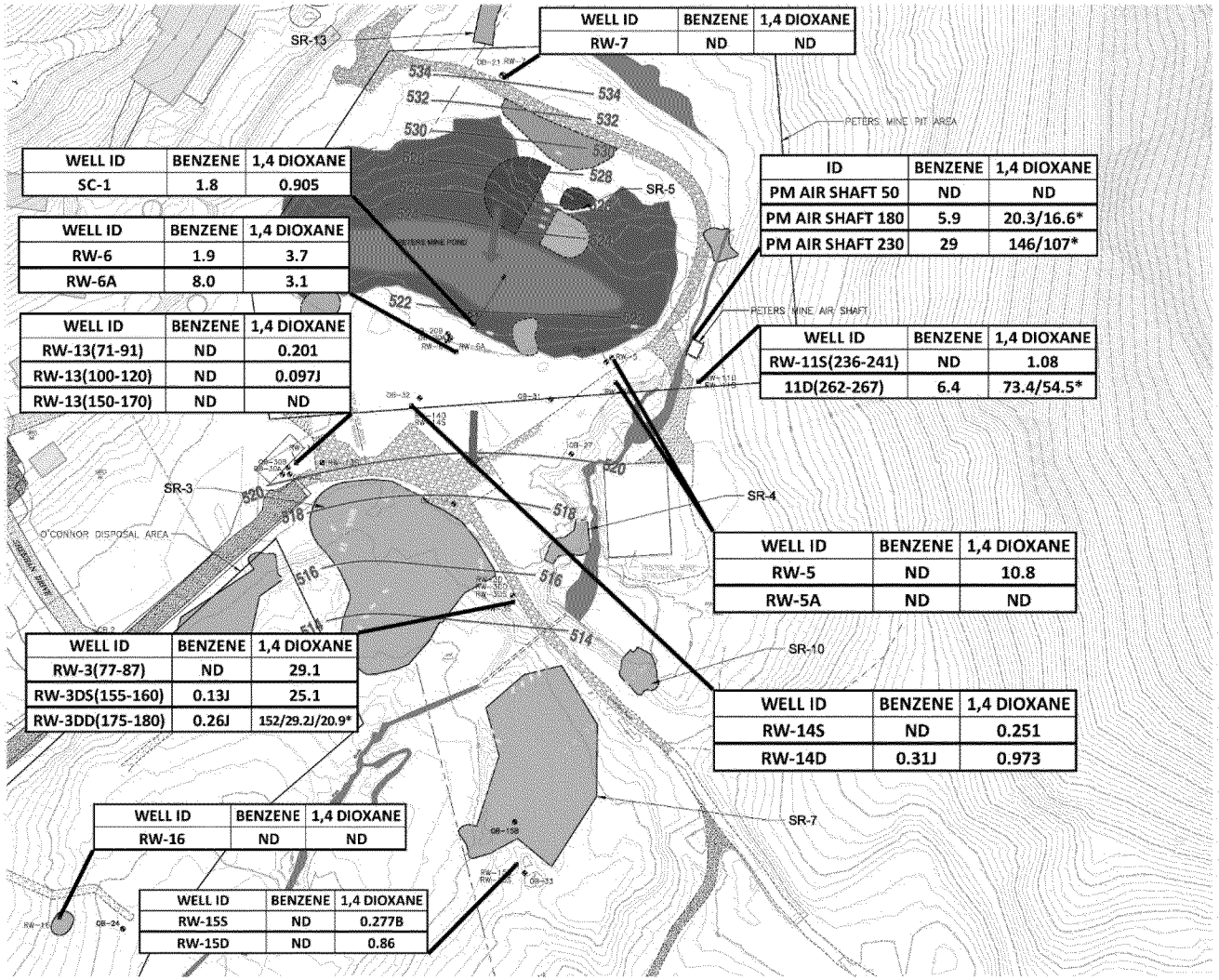
WELL ID	BENZENE	1,4 DIOXANE
OB-25	ND	0.178

WELL ID	BENZENE	1,4 DIOXANE
OB-15B	ND	ND

WELL ID	BENZENE	1,4 DIOXANE
OB-33	ND	ND

WELL ID	BENZENE	1,4 DIOXANE
OB-24	ND	ND

Peters Mine Pit Area
Bedrock Groundwater and Mine Water, Benzene and 1,4-Dioxane
August 2016



WELL ID	BENZENE	1,4 DIOXANE
RW-7	ND	ND

WELL ID	BENZENE	1,4 DIOXANE
SC-1	1.8	0.905

WELL ID	BENZENE	1,4 DIOXANE
RW-6	1.9	3.7
RW-6A	8.0	3.1

WELL ID	BENZENE	1,4 DIOXANE
RW-13(71-91)	ND	0.201
RW-13(100-120)	ND	0.097J
RW-13(150-170)	ND	ND

ID	BENZENE	1,4 DIOXANE
PM AIR SHAFT 50	ND	ND
PM AIR SHAFT 180	5.9	20.3/16.6*
PM AIR SHAFT 230	29	146/107*

WELL ID	BENZENE	1,4 DIOXANE
RW-11S(236-241)	ND	1.08
11D(262-267)	6.4	73.4/54.5*

WELL ID	BENZENE	1,4 DIOXANE
RW-5	ND	10.8
RW-5A	ND	ND

WELL ID	BENZENE	1,4 DIOXANE
RW-3(77-87)	ND	29.1
RW-3DS(155-160)	0.13J	25.1
RW-3DD(175-180)	0.26J	152/29.2J/20.9*

WELL ID	BENZENE	1,4 DIOXANE
RW-14S	ND	0.251
RW-14D	0.31J	0.973

WELL ID	BENZENE	1,4 DIOXANE
RW-16	ND	ND

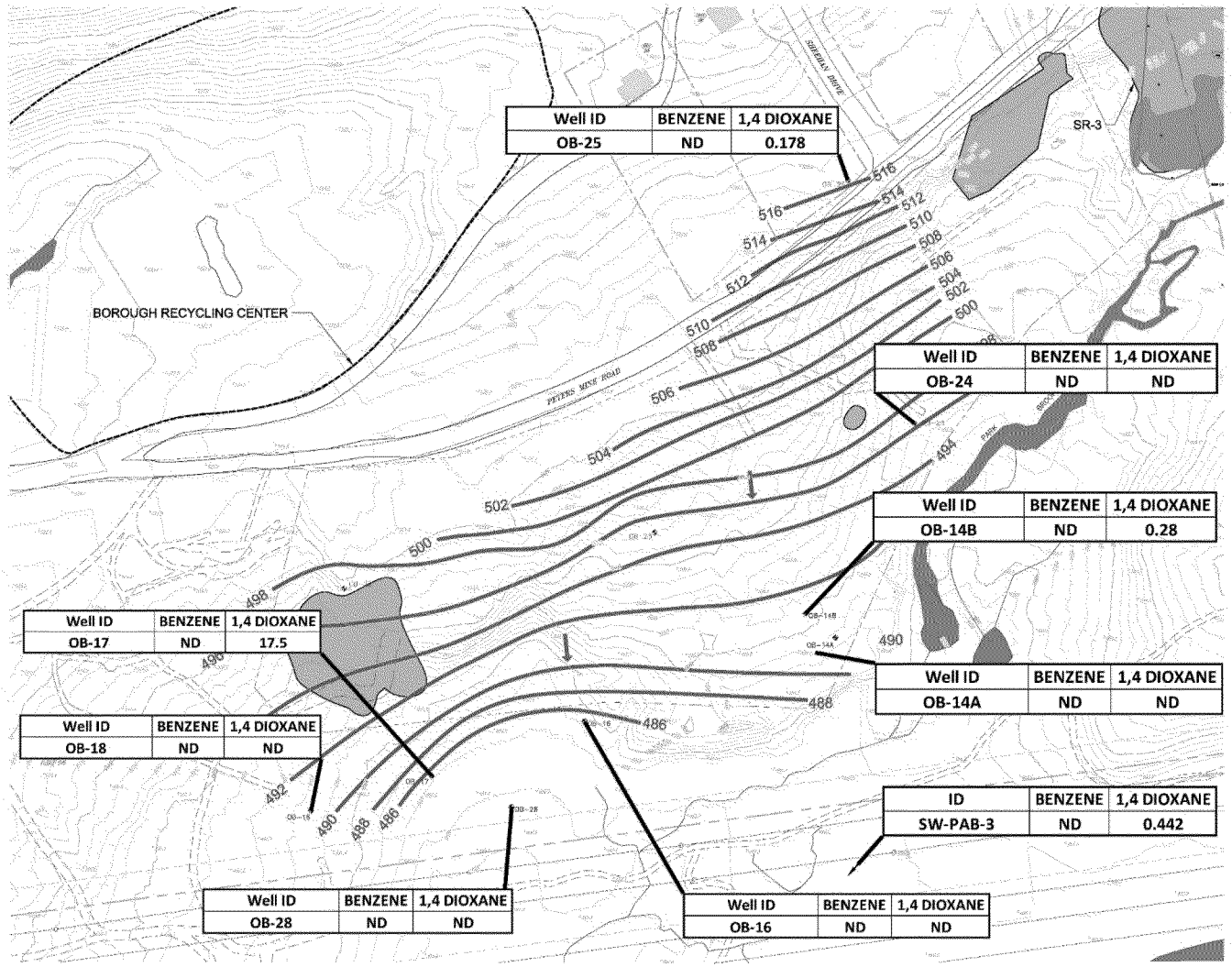
WELL ID	BENZENE	1,4 DIOXANE
RW-15S	ND	0.277B
RW-15D	ND	0.86

August 2016 Groundwater Sampling Results
O'Connor Disposal Area

- Volatile organic contaminants, including benzene, were not detected at concentrations which exceed groundwater or drinking water standards.
- 1,4-Dioxane was detected at a concentration which exceeds the State of New Jersey's Interim Groundwater Quality Standard of 0.4 ppb in one sample collected from the southern end of the O'Connor Disposal Area.

1,4-Dioxane was detected at a concentration of 17.5 ppb in this groundwater sample. 1,4-Dioxane was detected at a concentration of 17.0 ppb in a sample collected from the same monitoring well during the August 2015 Groundwater Sampling Event.

OCDA Groundwater Benzene and 1,4-Dioxane
August 2016



Well ID	BENZENE	1,4 DIOXANE
OB-25	ND	0.178

Well ID	BENZENE	1,4 DIOXANE
OB-24	ND	ND

Well ID	BENZENE	1,4 DIOXANE
OB-14B	ND	0.28

Well ID	BENZENE	1,4 DIOXANE
OB-14A	ND	ND

Well ID	BENZENE	1,4 DIOXANE
OB-17	ND	17.5

Well ID	BENZENE	1,4 DIOXANE
OB-18	ND	ND

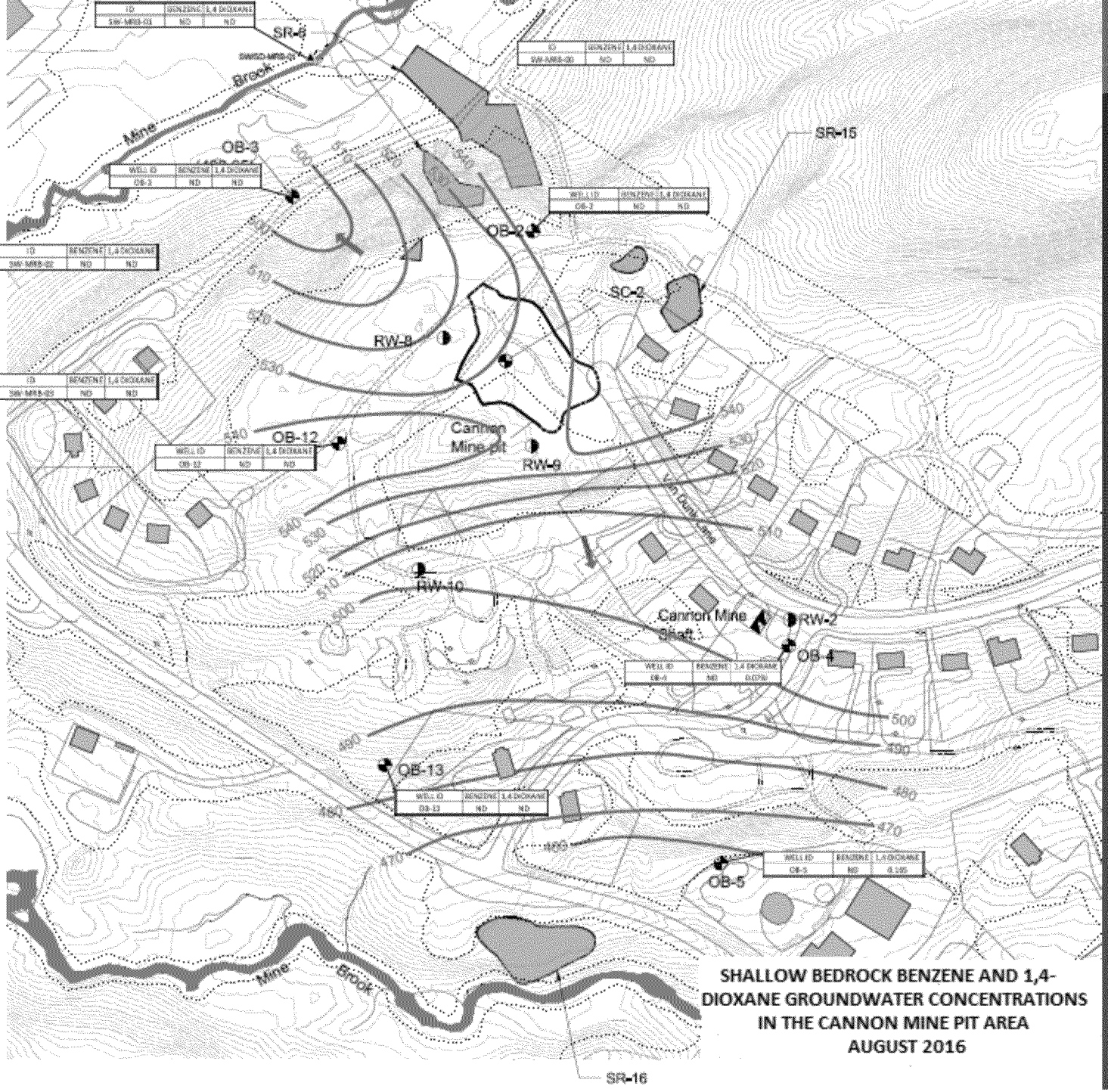
ID	BENZENE	1,4 DIOXANE
SW-PAB-3	ND	0.442

Well ID	BENZENE	1,4 DIOXANE
OB-28	ND	ND

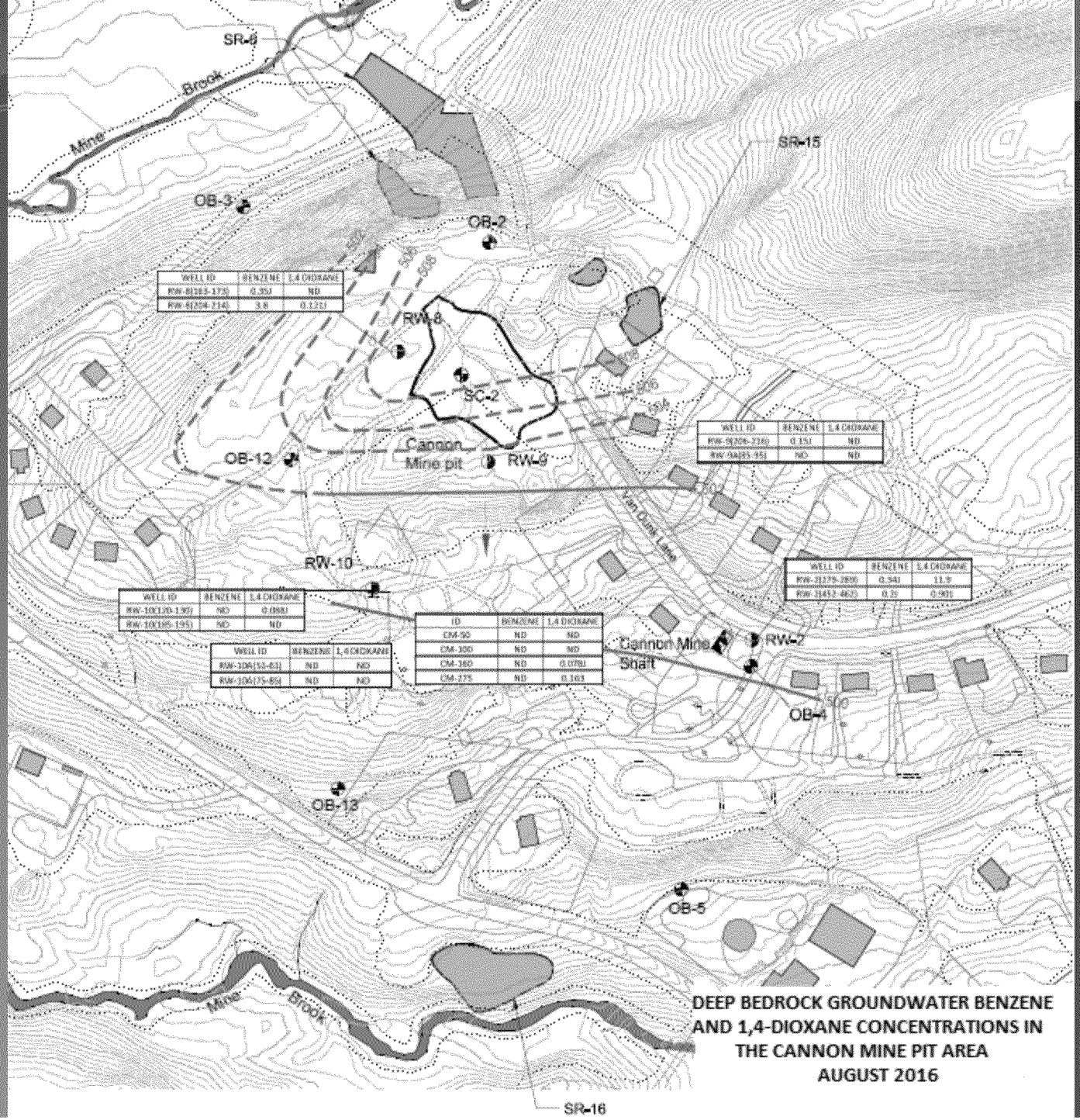
Well ID	BENZENE	1,4 DIOXANE
OB-16	ND	ND

August 2016 Groundwater Sampling Results
Cannon Mine Pit Area

- Benzene was detected at a concentration which exceeds its drinking water standard of 1 ppb in only one groundwater sample collected from the Cannon Mine Pit Area. Benzene was detected at a concentration of 3.8 ppb in this sample, which was collected at a depth of over 200 feet below ground surface.
- 1,4-Dioxane was detected at a concentration which exceeds the State of New Jersey's Interim Groundwater Quality Standard of 0.4 ppb in two wells in the Cannon Mine Pit Area. These samples were collected at depths greater than 270 feet below ground surface. Samples collected from these wells during the August 2015 groundwater sampling event also exceeded the 0.4 ppb standard.
- Polychlorinated biphenyls (PCBs) were detected in one sample at a concentration that slightly exceeded the New Jersey Groundwater Quality Standard of 0.5 ppb. This sample was collected at a depth greater than 450 feet below ground surface.



SHALLOW BEDROCK BENZENE AND 1,4-DIOXANE GROUNDWATER CONCENTRATIONS IN THE CANNON MINE PIT AREA AUGUST 2016

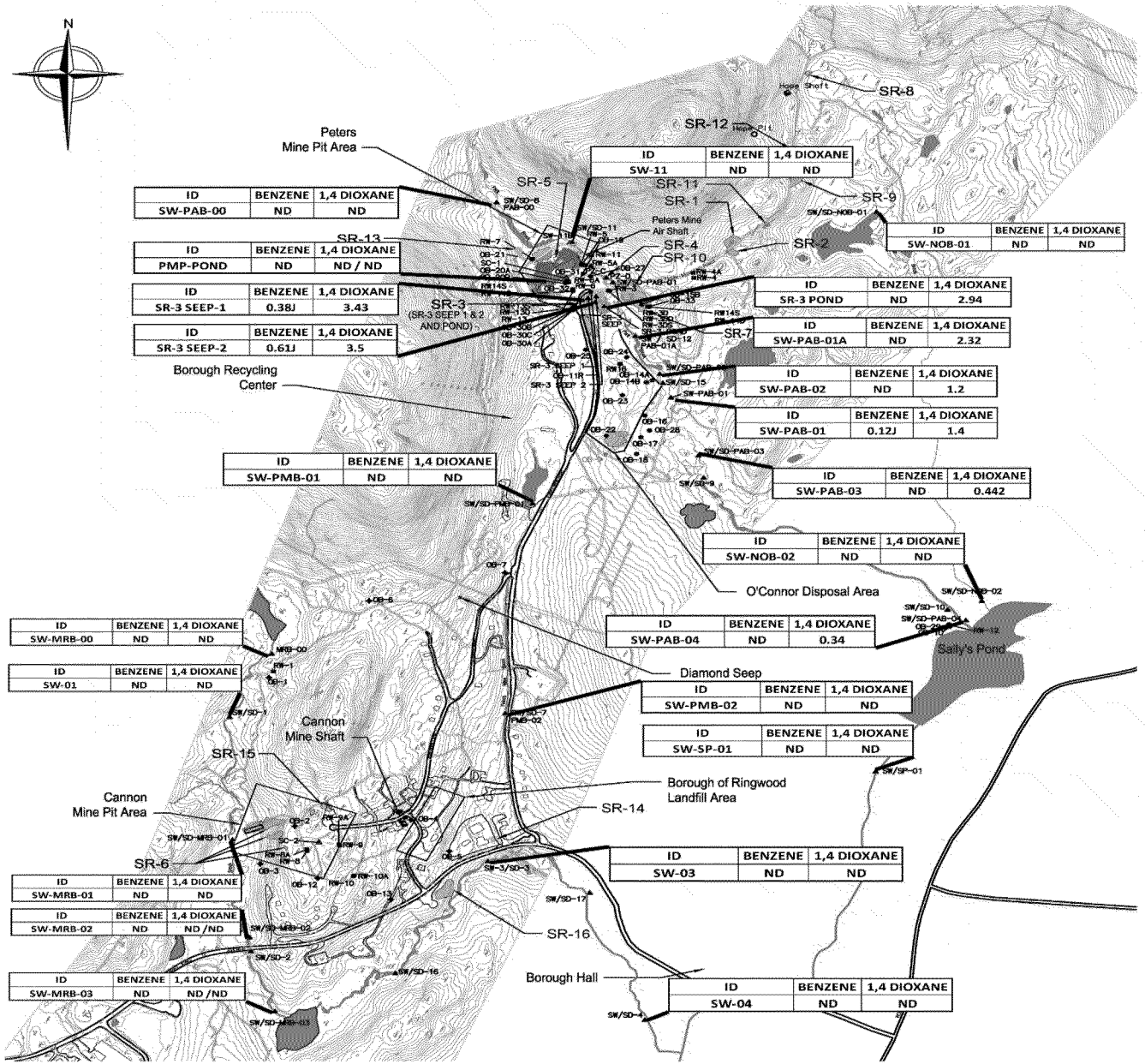


DEEP BEDROCK GROUNDWATER BENZENE AND 1,4-DIOXANE CONCENTRATIONS IN THE CANNON MINE PIT AREA
AUGUST 2016

Surface Water Sampling Results
August 2016

- Surface water samples were collected from groundwater seeps, on-site ponds and the four brooks present at the site.
- Of the four brooks sampled, 1-4 Dioxane was only detected in the Park Brook.
- 1,4-Dioxane was detected in the Park Brook at concentrations up to 2.32 ppb at on-site brook locations, and up to 0.34 ppb at off-site locations. 1,4-Dioxane was not detected at sample locations downstream of Sally's Pond.
- Benzene was not detected in any of the surface water samples collected from the four brooks present at the site.
- Benzene was detected in the two groundwater seeps at concentrations less than 1.0 ppb.

Surface Water Benzene and 1,4-Dioxane – August 2016



ID	BENZENE	1,4 DIOXANE
SW-11	ND	ND

ID	BENZENE	1,4 DIOXANE
SW-PAB-00	ND	ND

ID	BENZENE	1,4 DIOXANE
SW-NOB-01	ND	ND

ID	BENZENE	1,4 DIOXANE
PMP-POND	ND	ND / ND

ID	BENZENE	1,4 DIOXANE
SR-3 POND	ND	2.94

ID	BENZENE	1,4 DIOXANE
SR-3 SEEP-1	0.38J	3.43

ID	BENZENE	1,4 DIOXANE
SW-PAB-01A	ND	2.32

ID	BENZENE	1,4 DIOXANE
SR-3 SEEP-2	0.61J	3.5

ID	BENZENE	1,4 DIOXANE
SW-PAB-02	ND	1.2

ID	BENZENE	1,4 DIOXANE
SW-PAB-01	0.12J	1.4

ID	BENZENE	1,4 DIOXANE
SW-PMB-01	ND	ND

ID	BENZENE	1,4 DIOXANE
SW-PAB-03	ND	0.442

ID	BENZENE	1,4 DIOXANE
SW-NOB-02	ND	ND

ID	BENZENE	1,4 DIOXANE
SW-MRB-00	ND	ND

ID	BENZENE	1,4 DIOXANE
SW-PAB-04	ND	0.34

ID	BENZENE	1,4 DIOXANE
SW-01	ND	ND

ID	BENZENE	1,4 DIOXANE
SW-PMB-02	ND	ND

ID	BENZENE	1,4 DIOXANE
SW-SP-01	ND	ND

ID	BENZENE	1,4 DIOXANE
SW-03	ND	ND

ID	BENZENE	1,4 DIOXANE
SW-MRB-01	ND	ND

ID	BENZENE	1,4 DIOXANE
SW-MRB-02	ND	ND /ND

ID	BENZENE	1,4 DIOXANE
SW-MRB-03	ND	ND /ND

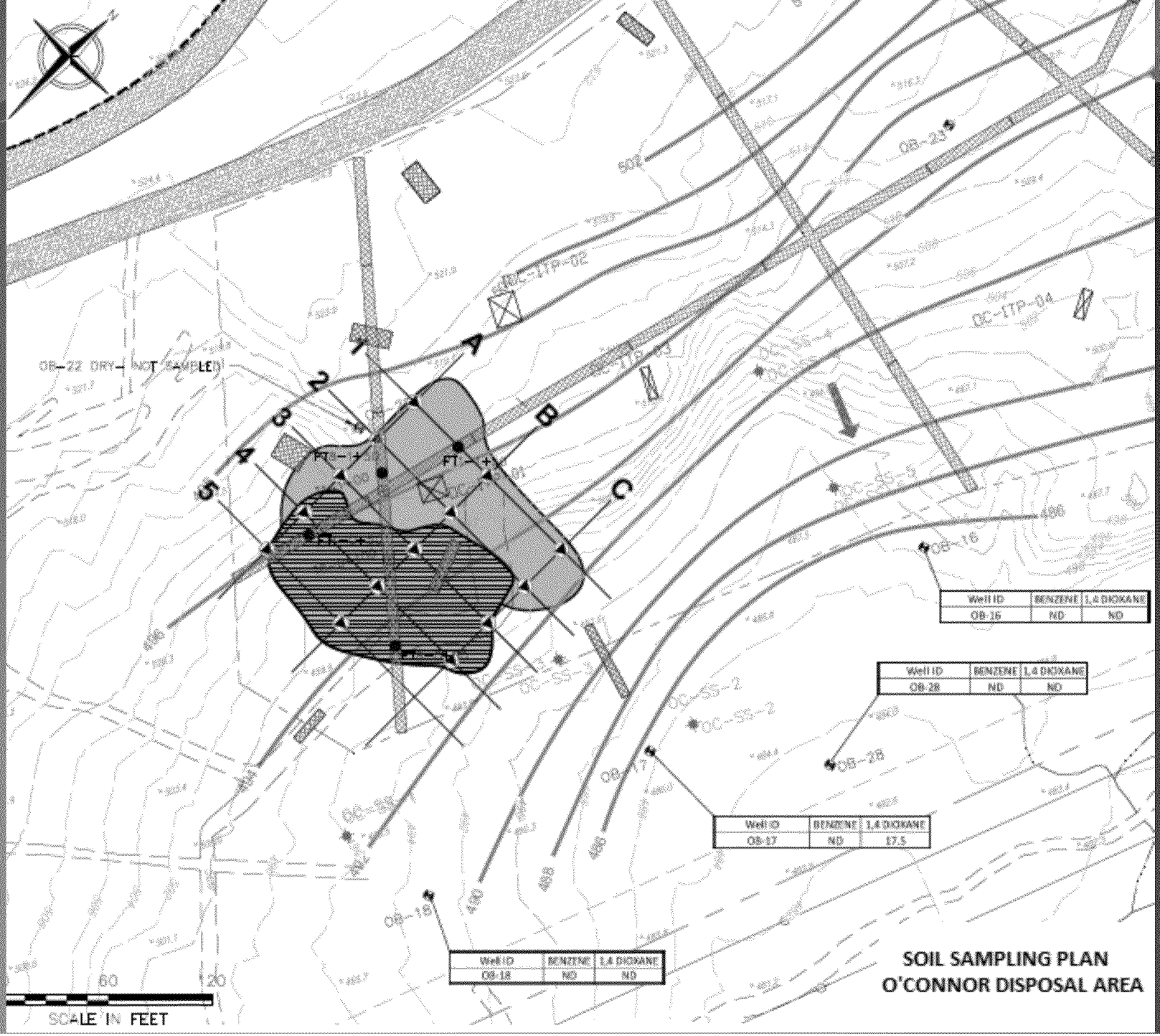
ID	BENZENE	1,4 DIOXANE
SW-04	ND	ND

1,4-Dioxane - Conclusions

* 1,4-Dioxane has not been detected in **any** groundwater or surface water sample from the site at concentrations in excess of EPA's lifetime health advisory of 200 ug/L for drinking water.
* 1,4-Dioxane was not detected in water samples collected from the Wanaque Reservoir by the North Jersey District Water Supply Commission in 2013 and 2016.
* Surface water sampling results indicate that 1,4-Dioxane originating from the Site is not migrating to the Wanaque Reservoir.
* Residents receive their water from public water supplies. These supplies routinely test their water; tests reveal the water meets all appropriate standards.
* 1,4-Dioxane does not present a significant threat to human health under current Site circumstances; no one is drinking the groundwater at the Site or otherwise exposed to significant levels of 1,4-Dioxane.
* EPA will continue to monitor for 1,4-Dioxane during future groundwater and surface water sampling events at the site.

1,4-Dioxane Soil Sampling Plan
O'Connor Disposal Area

- Due to the isolated detection of 1,4-Dioxane in one well at the southern end of the O'Connor Disposal Area, the Ford Motor Company has proposed the collection of additional soil samples to evaluate whether a source of 1,4-Dioxane remains in the OCDA.
- The soil sampling will target an area of the OCDA where paint sludge had been previously removed.
- The soil sampling plan calls for the installation of 14 soil borings, with the collection of 50 to 55 soil samples.
- The soil sampling will begin during the week of December 12, 2016.
- EPA anticipates that the sampling results will be available in January.



Well ID	BENZENE	1,4 DIOXANE
OB-16	ND	ND

Well ID	BENZENE	1,4 DIOXANE
OB-28	ND	ND

Well ID	BENZENE	1,4 DIOXANE
OB-17	ND	17.5

Well ID	BENZENE	1,4 DIOXANE
OB-18	ND	ND

SOIL SAMPLING PLAN
O'CONNOR DISPOSAL AREA

Design of the Operable Unit Two Remedy
Peters Mine Pit, Cannon Mine Pit and O'Connor Disposal Areas

* The Ford Motor Company is currently providing for the design of the remedy for the Peter's Mine Pit, Cannon Mine Pit and O'Connor Disposal Areas of the site. The current design assumes that the Borough will construct a recycling center over the cap to be installed in the O'Connor Disposal Area.
* On November 22, 2016, EPA and the NJDEP's comments on the Draft Final Remedial Design Report were provided to Ford. EPA expects to receive the Final Remedial Design Report by February 2017.
* On August 8, 2016 EPA informed the Borough that if it did not make a final decision as to whether it would proceed with the Recycling Center by November 22, 2016, EPA would assume that the Borough was not committed to the Recycling Center and would revert to the excavation remedy for the OCDA.
* On November 22, 2016, the Borough informed EPA that while it continued to support the remedy currently being designed for the OCDA, the Borough wanted to consider new information, including the results of the impending soil sampling work in the OCDA, before making a final decision as to whether to move forward with work on the new recycling center.
* EPA expects that the Borough will make their final decision by late January/early February.
* In order to avoid any delay in implementing the excavation remedy for OCDA should the Borough change its position on the Recycling Center, EPA has required that design of the excavation remedy for the OCDA resume and be conducted concurrent with the design of the capping remedy for the OCDA.