

**NORTH EAST AVE AND EAST FOREST GROVE ROAD GROUND WATER
CONTAMINATION AREA
REMEDIALTION ALTERNATIVE WATER SUPPLY ANALYSIS
VINELAND TOWNSHIP, CUMBERLAND COUNTY
PI# 722423**



**IMMEDIATE CONCERN UNIT
BUREAU OF ENVIRONMENTAL MEASUREMENTS AND SITE ASSESSMENT
DIVISION OF REMEDIATION MANAGEMENT
NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION**

February 6, 2019

BACKGROUND

In April 2016 the Vineland Township Health Department referred a case involving contaminated potable wells located in the area of North-East Avenue and East Forest Grove Road in Vineland Township, Cumberland County to the New Jersey Department of Environmental Protection. This area is largely residential and relies on potable wells for drinking water. The Health Department conducted sampling and found 5 wells with confirmed contamination that exceeds the Ground Water Remediation Standard (GWRS) for trichloroethylene (TCE). The concentration of TCE found at the time ranged between 1.26 parts per billion (ppb) and 11.4 ppb. The GWRS for TCE is 1 ppb. The New Jersey Department of Environmental Protection (Department) recommends that if drinking water exceeds a GWRS an alternative source of water or a water treatment system be used to supply potable water.

The case was referred to the Immediate Concern Unit (ICU) in the Department for further investigation and remedial actions. The ICU in the Bureau of Environmental Measurements and Site Assessment is responsible for the protection of human health in situations that are considered Immediate Environmental Concerns (IEC) cases. A potable water IEC case is defined as a situation involving 5 or more potable wells that have confirmed contamination that exceeds the GWRS and are within a 1000-foot radius of each other. The ICU responds to these cases by addressing receptors with both a short-term response and also a long-term permanent remedial action to ensure that people are not being exposed to contaminated drinking water.

In the short-term the ICU performs two major tasks. First, owners of a well with confirmed contamination that exceed a GWRS may be eligible for funding for the installation of a water treatment system which will remove the contamination from the all the water used in the house. This funding is provided through NJDEP's Spill Compensation Fund, and covers the installation, maintenance and routine monitoring of a Point of Entry Treatment (POET) system by private water treatment vendors.

The second short term task is the collection and analysis of water samples from nearby wells to determine if they are impacted by the same groundwater contamination. This process is referred to as receptor delineation. Data collected will be used to delineate an area referred to as a Currently Known Extent (CKE) project area. The CKE encompasses all the contaminated wells that are within 1000 feet of 4 other contaminated wells. The CKE includes both wells that are contaminated and other wells that are either below the GWRS or not sampled but are considered threatened. Other wells may be contaminated but are not included in the CKE due to their distance from the area. These wells are referred to as outliers and will be addressed individually. Once the CKE project area is delineated a long-term remedial action can be evaluated. The first step in evaluating long-term remedial actions for the existing wells in the CKE is to conduct an alternative water supply analysis. The purpose of this report is to evaluate the feasibility and cost of water supply alternatives. Once the alternatives are evaluated, the Department will work with the local municipality to implement a solution to supply potable drinking water to the

people in the CKE and homes identified with contamination but located outside of the CKE.

RECEPTOR DELINEATION SAMPLING

To fully delineate the extent of the contamination the Department conducted additional potable well sampling in the area surrounding the wells with known contamination. The Department mailed letters to property owners within a 500-foot radius of known contaminated wells requesting permission for collection and analysis of samples from their wells. Wells were to be sampled for volatile organics, perchlorate and mercury. Samples would be collected and analyzed at no expense to the home owner. Some residents refused or did not respond. Sample were collected from the wells of 43 residents that responded. Of the 43 wells sampled, 5 wells exceeded the GWRS for TCE, 7 wells exceeded for perchlorate and 1 well exceeded for both TCE and perchlorate. Currently there are 13 wells with confirmed contamination. All homeowners with a confirmed exceedance of a GWRS were offered a Point-of Entry Treatment system (POET). A summary of the analytical results of the samples is shown in Table 2 of this report.

The Department used the analytical results to delineate a Currently Known Extent (CKE) project area. All the analytical results were plotted on a map and an area was delineated that encompasses all contaminated wells that are within 1000 feet of 4 other contaminated wells. The CKE area includes properties with contaminated wells along with properties with wells that were not tested or tested below the GWRS but are within the delineated area. Any property with less than 3 acres that is partially included in the CKE area was included in the area. If the property is greater than 3 acres only the portion of the lot within the CKE was included in the project area. The CKE encompasses a total of 28 lots of which 25 are developed. A total of 12 wells in the CKE area exceed the GWRS. A map of the CKE project area is shown in Figure 1 and a list of the block and lots are given in Table 1.

One well was located approximately 1800 feet beyond the CKE and was not included but will be addressed individually. The one home outside of the CKE is referred to as an outlier and is located east of the CKE on East Forest Grove Road.

CKE PROJECT AREA SUMMARY				
AREA	TOTAL # LOTS	# DEVELOPED LOTS	LOTS W/ PUBLIC WATER	LOTS W/O PUBLIC WATER
NORTH EAST AVE AND EAST FOREST GROVE ROAD GROUND WATER CONTAMINATION CKE	28	25	0	28

WATER SUPPLY ALTERNATIVES

Three long-term alternatives were considered as a replacement water supply for the existing homes in the CKE Project Area. A detailed cost estimate was prepared for each viable water supply alternative. The alternatives evaluated in this document include the following:

- 1) Installation of deeper replacement wells
- 2) Long term use of Point-of-Entry Treatment (POET) Systems
- 3) Connection to the public water system

ALTERNATIVE #1: INSTALLATION OF DEEPER WELLS

This alternative evaluates the cost and feasibility of installation of deeper replacement wells. Due to the ground-water contamination, replacement wells would have to be completed as double-cased wells. The outer casing of double-cased wells acts to seal off the upper contaminated aquifer, preventing the migration of contaminants to the deeper aquifer. The replacement wells would then be completed in the next deeper aquifer, with the well screen set in the Piney Point aquifer. Replacement wells completed in the Piney Point Aquifer would require wells to be installed at a depth of between 350-400 feet. The outer casing (eight- inch diameter) would extend to a depth of 225 feet and be set into clays of the Lower Kirkwood Confining layer. The estimated cost of each replacement well includes the well construction, permit, pump, piping, wires and electrical upgrades, pressure tank, service connection, sealing of the former well, restoration and labor totaling \$43,000 per home. This estimate is based on actual costs for replacement wells of a similar depth and construction recently installed. Monitoring of water quality in the replacement wells for a period of five years was also included in this option. Initial water quality testing for all Private Well Testing Act parameters would be required, as well as

annual sampling for the contaminants of concern- volatile organics and perchlorate. Annual monitoring would be conducted at a rate of one sample per year for 5 years. Including labor and reporting costs would total \$2,500 per well. A total of 25 replacement wells would be needed to complete the project. Including costs for Engineering and Inspection (fifteen percent of subtotal) and Legal and Administration (five percent) the total estimated cost of this option is \$1,365,000. Uncertainties exist as to the viability of this option because the water quality of the Piney Point at this location has not been tested. Cost calculations for the CKE project area can be found in Attachment 1.

ALTERNATIVE #2: LONG TERM USE OF POET SYSTEMS

This alternative evaluates the use of a POET system to treat all the water entering a home. The alternative includes the installation and the long-term monitoring of the POET system. The contaminants found at concentrations exceeding a GWRS in the North East Ave and East Forest Grove Road CKE Area were volatile organic compounds and perchlorate. The volatile organic contaminants can be removed using a granular activated carbon (GAC) treatment system, and the perchlorate by a specific ion-exchange resin treatment system.

To calculate the cost of this alternative, it is assumed that POET systems will be installed in all the homes in CKE Project Area. Perchlorate was found in wells throughout the CKE but TCE was only found in a limited area with about 12 homes. Consequently, it is assumed that perchlorate system would be installed in all 25 homes but GAC POETs for the treatment of TCE would only be installed in 12 homes. For calculation purposes, it is assumed that the POET units will be installed at the start of the project, but in actual practice a POET system would only be installed if the well has confirmed contamination that exceeds a GWRS. This alternative assumes the POET systems will be installed and maintained for a 20-year period. The Net Present Value (NPV) for the POET system alternative is \$1,015,494.78. Tables that include the assumptions and cost estimates for the POET system alternative are included in Attachments 2 and 3.

ALTERNATIVE #3: CONNECTION TO THE PUBLIC WATER SYSTEM

This alternative evaluates the cost and feasibility of servicing the homes in the CKE Project Area and the one home located beyond the CKE with public water. This alternative considers the cost of extending a water line to the CKE Project Area, installing service connections, well sealing, engineering, legal and administrative expenses. The construction cost estimate was provided by the Vineland Township Department of Public Works and is shown in attachment 4. The estimated cost for the CKE is \$1,077,510 and the cost to service the home beyond the CKE is \$234,294.

ALTERNATIVE #3: WATER LINE EXTENSION			
ITEMS	# UNITS	UNIT COST	SUBTOTAL
WATER MAIN (L.F.)	6,700 feet	\$104.00	\$696,800.00
SERVICE CONNECTION	25	\$5,545.00 each	\$138,625.00
WELL SEALING	25	\$2,500.00 each	\$62,500.00
SUBTOTAL			\$897,925.00
ENGINEERING & INSPECT. (15% of Subtotal)			\$ 134,688.75
LEGAL & ADMIN. (5% of Subtotal)			\$ 44,896.25
TOTAL			\$1,077,510.00

ALTERNATIVES ANALYSIS

Three alternative water supply options were evaluated to determine their feasibility, reliability and cost. The alternatives considered were the installation of deeper replacement wells, the long-term use of POET systems and connection to a public water system. The use of POETs and the extension of water line were considered to be feasible and reliable. The installation of replacement wells is feasible but the unknown water quality of the deeper aquifer and the possibility of drawing the contamination deeper into the aquifer makes this alternative less reliable than the other two alternatives. The following chart summarizes the alternatives that were reviewed for the North East Ave and East Forest Grove Road CKE Project area.

ALTERNATIVES ANALYSIS SUMMARY			
NORTH EAST AVE AND EAST FOREST GROVE ROAD CKE PROJECT AREA			
ALTERNATIVE	FEASIBLE	RELIABLE	COST (NPW)
1. DEEPER WELLS	YES	NO	\$1,365,000.00
2. POETS	YES	YES	\$1,015,494.78
3. PUBLIC WATER	YES	YES	\$1,077,510.00

ALTERNATIVES ANALYSIS SUMMARY OUTLIER			
ALTERNATIVE	FEASIBLE	RELIABLE	COST (NPW)
1. DEEPER WELLS	YES	NO	\$45,500.00
2. POETS	YES	YES	\$23,428.20
3. PUBLIC WATER	YES	NO	\$234,294

Based on the available information and the assumptions made in this report, the most reliable and cost-effective water supply alternative for the North East Ave and East Forest Grove Road Ground Water Contamination CKE Project Area would be the installation and continued maintenance of POETs. The cost of this alternative for the North East Ave and East Forest Grove Road CKE Project Area is \$ 1,015,494.78. For the outlier home located at block 6902, lot 63 the most cost-effective alternative would be the continued monitoring and maintenance of the POET which is estimated to cost \$23,428.

RECOMMENDED ALTERNATIVE

The Bureau of Environmental Measurements and Site Assessment recommends funding Alternative 2, POET systems, as the most cost effective and reliable, long term water supply alternative. Therefore, that alternative has been recommended by the NJDEP for implementation. However, as the City of Vineland prefers the extension of public water lines, the monies associated with the POET systems alternative (\$1,015,494.78) may be made available to Vineland Township to partially fund the extension of the public water line via a Third-Party Contract. The difference in the cost between the extension of the water line and implementing the POET systems alternative would be entirely the responsibility of the City. The estimated cost of extending the public water line to the contaminated area through a Third-Party contract is \$1,077,510.00.

TABLE 1

CKE PROJECT AREA

Municipality: Vineland Township
County: Cumberland County

<u>BLOCK</u>	<u>LOT(S)</u>	<u>POET</u>	<u>POET Type</u>
903	23	NO	
903	24	NO	
909	9	YES	Granulated Carbon
909	10	NO	
904	1.02	NO	
904	1.03	NO	
909	11	NO	
904	1.01	YES	Granulated Carbon and Perchlorate Resin
909	12	NO	
904	1	NO	
909	13	NO	
909	14	NO	
904	48	NO	
909	15	NO	
909	16	NO	
904	46	NO	
904	45	NO	
904	44	NO	
904	43	NO	
904	41	NO	
904	42	NO	
909	19	NO	
1301	6	NO	
1401	100	NO	
1401	1	NO	

OUTLIER

<u>BLOCK</u>	<u>LOT(S)</u>	<u>POET</u>	<u>POET Type</u>
6902	63	Yes	Granulated Carbon

ATTACHMENT 1
Deeper Wells Alternative for Project Areas

ALTERNATIVE #2: INSTALLATION OF DEEPER WELLS – CKE PROJECT AREA			
ITEMS	# UNITS	UNIT COST	SUBTOTAL
REPLACEMENT WELL	25	\$25,000	\$625,000
WELL SEALING	25	\$5,000	\$125,000
MONITORING-5 YEARS	25	\$2,500	\$62,500
SUBTOTAL			\$812,500
ENGINEERING & OVERSITE (15% of Subtotal)			\$121,875
LEGAL & ADMIN. (5% of Subtotal)			\$40,625
TOTAL			\$975,000

ALTERNATIVE #2: INSTALLATION OF DEEPER WELLS – OUTLIER			
ITEMS	# UNITS	UNIT COST	SUBTOTAL
REPLACEMENT WELL	1	\$25,000	\$25,000
WELL SEALING	1	\$5,000	\$5,000
MONITORING-5 YEARS	1	\$2,500	\$2,500
SUBTOTAL			\$32,500
ENGINEERING & OVERSIGHT (15% of Subtotal)			\$4,875
LEGAL & ADMIN. (5% of Subtotal)			\$1,625
TOTAL			\$39,000

ATTACHMENT 2
CKE Project Area - POET Alternatives

POET COST ASSUMPTIONS: ALTERNATIVE #2	
# OF GAC REBEDS REQUIRED	1 TANK REBED/POET/YEAR
# OF PERCHLORATE REBEDS	1/5 YEARS
# OF VOC SAMPLES (<25 ppb total VOCs) (EPA 524)	3 SAMPLES/POET/YEAR
# PERCHLORATE SAMPLES (METHOD 331)	3 SAMPLES/POET/YEAR
# SERVICE CALLS	2 SERVICE CALL/POET/YEAR
# OF PREFILTER CHANGES	2 PREFILTERS/POET/YEAR
INFLATION RATE	6%
INTEREST RATE	8%

POET SUMMARY IN CKE AREA			
	GAC	Perchlorate	WATER SOFTENER
POET INSTALLATIONS NEEDED	10	24	0
EXISTING POETS	2	1	0
TOTALS	12	25	0

OF DEVELOPED LOTS IN CKE AREA USING A POTABLE WELL 25

GAC POET YEARLY SAMPLING RATES		
CONTAMINANT TYPE & LEVEL	SAMPLES /YEAR	# POETS
VOC < 25 ppb	3	12
Perchlorate	3	25

NET PRESENT VALUE (NPV): ALTERNATIVE #2				
ITEM	# POETS	QTY/YEAR/ POET	2018 UNIT PRICE	NPV SUBTOTAL
NEW GAC POET	10		\$1,200.00	\$12,000.00
NEW Perchlorate POET	24		\$3,050.00	\$73,200.00
GAC REBEDS	12	1	\$350.00	\$81,998.70
Perchlorate REBEDS	25	0.2	\$900.00	\$87,855.75
Perchlorate SAMPLES	25	3	\$275.00	\$402,672.19
VOC SAMPLES	12	3	\$200.00	\$140,569.20
PREFILTERS	25	2	\$25.00	\$24,404.38
SERVICE CALLS	25	2	\$100.00	\$97,617.50
TOTAL NPV POET ALTERNATIVE				\$1,015,494.78

ATTACHMENT 3
Outlier- POET Cost Assumptions

POET COST ASSUMPTIONS: ALTERNATIVE #2	
# OF GAC REBEDS REQUIRED	1 TANK REBED/POET/YEAR
# OF VOC SAMPLES (<25 ppb total VOCs) (EPA 524)	3 SAMPLES/POET/YEAR
# SERVICE CALLS	2 SERVICE CALL/POET/YEAR
# OF PREFILTER CHANGES	2 PREFILTERS/POET/YEAR
INFLATION RATE	6%
INTEREST RATE	8%

POET SUMMARY IN CKE AREA			
	GAC	Perchlorate	WATER SOFTENER
POET INSTALLATIONS NEEDED	0	0	0
EXISTING POETS	1	0	0
TOTALS	1	0	0

OF DEVELOPED LOTS IN CKE AREA USING A POTABLE WELL 1

GAC POET YEARLY SAMPLING RATES		
CONTAMINANT TYPE & LEVEL	SAMPLES /YEAR	# POETS
VOC < 25 ppb	3	0

NET PRESENT VALUE (NPV): ALTERNATIVE #2				
ITEM	# POETS	QTY/YEAR/POET	2010 UNIT PRICE	NPV SUBTOTAL
NEW GAC POET	0	NA	\$1,200.00	\$0.00
NEW WATER SOFTENER	0	NA	\$500.00	\$0.00
GAC REBEDS	1	1	\$350.00	\$6,833.23
VOC SAMPLES	1	3	\$200.00	\$11,714.10
PREFILTERS	1	2	\$25.00	\$976.18
SERVICE CALLS	1	2	\$100.00	\$3,904.70
TOTAL NPV POET ALTERNATIVE				\$23,428.20

ATTACHMENT 4

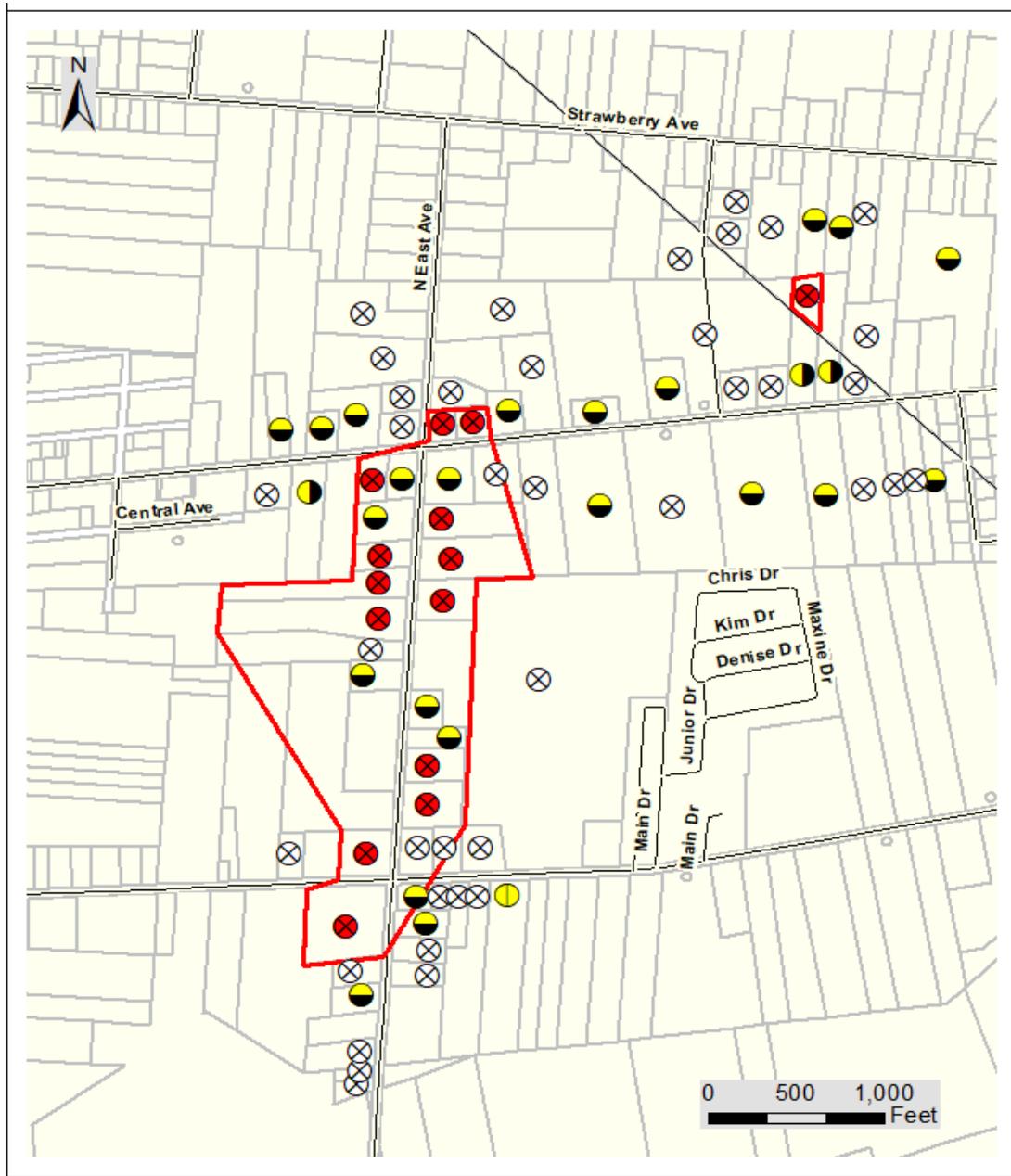
WATERLINE COST ESTIMATE

Provided by Township of Vineland, Cumberland County NJ

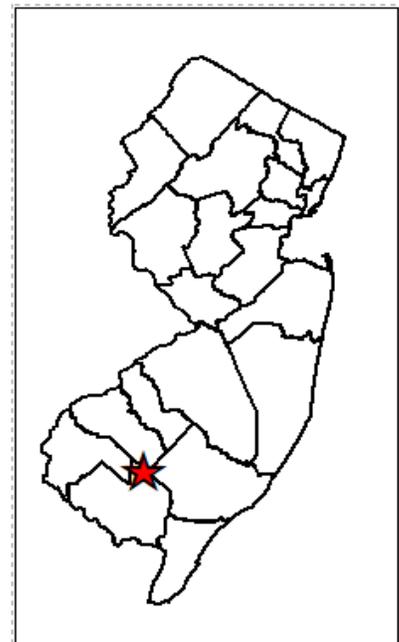
Vineland Township Department of Public Works

ITEM	Unit	Qty	Unit Material	Material Subtotal	Unit Labor	Labor Subtotal	ITEM Subtotal
8" Water Main (including valves & fittings and restoration) N. East Ave. - end of existing main to E. Forest Grove Rd. (5,700') E. Garden Rd. - from N. East Ave. extending 300' east. E. Forest Grove Rd. - from N. East Ave. extending 400' east. E. Forest Grove Rd. - from N. East Ave. extending 300' west.	feet	6700	\$14.00	\$93,800.00	\$90.00	\$603,000.00	\$696,800.00
Bridge Crossing on N. East Ave. (directional drilling)	ls	1		\$ -	\$50,000.00	\$50,000.00	\$50,000.00
Contaminated Properties - Service Connections	ls	25		\$ -	\$5,545.00	\$138,625.00	\$138,625.00
Contaminated Properties - Well Sealing & Certification	ls	25		\$ -	\$2,500.00	\$62,500.00	\$62,500.00
						TOTAL	\$947,925.00

FIGURE 1



North East Ave & East Forest Grove Rd
Currently Known Extent (CKE) Map
Vineland, NJ 08360



Legend

- ⊗ No Response/ Denied Access
- ⊗ Sampled: Exceeds NJDEP GWQS
- ◐ Sampled: Detect (below GWQS)
- Sampled: Non-Detect
- Currently Known Extent (CKE)

GWQS (Ground Water Quality Standards)

Table 2
IEC Potable Water Results

Block	Lot	Date Sampled	Sample Type	Sample ID #	COC1	PPB	COC2	PPB	COC3	PPB
903	8	Owner Refused								
		No Response from Owner								
903	11	Owner Refused								
		No Response from Owner								
903	12	7/26/2016	Initial	PW-21	Perchlorate	1.49				
903	13	7/26/2016	Initial	PW-18	Perchlorate	3.24				
903	14	Owner Refused								
		No Response from Owner								
903	16	Owner Refused								
		No Response from Owner								
903	17	Owner Refused								

		No Response from Owner								
903	18	1/11/2017	Initial	PW-22	Perchlorate	0.29				
			Dup	PW-22	Perchlorate	0.52				
903	20	1/11/2017	Initial	PW-23	Perchlorate	4.41				
903	21	Owner Refused								
		No Response from Owner								
903	21.1	Owner Refused								
		No Response from Owner								
903	22	7/26/2016	Initial	PW-4	Perchlorate	0.77				
903	23	7/26/2016	Initial	PW-15	Perchlorate	9.89				
		11/21/2016	Confirmation		Perchlorate	9.35				
903	24	7/26/2016	Initial	PW-19	Perchlorate	6.38	TCE	0.56		
		11/21/2016	Confirmation		Perchlorate	5.8				

903	25	Owner Refused								
		No Response from Owner								
903	26	Owner Refused								
		No Response from Owner								
904	1	7/9/2010	Initial		TCE	1.26			Chloroform	1.56
904	1.01	1/19/2005	Initial	PW- 2	TCE	11.4	Toluene	3.19	Chloroform	0.28
		7/26/2016	Initial		TCE	3.1	Pechlorate	4.91		
		7/26/2016	Duplicate		TCE	3.4	Perchlorate	5.15		
904	1.02	7/26/2016	Initial	PW-7	TCE	0.97	Perchlorate	1.96		
		11/21/2016	Confirmation		TCE	1.0				
904	1.03	Owner Refused								
		No Response from Owner								
904	1.04	Owner Refused								
		No Response from Owner								

904	2	7/26/2016	Initial	PW-3	Perchlorate	1.88				
904	3	Owner Refused								
		No Response from Owner								
904	4	7/26/2016	Initial	PW-1	Perchlorate	4.32				
904	6	7/26/2016	Initial	PW-16	Perchlorate	1.82				
904	7	Owner Refused								
		No Response from Owner								
904	9	7/26/2016	Initial	PW-6	Perchlorate	1.08				
904	41	5/22/2018	Initial	PW-38	Perchlorate	3.27				
904	42	Owner Refused								
		No Response from Owner								

904	43		Initial		Perchlorate	6.95				
		1/11/2017	Confirmation	PW-27	Perchlorate	6.95				
		4/26/2017	Confirmation	PW-27	Perchlorate	6.65				
904	44	7/26/2016	Initial	PW-20	Perchlorate	6.03				
		11/21/2016	Confirmation	PW-20	Perchlorate	5.57				
904	45	7/26/2016	Initial	PW-9	Perchlorate	0.28				
904	46	7/26/2016	Initial	PW-8	Perchlorate	4.9				
			Duplicate		Perchlorate	4.91				
904	47	Owner Refused								
		No Response from Owner								
904	47.01	Owner Refused								
		No Response from Owner								
904	48	8/2/2011	Initial		TCE	1.73	Toluene	4.87	Chloroform	13.9
		8/9/2011	Confirmation		TCE	3.08	Toluene	6.3	Chloroform	16.2
		7/26/2016	Confirmation	PW-5	TCE	9.7	Perchlorate	2.03		
		5/22/2018	Confirmation	PW-5	TCE	6.8	Perchlorate	1.85		

909	7	10/24/2017	Initial	PW-36	Perchlorate	2.79				
909	9	7/26/2016	Initial	PW-12	Perchlorate	3.53	TCE	2.9		
		11/21/2016	Confirmation				TCE	3.1		
909	10	7/26/2016	Initial	PW-14	Perchlorate	3.48				
909	11	7/26/2016	Initial	PW-17	Perchlorate	1.17				
909	12	6/3/2014	Initial		TCE	2.06	MTBE	0.68		
909	13	5/6/2014	Initial		TCE	19				
		7/26/2016	Initial	PW-10	Perchlorate	4.28				
		6/18/2018	Initial	PW-10	TCE	3.1	Perchlorate	3.11		
909	14		Initial		TCE	Unknown				
909	15	Owner Refused								
		No Response from Owner								

909	16	01/11/0217	Initial	PW-28	Perchlorate	1.8				
909	19		Initial		Perchlorate	18.9				
		1/11/2017	Confirmation	PW-26	Perchlorate	18.9				
		4/26/2017	Confirmation	Pw-26	Perchlorate	17.3				
909	21	Owner Refused No Response from Owner								
914	25	8/7/2018	Initial	PW- 41	Perchlorate	0.84				
914	26	Owner Refused No Response from Owner								
914	27	Owner Refused No Response from Owner								
914	28	Owner Refused No Response from Owner								

914	29	7/26/2016	Initial	PW-13	Perchlorate	2.78				
914	30	10/24/2017	Initial	PW-37	Perchlorate	2.33				
914	32	10/24/2107	Initial	PW-35	Perchlorate	2.13				
1301	6	4/26/2017	Initial	PW-31	Perchlorate	5.79				
			Dup	PW-31	Perchlorate	6.14				
1301	7	8/7/2018	Initial	PW-42	Perchlorate	0.67				
1301	8	7/26/2017	Initial	PW-33	Perchlorate	2.27				
1401	1	4/26/2017	Initial	PW-32	Perchlorate	4.97				
1402	2	Owner Refused								
		No Response from Owner								

1401	3	Owner Refused								
		No Response from Owner								
1401	4	Owner Refused								
		No Response from Owner								
1401	5	7/26/2017	Initial	PW-34	Perchlorate	ND				
					TCE	ND				
1401	98	5/22/2018	Initial	PW-40	Perchlorate	1.44				
1401	99	5/22/2018	Initial	PW-39	Perchlorate	0.26				
		5/22/2018	P-Dup	PW-39	Perchlorate	0.31				
1401	100	4/26/2017	Initial	PW-30	Perchlorate	0.8				
6902	4	Owner Refused								
		No Response from Owner								
6902	6	1/11/2017	Initial	PW-25	Perchlorate	0.59				

6902	7	1/11/2017	Initial	PW-29	Perchlorate	0.87				
6902	8	Owner Refused No Response from Owner								
6902	11	1/11/2017	Initial	PW-24	Perchlorate	2.44				
6902	61	Owner Refused No Response from Owner								
6902	63	7/26/2016	Initial	PW-11	Perchlorate	0.73	TCE	2.2		
6902	66	Owner Refused No Response from Owner								
6902	67	Owner Refused No Response from Owner								

